# Journal of Childhood, Education & Society

## Volume 5 • Issue 2
## July 2024

# Journal of Childhood, Education & Society

## CONTENTS

# Children's everyday lifeworlds out of school, in Hong Kong, Melbourne, and Singapore: Family, enrichment activities, and local communities

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**Abstract**: Children's everyday lives beyond school need to be considered holistically, in a way which moves beyond time use. In this article we draw on our adaptation of Sarah Pink's (e.g. 2012) video re-enactment methodology for considering children's out-of-school lifeworlds with Year 4 children (9 and 10 years old) in the global cities of Hong Kong, Melbourne, and Singapore. The data presented and discussed here was part of a larger Global Childhoods Project with children in the three global cities of Melbourne, Hong Kong, and Singapore. We use video re-enactment methodology to 'think with', to open up lines of inquiry and create conversations about children's lives in and between the cities. Through these we consider the specifics of each city context, as well as socioeconomic and sociocultural contexts and factors that may impact differently on children's everyday lifeworlds out-of-school within the same city. In order to focus the scope of the article, we consider family routines, enrichment activities and local communities, as aspects that we find useful to reflect on when exploring what children's lives look like, in and across locations. We focus on these as we are interested in how they might add to the complexities of thinking about children in each location. We move between thinking about the re-enactments themselves and broader literature to explore children's out-of-school lifeworlds in the three cities, painting a picture of children's lives and considering the contexts which make particular activities and practices possible and desirable.

## Introduction

The data reported in this paper is drawn from a project entitled Global Childhoods: Lifeworlds and educational success in Australia and Asia which was designed to explore and better understand children's lifeworlds and their orientations to educational success in three global cities: Melbourne, Hong Kong, and Singapore. Schutz (1964) has suggested that the lifeworld is the taken for granted everyday experiential world of individuals. The project sought to explore children's lifeworlds inside and outside of school in the three cities. To do this, we drew on four data collection sources: a video re-enactment methodology in the children's homes (see Yelland et al., 2023), class ethnographies that were constructed over the period of a week at two times in the year, a learning dialogues activity (Yelland & Bartholomaeus, 2021) where the children responded to prompts about their learning and goals for their schooling experience, and a student survey with 643 respondents (see Lee et al., 2023) all derived from their classrooms. The Project[*] took a multidimensional view of children's lives, researching with children, teachers, and parents, drawing on conversations, direct responses to our questions, and our observations, to explore perspectives and contexts of children's everyday lifeworlds.

We resonated with the (new) sociology of childhoods theoretical framing of childhood from a

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sociological, rather than the traditional psychological, perspective. In viewing childhood as a social construction, we feel it is necessary to consider children's social and cultural milieu and their active construction of their own identities in their own unique contexts (Prout & James, 1997). The field of childhood studies draws on this original work and has tended to focus on social constructions of childhood and children's agency (Spyrou, 2018). In the Global Childhoods Project, we were wanting to involve the children in collecting data on their own lives. We were interested in how the children viewed their lives as we attempted to consider some of the contributing elements to them. We were also conscious that our data collection constituted only one part of the context of their lifeworlds incorporating data directly from the participants and we began with the learning dialogues (Yelland & Bartholomaeus, 2021) and followed with the re-enactments. Our methodology included engaging directly with the children about their experiences and we also included methods that are broader than their own perceptions about themselves (survey and classroom ethnographies). Thus, the data collection in each of the cities took place in Year 4 classrooms in schools, and we also went into the homes and communities with seven children to re-enact their activities, routines and family events when they were not in school. We did this because traditionally, educational success is determined by considering the performance of children in high stakes tests that occur in schools. We wanted to consider and reflect on broader aspects of their activities and performance, and this meant investigating their lifeworlds beyond school.

We use, the concept of lifeworlds to explore children's everyday lives at home, in school, and in their communities (Yelland et al., 2008). We also consider lifeworlds in the plural to explore the multiplicity and diversity of children's lives, extending on from previous writing about the singular lifeworld (see Lee et al., 2023). These everyday experiences include the taken for granted actions and activities that are socially and culturally embedded in their lives. We think that explicating them for study enables a holistic picture of children's lifeworlds and orientations to educational success that is more detailed than simply putting a numeric value on their performance in school in three curriculum areas (Mathematics, Science and Language) that are characteristic of high stakes tests content areas.

The learning dialogues and re-enactments were regarded as data where the children's voices about their learning experiences was collected directly with them. They also provided an opportunity to uncover aspects of children's lifeworlds which had hitherto only been considered in a minimal way, thus making them visible for analyses. We were not only interested in what they were doing out of school but how these experiences might connect with the processes of schooling in any way. For example, we pondered if children's everyday lives at home and in communities, were as closely structured into routines and timetable options as we saw in schools. By engaging in conversations with children around what constituted their everyday lives out of schools we were able to further build narratives of their lifeworlds that reflected the diverse nature and capacity of the children.

Pink and Leder Mackley (2014) emphasised that in order, "…to research everyday ethnography we need to be 'in there' and part of the very flow of life that we are researching" (p 146). Originally, Pink (2012) conceptualised re-enactments as an in-situ technique where (adult) participants were filmed as they explain their daily routines. We needed to modify the process since the young children needed a lot more prompting and structure to have conversations about what they were engaging in, supported by their parents. We trialled this approach in 2015 and this facilitated the documentation of the children's everyday lifeworlds that enabled us to describe their routines after school and at weekends by recording their descriptions and explanations about them. Pink and Leder Mackley (2014) contends such re-enactments 'bridge the gap between representation and action. It involves doing, imagining, and representing and thus invites us to ask questions about what it is then that we are seeking to access…" (p153)

**Overview**

Children's lives outside of school are often considered in relation to time use and participation in particular activities (e.g., Mullan, 2020; Rees, 2017). These studies are useful in thinking about the key activities undertaken by children and the proportions of time allocated to them. However, more research is needed which considers children's lives holistically, paying attention to the flows of everyday life and

connections between activities.

Sarah Pink developed the video re-enactment methodology to explore everyday life, including in relation to energy use (e.g., Pink, 2012; Pink & Leder Mackley, 2014). The video re-enactment methodology asks people to literally re-enact their everyday routines, sparking memories and reflections, but also contributing more sensory experiences and understandings. We adapted this methodology to explore Year 4 (9-10-year-old) children's out-of-school lifeworlds at home, in school, and in their communities in the global cities of Hong Kong, Melbourne, and Singapore (see Yelland et al., 2023, for a detailed description of the adapted re-enactments methodology).

Elsewhere we have written narratives drawing on the re-enactments and detailing a day in the life of children in Hong Kong, Melbourne, and Singapore (e.g., Bartholomaeus et al., 2023). In this article we think differently with the re-enactments, exploring aspects of children's lives in more detail and in relation to each other. Importantly, we also situate these out-of-school lifeworlds in the context of each global city, while maintaining a consideration of diversity within each location. To do this we deliberately position city statistics and data next to our re-enactments, considering the broader contexts alongside individual children's lifeworlds. From our research we can see that children's out-of-school lifeworlds are made up of many overlapping aspects, such as family, homework, tutoring, enrichment activities, leisure activities, and local communities. In order to focus the scope of this article, we concentrate on family, enrichment activities, and local communities. These are three aspects that particularly interest us here when thinking within and across the three locations, and have arisen as focus points from our conversations in our international research team. Focusing on three aspects also allows us some depth in our discussions, rather than a broader overview focus of many aspects and activities.

There is limited writing about children's out-of-school lifeworlds in Hong Kong and Singapore, with attention often focused instead on homework, tutoring, and academic performance in high-stakes tests (some important work has been conducted in these areas, e.g., Tam & Chan, 2011; Tan, 2017, 2019). While these aspects are important in the context of these locations, there is much more to children's lives than these. In some ways there is more consideration of children's lifeworlds holistically in Melbourne, although school is also often a focus. Our work here then seeks to add more depth and richness to understandings of children's lives in the locations.

Here we first provide contextual information regarding each global city before exploring why re-enactments were a useful source of data and some of the themes from the data (Braun & Clark, 2006). We then focus on three themes in more detail and discuss family routines, the types of enrichment activities participated in, and the impact of local communities on the geography of the activities in the children's everyday lifeworlds. More specifically, we consider family in terms of the family members children spend time with (parents, siblings, and extended family members, particularly grandparents) and the things they do together, enrichment activities in terms of both extra-curricular school activities and organised activities outside of school, and local communities with a particular focus on mobility, considering travel to school and the location of their activities within their neighbourhoods and beyond.

## The Contexts of Children's Lifeworlds in Hong Kong, Melbourne, and Singapore

The descriptions regarding the contexts of each global city constitute important background context information to think about children's lifeworlds in each of the locations. We also include mention of schooling as this has implications for the amount of time children have outside of school and impact on some potential connections between school and home.

### Hong Kong

Hong Kong has been a Special Administrative Region of China since 1997. The total land size of Hong Kong's islands is 1113.76 square kilometres (Lands Department, 2021). In the 2021 Census, Hong Kong had a population of 7.4 million (over 7.3 million Usual Residents and nearly 80,000 Mobile Residents – people staying outside of Hong Kong, including for work) (Census and Statistics Department, 2021). Children aged 5-14 years old made up 7.8% of the population (578,844 children) (Census and Statistics

Department, 2021), meaning it has the smallest percentage of children in our three focus locations. Statistics available at the 0-14 year age group show that 92.6% are listed as having Chinese ethnicity (Census and Statistics Department, 2021). Cantonese is the predominant language in Hong Kong, with 88.2% of the total population aged 5 years and over speaking Cantonese at home, although English and Putonghua (Mandarin) are also common as either usual languages or another spoken language used at home (58.7% English and 54.2% Putonghua) (Census and Statistics Department, 2021). Of the total population, 61.7% were born in Hong Kong, with this increasing to 91.6% for birth-14-year olds (Census and Statistics Department, 2021).

Most children in Hong Kong attend public sector schools for six years in primary school and six years in secondary school (GovHK, 2022). Whole-day primary schools in Hong Kong start at approximately 8:00am or 8:40am and finish at approximately 3:40pm. Children may have optional extra-curricular activities after school which are organised by the school. The school year runs from approximately early September to early July the following year, with schools required to offer 190 school days each school year.

*Melbourne*

Naarm (more commonly referred to as Melbourne, which we use here) is located on the unceded lands of the Kulin Nation in the state of Victoria in Australia. Greater Melbourne has a land size of 9992.6 square kilometres (Australian Bureau of Statistics [ABS], 2022b), much larger than Hong Kong and Singapore. In the 2021 Census, Greater Melbourne had a population of 4.9 million, of which just over 600,000 (12.3%) were 5-14 years old (ABS, 2022a). 82.7% of 5–14-year-old children in Greater Melbourne were born in Australia, with others born in countries including India, New Zealand, and China (ABS, 2022b). Just over a third of the total population of Greater Melbourne (34.6%) had both parents born in Australia (ABS, 2022a). English only was used at home for 61.1% of the total population of Greater Melbourne, with other languages including Mandarin and Vietnamese (ABS, 2022a).

Schooling is compulsory for 6-17 year olds, where most children attend primary school for Preparatory to Year 6, then secondary school from Year 7 to Year 12. Primary school generally runs from 9-3:30pm weekdays. The school year follows the calendar year and consists of four terms of approximately 10 weeks each.

*Singapore*

Singapore is an island city. It has the smallest land size of the three locations at 728.6 square kilometres (Singapore Land Authority, 2021). The Singapore population in the 2020 Census was 4.04 million, consisting of 3.52 million citizens and 0.52 million permanent residents (there were also an additional 1.64 million non-residents) (Department of Statistics Singapore, 2021a). Children 5-14 years old made up 10.0% of the population (405,130 children) (Department of Statistics Singapore, 2021a). The ethnic composition of 5–14-year-old children as described in the Census was Chinese (68.1%), Malays (15.9%), Indians (11.8%), and others (4.2%) (Department of Statistics Singapore, 2021a). Most children (86.4% of 349,975) were born in Singapore, with others born in places including Malaysia, Mainland China, and India. The most frequent language spoken at home for 5–14-year-old children was English (74.5%), with most also speaking another language at home, such as Mandarin (Department of Statistics Singapore, 2021a).

In Singapore, school consists of 6 years of primary and 4-5 years of secondary school, where students can participate in the Express Course, Normal (Academic) Course, or Normal (Technical) Course (Ministry of Education [MOE], 2022a). Primary schools in Singapore start at 7:30am or later, and tend to finish at around 1:30pm or 1:40pm. The school year follows the calendar year and runs for four terms of 10 weeks each. After school Co-Curricular Activities (CCAs) are organised by schools and are viewed as a key part of children's holistic development. CCAs are 'strongly encouraged' by the Ministry of Education at the primary school level, and are compulsory at the secondary school level (MOE, 2022b).

**Method**

**Researching Children's Out-of-school Lifeworlds Using the Video Re-Enactment Methodology**

As stated in the introduction and overview, we draw on Sarah Pink's (e.g., Pink, 2012; Pink & Leder Mackley, 2014) video re-enactment methodology to research children's everyday lifeworlds outside of school (see Yelland et al., 2023). Thinking with the concept of lifeworlds allows for a more holistic and nuanced understanding of children's lives, which includes (but is more than) everyday practices, activities, and experiences, drawing connections between different aspects. Re-enactments allow for a consideration of the everyday practices in children's lifeworlds. They also help to consider what makes activities possible and desirable for children, thinking through sociological, geographical, and cultural perspectives.

Discussions during re-enactments prompt the recollection of memories and details which may not be available in more conventional talking methods, such as interviews. People are then filmed as they re-enact their everyday activities, in a process where the research is co-created by participants and researchers as a re-presentation of their everyday lives (Pink & Leder Mackley, 2014). While Pink developed the re-enactment methodology for use with adults, we have found this useful to adapt for our research with children exploring their everyday out-of-school lifeworlds (for a more detailed discussion of this, see Yelland et al., 2023). However, Leder Mackley, Pink, and Moroşanu (2015) conducted some research with children as part of their work on home energy use, where children's re-enactments of their energy use helped them to explore in sensory ways their practices and experiences. Apart from this, to our knowledge, the video re-enactment methodology developed by Pink has not been used in research with children, although we are familiar with child-led tours and 'walk along' interviews with children (e.g., Loebach & Gilliland, 2010). The video re-enactments allow for further reflection as children literally re-enact their everyday routines and activities, sparking memories and sensory experiences.

**Participants**

Teachers who participated in the classroom ethnographies were asked to identify possible children whose families might be agreeable to allowing us to conduct the re-enactments with them. We had originally sought to include four children in each of the locations (two from each school involved in the ethnographies), although it proved to be difficult to find families who were willing to participate, due to privacy concerns associated with filming. Depending on the individual schools and locations, we also suggest this may have been related to the distance families lived from the school, whereby lengthy journeys on public transport were evident in Hong Kong and Singapore. Ultimately, a total of seven children were involved, all of whom were given pseudonyms: Siu Keung, Mei Mei, Andrew, and Charlotte in Hong Kong (from two schools), Madison and Seb in Melbourne (from the same school), and Ashley in Singapore. Parents were asked to discuss participation in the re-enactments with their child prior to taking part, to ensure they were happy to be involved in the research. All children participating had written parental consent. The day of the week was chosen by parent(s) in consultation with the researcher(s), to allow for the re-enactments to fit in with the children's lives.

The re-enactments were conducted in slightly differently forms in each of the three locations, due to a mixture of local conditions and specific family requirements. This reflects other research with children and young people that occur in different locations (e.g., Burningham et al., 2020). The re-enactment methodology as detailed above was largely followed in Hong Kong, where children were filmed as they re-enacted their regular activities after school for that day. The children in Melbourne did not re-enact each activity they participated in, as they often became more interested in discussing their activities and views in conversation with us. We view this in the context of their individual lifeworlds but also it became evident that children growing up in Melbourne may have been more familiar with being asked about their views. Finally, in Singapore still photography was used when re-enacting activities due to parental concern over privacy when videoing. The need for this modification potentially limited the depth of this re-enactment, as we were not able to record the full process of the re-enactment or our discussions in relation to the activity log for later analysis.

The re-enactments were conducted by local members of the research team in each location: the first and third author in Melbourne, the second author in Hong Kong, and another researcher on the project in Singapore. The language used reflected the locations and specific families, with English used for the re-enactments in Melbourne and Singapore, and Cantonese in Hong Kong. The Hong Kong video and audio recordings were translated into English, and English captions were added to the edited re-enactment videos for sharing within the research team.

## Results and Discussion

### Family Composition

Family was central to the children's out-of-school lifeworlds in each location. Parents were highly involved in their children's lives, as might be expected of children at this age and in these locations. In this section we reflect on the family composition and their routines and interactions. This includes between the children with their parents and siblings, as well as ritualised family time and connections with extended family. We explore these through examples from our re-enactments with children in each location, as well as the broader contextual literature. Rather than being explicitly focused on differences between children in the locations, we are interested in considering children's family lives in each location.

For contextual background, it is useful to briefly consider some of the broader data around children and families, as well as living arrangements, in each of the locations. Hong Kong has an ageing population and low birth rate, with the 2021 Census indicating that 78.9% of households included no children under 15 years old (Census and Statistics Department, 2021). 13.1% of households had one child, 7.1% had two children, and 0.9% had three or more children (Census and Statistics Department, 2021). 1.4 was the average number of children in domestic households with children aged under 15 (Census and Statistics Department, 2021). In terms of housing, flats and units are most common, in the form of occupied private residential flats (45.0%), public rental housing units (30.1%), and subsidised sale flats (15.4%) (Census and Statistics Department, 2021). The median floor area of domestic households was 40m$^2$ and just under half of households were owned by their occupants (Census and Statistics Department, 2021).

In Melbourne, the 2021 Census showed that 39.0% of family households had children under 15 years old (family households do not include single person households) (ABS, 2022b). Of those family households with children under 15, these were mainly two parent families (83.3%), with fewer one parent families (16.7%) (ABS, 2022b). The average number of children per family with children in Greater Melbourne was 1.8 (ABS 2022a). Data from the Longitudinal Study of Australian Children (LSAC) indicates that in Australia, the participating 8–11-year-olds were most likely to live with one sibling (over 40%) or two or more siblings (just under half), with few not living with siblings (under 10%) (Australian Institute of Family Studies, 2017). In Australia, most children live in detached houses, with mortgages and home ownership high (Warren, 2018). The average floor area of new houses built in Greater Melbourne was 247m$^2$ (in both 2012 and 2021) (ABS, 2022c), with no clear statistics for total houses in Greater Melbourne.

The 2020 Census in Singapore indicated that just under half (47.7%) of households were married couple-based families with children (Department of Statistics Singapore, 2021b). Families are most likely to have two children (measured as number of children born per resident ever-married female = 2.04 children) (Department of Statistics Singapore, 2021a). Most homes are owner-occupied (87.9%) and Housing Development Board (Housing Development Board, nd) flats are the most common form of housing (78.7%) (Department of Statistics Singapore, 2021b). The floor area of household residences varies, where in 2021 three quarters of households had a floor area larger than 60m$^2$ (including 24.0% of households having a floor area of more than 120m$^2$) (Department of Statistics Singapore, nd).

### Family Composition: Parents, Siblings and Routines

All the children participating in the re-enactments lived with their mother and father, and at least one sibling (one child in each city had two siblings: Siu Keung, Seb, and Ashley). In Hong Kong, the children in the re-enactments lived in a flat in a private residential housing estate (Andrew and Siu Keung),

a four-storey house (Charlotte), and a public housing estate (Mei Mei); in Melbourne they lived in in detached houses, one in a one storey home (Madison) and the other in two storeys (Seb); and in Singapore in condominium housing (Ashley).

Andrew in Hong Kong, lived with his mum, dad, and younger sister in a private residential flat which the family owned. Andrew followed a well structure regime planned by his parents which focussed on academic activities. His father directed him back to his homework when he got distracted and also revised the content of the homework with Andrew for about 15 minutes every night, with the reason being given that this would strengthen his learning. At the same time, they also showed that they were able to relax in leisure activities as he was allowed to spend a significant amount of time on electronic devices over the weekend, and watched various types of shows on his mobile phone on the car journey home from school. While Andrew had previously played traditional (non-electronic) games at home with his sister, and occasionally his parents, his leisure interests were focused on his mobile phone where he had the choice of what he was doing. Andrew's family had two family rituals. One was watching a Hong Kong sitcom together after dinner each weeknight from 8pm-8:30pm. The other was a bedtime talk routine where Andrew and his sister spoke with their parents on their parents' bed for about 15 minutes each night. This event seemed to be intended to foster their close relationship with each other and they indicated that they would talk about anything that the children brought up in conversation. Originally, they played games and riddles but they indicated that more recently it had shifted to conversations about what happened at school.

The three other children in Hong Kong also ate dinner together as a family, and Siu Keung and Mei Mei played games with their siblings, although Siu Keung often spent time by himself. Mei Mei and her family went out for yum cha for two hours on Sundays and spent the rest of the day shopping and walking around the city, while Siu Keung's family had yum cha with the grandparents, similarly on Sunday for two hours. Siu Keung's family sometimes went out for a walk or to visit the library or the club house, and Charlotte also often went for a walk with her parents around their neighbourhood. Mei Mei sometimes went to the market to shop for food with her mum and brother after school, walking around, eating snacks, and playing in the park. For Siu Keung, his father was away for work most of the week, so Siu Keung enjoyed watching television with him on Saturdays when he was home. Finally, Siu Keung and Charlotte attended church with their families at weekends.

In Melbourne, Seb's family had a regular Friday night dinner at the local pub, watching Australian rules football there during the season. On Saturdays they also had family dinner night at home and accompanied this with watching a movie. During the week there was less routine associated with eating dinner. His mum said they tried to eat with as many family members as possible, depending on who was home at the time and not playing sport. They also needed to walk their puppy so this was also a common activity for the family to do together. Both of Seb's parents travelled for work and his dad was often away from home. Seb shared a bedroom with his younger brother, but had his own 'playroom' where he built Lego models and displayed his sporting medals, which he proudly shared during the re-enactment. While Seb had two siblings, he spoke mostly about engaging in leisure activities alone (frequently building Lego models, reading books, and playing Minecraft on his iPad). This may partly be because Seb and his siblings participated in many sporting activities and were not always home at the same time. Seb also spent a lot of accompanying his siblings to sports, spending time travelling in the car and waiting at the different venues.

Also in Melbourne, Madison's family similarly had a regular Friday night dinner with her family (take out) and a family dinner and movies on Saturdays or Sundays, and dinner during the week was also eaten together. Weekends were for family time, and included a drive, or a weekend away. Madison also watched and discussed the nightly news with her parents, and had a snack and chat after school with family members. She was close to her older brother and she spoke about doing different activities with him. She also sometimes walked the dog with her family.

Ashley in Singapore also spent time with her family. She particularly spent time every day with one of her sisters, eating lunch, playing card games, reading books, and watching television. As with most of

the other children in the re-enactments, Ashley ate dinner with her family every night and the family spent time together at weekends.

*Connections with Extended Family*

Frequent connections with extended family are common in Hong Kong and Singapore. In Hong Kong, although multi-generational co-residence is uncommon because of the small living spaces, grandparents are an important source of informal social support to families, especially in childcare (Chen et al., 2022). Research in Singapore also indicates close intergenerational relationships (Narayanankutty & Dommaraju, 2023) and Singapore has a Proximity Housing Grant available to people buying a resale flat to live with or near their parents/child (Housing & Development Board, nd). Such frequent connections with extended family are less common in Australia, although this varies, with some grandparents providing childcare and a small number of grandparents living with grandchildren (Baxter & Warren, 2016).

In Hong Kong, Andrew had close connections to his extended family. They used to visit his maternal grandmother several times a week for dinner as they live close to each other, but this has reduced to two dinners a week (Monday and Saturday) due to Andrew's increasing academic load. One of these dinners is on Saturday night where they also see his mum's siblings and their children, where he mostly plays video games and phone games with his cousins. They visit his paternal grandmother each Friday for dinner. Mei Mei's family visited their grandparents about twice a month (on Sundays), and Siu Keung's family had yum cha with the grandparents on Sundays. Perhaps rather than spending time with grandparents or extended family, Charlotte spent extensive time in her community with her neighbours, which we discuss further in the local communities section below.

In Melbourne, Seb was looked after by his grandmother after school on Mondays, and was picked up from school on the other days by a 'nanny' (relative), which is unusual in Melbourne. This meant he saw extended family due to care arrangements. Otherwise, his mum said they generally had little time for extended family due to their involvement in sports, even though her parents and her partner's family lived in Melbourne. She indicated that they would have more time for extended family now that Seb's football season had finished. Madison and her family in Melbourne did not mention extended family during our visit. Similarly, Ashley and her family in Singapore also did not mention extended family, which is unusual in the context of Singapore.

Our discussions here indicate that the family routines that children experience is of primary importance at this age. Families often had regular routines of eating dinner together and engaging in activities such as watching television, going for walks, going shopping and/or going to church. All the children had siblings, although some seemed to spend more time together than others. Connections with extended family was particularly important in Hong Kong as shown in the re-enactments process, reflecting the broader literature regarding the topic.

**Enrichment Activities**

Enrichment activities are generally considered to be organised activities for children which are related to cultivating social and cultural capital and developing skills. This framing is common in Hong Kong and Singapore, but in Melbourne such activities are more likely to be viewed as leisure. However, the concept of enrichment is well established in Western countries, for example, in the well-known work of Lareau in the US (2011). Enrichment classes may also involve practise at home outside of lessons, as well as competitions and events. Academic tutoring is generally not viewed as enrichment as it more explicitly relates to academic improvement. Importantly, these activities may be enjoyed by children regardless of how they may, or may not be categorised by adults, and may be 'chosen' by parents or children. Which activities might be possible or desirable also needs to be considered, with opportunities differing not only by location, but also by class and cultural orientations, finances, and other factors.

In Hong Kong, enrichment activities constitute a prominent part of children's everyday lifeworlds outside of school, with children potentially trying out multiple activities to build their portfolio of

experiences. Middle-class parents ,in particular, seem to be keen to enroll their children in English-speaking, competitive, public or private schools (Karsten, 2015). Many parents are eager to cultivate valuable social and cultural skills in their children, and hence increase their competitiveness in a globalized economy (Choi, 2016; Karsten, 2015). Parents are likely to enroll their children in multiple enrichment activities to develop them broadly, rather than focusing on excelling in a smaller number of activities.

In Singapore, parents are also often keen to enroll their children in many non-academic enrichment activities. Tan (2017) suggests that while children who have parents with higher incomes have more access to these activities, regardless of class status most parents desire their children to participate in enrichment and tuition activities, in order to have a 'competitive edge' (p. 324). Some parents may also view participation in enrichment activities as important to help their child gain acceptance into elite schools (Tan, 2017).

In Melbourne, and Australia more broadly, the term enrichment is less common, as organized out-of-school activities such as sports and music tend to be viewed as leisure. However, as Skattebol and Redmond (2019) write, in the context of Australia, such out-of-school activities still 'have positive benefits for the development of the kinds of soft skills and longer-term aspirations that are valued in neoliberal society' (p. 77). Children are likely to participate in fewer, more focused activities, which are generally things they enjoy and choose, and which are related to the contexts of their families and neighbourhoods (including access to opportunities and financial limitations, see Skattebol and Redmond, 2019). However, it would seem that some families may be more purposeful in enrolling their children in these and some children in Melbourne/Australia may participate in activities due to parents' desires.

### Extra-curricular Activities

In Hong Kong and Singapore, primary school students frequently participate in extra-curricular activities or what might also be called enrichment activities organized     by schools and taking place at the schools. Hong Kong schools provide optional extra-curricular activities, in association with clubs and groups which are classified into five types: academic, sports, art, interest, and social services (Education Bureau, n.d.). In Singapore, students can choose CCAs from four groups: Clubs and Societies, Physical Sports, Uniformed Groups, and Visual and Performing Arts (MOE, 2022b). These classes are held for 2-3 hours once a week, although students may participate in more than one. Melbourne does not have such a structured approach to extra-curricular activities, although schools may provide some optional activities. One Australian study indicates that nearly a quarter of 10-11-year-olds participated in art/music/performance and/or team sports run as extracurricular activities provided by their school, although this was less common than participation in similar activities outside of the school (Rioseco, Baxter, and Warren, 2018).

In Hong Kong, Charlotte had two extra-curricular activities at school for one hour each: English Drama (Tuesdays 3:40-4:40 pm) and creating technology (coding) (Thursdays 3:40-4:40 pm). Andrew, who attended the same school, had football on Tuesdays and Thursdays, and ping pong on Wednesdays (all from 3:40-5:45 pm). Siu Keung, who attended a different school, had extra-curricular activities of school choir (Monday 3:40-4:30 pm), Olympic Maths (Thursday 3:40-5.00 pm), and occasionally athletic training (Friday, finished by 5:30pm). Finally, Mei Mei had leadership training (Tuesday 1:45-5 pm) and study club (Thursday 3:45-4:45 pm)

The narrated photo re-enactment with Ashley in Singapore showed that she had CCA at school on Tuesday and Friday from approximately 2:30-5:30 pm (i.e., 3 hours each), one of which was for music. Neither Madison nor Seb in Melbourne mentioned extra-curricular activities related to their school.

### Out-of-school enrichment and organized activities

Alongside their school extra-curricular activities (as discussed above), the children in Hong Kong participated in several out-of-school enrichment activities. Charlotte participated in Boys' Brigade Hong Kong (Saturday 2:00-4:30 pm), piano and drum lessons (Sunday 9:30-10.30), and church activities, including coding (Sunday 1:00-1:30 pm). Along with this, there may also be practice and homework

required, although Charlotte only did this occasionally, practicing piano and drums on Wednesdays for 15 minutes before dinner if she had finished her homework. Andrew, who attended the same school as Charlotte, had only one enrichment activity outside of school (tennis class on Sundays from 6 to 8 pm), although participated in other sports in school extra-curricular activities.

Outside of school Siu Keung had a piano lesson (Tuesday for 30 minutes) and he practiced piano on other days (Monday free time might include practicing piano and 15-30 minutes practice before lunch on Sundays), and a swimming lesson (Sunday after lunch for 1 hour). What might be taken from this example is that Siu Keung was enthusiastic about playing and practicing the piano, and excitedly showed us this activity during the re-enactment. Mei Mei, who attended the same school, had two one-hour swimming lessons (Thursday and Saturday), a community-based activity (cookery, handcraft, community service) (every second or third Friday until 8 pm, and Brownies (Saturday) 2-4 pm.

In Singapore, Ashley's out-of-school enrichment activities included a ballet class (1 hour on Mondays) and she practiced playing the drums for half an hour on Wednesdays and Thursdays, a musical instrument she chose to play (she initially was learning piano).

As previously stated, in Melbourne, organized activities such as those outlined above are generally not thought of in terms of being enrichment activities but instead are more likely to be viewed as leisure. Seb had swimming training and competitions on a regular basis throughout the year and also played Australian rules football in winter (games on Sundays). He mentioned he would like to add another sport (cricket) to his summer schedule but his mum's comments seemed to indicate that she was less keen for him to do this. Seb also had a one hour weekly piano lesson on Sundays and practiced alone for ten minutes a day. Madison similarly had sport and music interests, although these were more hobbies and ones she had not spent much time undertaking. She had basketball training and matches once a week each (Monday and Saturday respectively) and half hour swimming lessons (Wednesdays) and guitar lessons (Tuesdays).

Our overview of the approaches to enrichment activities in the three locations provides examples of what the specific children were engaged in from the re-enactments conversations. It highlights important contextual information about what is encouraged within each city as well as provides some reflections on the diversity in the activities of children in the same city. School-based enrichment activities are essentially compulsory in Singapore and are often regarded as an extension of the offerings in the school curriculum. Children in Hong Kong tend to participate in a broad range of enrichment activities, trying out different activities to seek what they like and might be good at before. The children in the re-enactments highlight some of the different forms these enrichment activities may take, where they are chosen in collaboration with parents but may be organized by their school or outside group or organization. Children in Melbourne are more likely to participate in such organized activities and regard them as being for leisure. Overall. sports and music seemed to be the most popular across the cities.

## Local communities

In this section we reflect on children's out-of-school activities in relation to their local communities, with a particular focus on mobility as this arose as a major topic discussed in each of the re-enactments. Here we focus on travel to school and location of activities.

### Travel to school

Travel to school, and the distance lived from school, are important aspects of children's being able to establish connections in their local communities. In Hong Kong the public primary education system is divided into 18 school districts, which can be further sub-divided into smaller school zones, which are known as 'school nets'. The Primary One Admissions System prioritises students with specific tiebreakers (such as children of school staff and siblings of school) and district residents over those with no tiebreakers and non-district residents. However, parents and their children could also apply for 'discretionary places' in competitive, popularly sought-after schools in other districts which might be a considerable distance from their homes (Wu, 2020). Entry to these schools is completed by interview (Wu, 2020). The 2021 Census shows that 66.1% of primary school students attended a school in the same district in which they lived

(Census and Statistics Department, 2021). 35.7% of primary school students primarily walked to school, indicating these were at a close distance from their homes, while others travelled using various forms of bus or railway, with few travelling by private car/passenger van (8.5%) (Census and Statistics Department, 2021).

In the state of Victoria where Melbourne is located, government schools are zoned, meaning children often attend schools in their local neighbourhoods, although private schools may require further travel. Parents may base their choice of school on aspects relating to convenience, whether other family members already attend the school, and academic and/or religious reasons (Warren, 2016). Despite school zoning, children in Victoria are most often driven to school by car, even when living within 2km of school (Department of Education and Training, 2019).

Singapore has a complex primary school enrolment system, based on factors including distance from school and alumni status of family members, as well as whether children are Singapore Citizens, Permanent Residents, or international students. Census data indicates that 43.0% of pre-primary and primary school children did not require transport to school, whereas 22.0% travelled by car/taxi/private hire car, 20.1% by public transport (train or bus), and 14.9% by other modes (Department of Statistics Singapore, 2021b).

For the children in the re-enactments in Hong Kong, the two children at the subsidised public school, were driven to school. Andrew's journey took 25 minutes by car, with his father driving. Charlotte's journey took 40-45 minutes with her mum doing the driving. The long travel time being due in part to having to drop off other children from the neighbourhood, although their house was still situated some 25km away from the school. Siu Keung took the bus with his grandmother most days (which she said was for safety), and this took almost 20 minutes, while Mei Mei had a 6-7 minute walk with her mum, but was increasingly walking by herself now she was in Primary 4. In Melbourne, both Madison and Seb had a short 10 minute walk home, Madison walking with her older brother or a parent, and Seb walking home with his younger brother from the same school and older sister from the nearby high school, along with an adult (most often a 'nanny' who was a relative). Finally, in Singapore Ashley took a 15-20 minute bus ride home by herself or with her sister.

### Location of activities

In thinking about children's local communities, we also explore the locations of their enrichment and organised activities, tuition, and leisure outside of the home. Karsten's (2015) research with middle-class families in Hong Kong highlights that children access activities in a range of locations and settings – with school, the local neighbourhood, and other neighbourhoods seeming to be prominent. Research in Australia has highlighted the importance of neighbourhoods for access to activities, where some children miss out on due to lack of suitable activities in the communities in which they live (Skattebol & Redmond, 2019).

We are particularly interested in Charlotte's frequent engagement with her neighbours in Hong Kong. While Charlotte attended a school some distance away from her home, her out-of-school activities were based in the local neighbourhood and she had many social connections with neighbours. Charlotte lived in a gated community where, to enter the housing estate where she lived, cars had to go through a security check. Charlotte's parents thus viewed this as a safe community for her to visit her neighbours, often riding her bicycle around the neighbourhood and dropping in on friends. As mentioned earlier, Charlotte's family did not seem to spend time with their extended family and their social circle was more centred on their neighbours. Charlotte's other activities were also close to her house, such as attending church in the neighbourhood, going to Boys' Brigade on Saturdays which was 3 kms away, and attending Sunday piano and drum lessons at teacher's house which was a 5–10-minute drive away.

Also, in Hong Kong, Andrew attended a variety of activities, some close to home (such as English tuition at a centre nearby) and others relatively far away (such as private tennis tuition with a friend on Sunday evenings). Andrew's father often drove him to activities, such as his extra-curricular school sports,

with his father noting that attendance at some of these activities was only possible if parents can transport their children. Siu Keung's activities were more focused on the local neighbourhood (perhaps partly because the family did not have a car), such as attending 'Sunday School' and mass service at the church at his school and attending private piano lessons in a shop near his home. His knowledge of his neighbourhood was well demonstrated when his mum asked him to take the second author to the train station after the re-enactment. Similarly, Mei Mei's family did not have a car and she walked to places or travelled by bus. She went to swimming lessons nearby, although this required a short bus ride which she sometimes took with her brother without their mum, although other children also travelled there. Mei Mei had keys to the family's flat and knew how to open the front security doors. She also attended community activities, including Brownies and community classes, as mentioned above.

Both children in Melbourne appeared familiar with their neighbourhood and attended activities which were close to home, and walkable by themselves. For both children this may have reflected the relative privilege of their neighbourhood and being able to have other activities nearby. Seb's family usually had dinner at the local pub on Friday, with Seb pointing in the direction of the pub as we walked home from school during his re-enactment. He also attended piano lessons which were a five-minute walk away, although travel to sports were often by car. Madison also had activities in her local community, attending a 'Fun Club' at the local library and an after-school care at her school, both for an hour once a week. Seb and Madison also sometimes accompanied a family member when taking their dog for a walk around their local community.

Ashley's activities in Singapore were more home based, including her Chinese tuition on Sundays when the teacher came to her home, which is common in Singapore.

Our consideration of local communities and children's physical mobility offers some interesting points on which to reflect. All of the children spent some time in their neighbourhoods, whether it was walking to school or other places, attending local enrichment or tuition activities, and/or visiting neighbours. However, access to transport impacted on what they could do beyond their local neighbourhoods. For example, in Hong Kong Andrew and Charlotte were driven to school and other activities by their parents. In contrast, Siu Keung's and Mei Mei's families did not have cars and therefore their activities were generally based closer to home. Children generally had little independent mobility, with only Mei Mei and Ashley mentioning travelling to school without an adult or older family member, and Mei Mei also taking public transport to swimming lessons with her younger brother and others without a parent. Most of the children demonstrated knowledge of their local communities, able to point things out to us on their journeys home from school or sharing other local knowledge of the areas in which they lived.

## Conclusions and Reflections

In this article we have offered a broad (literature based) and more focussed (video re-enactments) consideration of children's out-of-school lifeworlds in the global cities of Hong Kong, Melbourne, and Singapore. In particular, we have focused on three aspects of children's lives (family routines, enrichment activities, and the role of local communities in their activities) in order to consider the nuances and reflect on the complexities of thinking about children's everyday lives in each location. We suggest the use of the modified video re-enactments methodology, alongside the activity logs, have been useful to extend the existing time use research about what children do outside of school, as our focus enables a more detailed and nuanced consideration of individual children's lives in their communities. We also note the usefulness of including contextual data to situate the lifeworlds of the participating children. This is particularly important when considering what is possible and desirable within each location, such as what might be the expectations around enrichment activities and the contexts of children's local neighbourhoods. While our re-enactments were with a small number of children, including only one in Singapore, they were able to illuminate some aspects of children's lifeworlds in ways that other research approaches have not. This is particularly important in the context of Hong Kong and Singapore, where research more often focuses on children in terms of their academic activities.

We have offered a consideration of the three locations and explored the lifeworlds of children within them, rather than starkly comparing and contrasting. By drawing on both broader data and the re-enactments, we have been able to show some common themes and patterns within each location. While children in Hong Kong and Singapore may generally lead more 'scheduled lives' (Karsten, 2015) than children in Melbourne, this is clearly related to the socio-economic contexts in which they live, and it was evident that they took different forms for individual children. The ways in which school, extra-curricular activities, and enrichment activities are set up and made available are also important when considering children's lifeworlds, as we have demonstrated throughout the article. We have also tried to retain a consideration of diversity *within* each location. Sometimes this diversity can be lost when discussing multiple locations, as information is reduced to more simple explanations. The children in the re-enactments in Hong Kong attended two quite different schools, and this has already highlighted some potential differences in their out of school lives, such as access to activities, car travel, and the CCAs that may be available in different schools.

Importantly, we have also noted several similarities between locations. For example, all of the children spent considerable time with family members including their siblings, although some more than others. Most of the children engaged in activities relating to sports and music, although these differed in terms of time spent on them and intensity (e.g. competitiveness). While not wanting to suggest a universal childhood, these findings do highlight the significance of age with regard to what shapes children's lifeworlds, and how age is considered within each of the locations.

Finally, what our project has also shown is that it is invaluable to have an international team of researchers situated in each location being investigated when conducting a project like this (see also Yelland and Saltmarsh, 2013). An international team is essential for understanding context and for local knowledge, including language and cultural nuances. Within the research team we were able to have many conversations about interesting similarities and points of difference amongst the locations, often sparked by the contents of each re-enactment. Such discussions have also enabled each of us to reflect on our own assumptions about the locations in which we live and are most familiar with, when we have found it necessary to look at research to support (or counter) our generalisations and claims about what is 'common' in our city. We suggest continuing conversations such as these, extending thinking about children's lifeworlds within and across locations.

## Declarations

### *Authors' Declarations*

### *Publisher's Declarations*

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# A systematic review on factors influencing the development of children's creativity

Zaina Smare[1], Mohamed Elfatihi[2]

**Abstract**: No one can deny that creativity is essential for survival and a key skill for prosperity in the 21st century. In an era where the skill of creativity is the pathway to development, it is crucial that we nurture children's creativity to better prepare them for academic, professional, and personal success. Systematic reviews on factors that could support or impede children's creativity is scarce. The present review was conducted to fill this gap. Major electronic databases were searched and studies meeting predetermined selection criteria were analyzed. The search yielded 55 studies published between 2010 to 2022 in English. We classified influencing factors into four types: individual, family, educational, and socio-cultural factors. We concluded by discussing recommendations for parents, educational stakeholders and researchers.

Electricity is not only present in a magnificent thunderstorm and dazzling lightning, but also in a lamp; so also, creativity exists not only where it creates great historical works, but also everywhere human imagination combines, changes, and creates anything new" (Vygotsky, 1930/1967, cited in Smolucha, 1992, p. 54)

## Introduction

Creativity is one of the finest and highest skills and abilities that are needed to face the challenges and the uncertainties of the rapidly changing world of 21st century (Beghetto, 2021; United Nations Educational Scientific and Cultural Organization (UNESCO), 2022). It is regarded as a vital skill in today's world and recognized as a key competency by international organizations such as the Organisation for Economic Development (Organisation for Economic Co-operation and Development (OECD), 2004, 2008, 2018, 2022) and World Economic Forum (World Economic Forum, 2016, 2018). According to the World Economic Forum (2016), around 65% of today elementary school children will be employed in professions that have not been created yet. Frey and Osborne (2017) add that jobs which need a high level of creativity are not likely to be automated in the present era. This is because AI can only generate artificial creativity that lacks many features such as authenticity and problem finding (Runco, 2023). Therefore, specific focus should be placed on nurturing creativity especially in children.

### The Concept of Creativity

Forming a single universally accepted definition of creativity is a difficult task as the construct is multidimensional, encompassing cognitive, personality-related, and environmental factors (Metwaly et al., 2021). However, even though creativity is defined in various ways, there is a consistent emphasis on two elements that are fundamental in its description: originality and usefulness (Runco & Jaeger, 2012). Originality refers to the production of ideas that are new compared to other ideas currently available whereas usefulness characterizes ideas that have value. Beghetto and Glăveanu (2020) argue that this standard definition of creativity that emphasizes novelty and usefulness is overly product-oriented and does not appear to encompass the full construct.

Plucker and colleagues (2004) suggested the following definition in an attempt to represent and bring

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together diverse views found in the literature: creativity is "the interaction among aptitude, process, and environment by which an in dividual or group produces a perceptible product that is both novel and useful as defined within a social context" (p. 90). This definition is seemingly becoming more popular in the field (Batey, 2012; Beghetto et al., 2015). It takes into consideration the different perspectives found in other conceptions such as person and product. It is also in strong accordance with social cognitive theory (Bandura, 1986) which highlights the dynamic interplay and interaction among personal attributes, behaviors and environment while also acknowledging the active role of the person (Bandura, 2001).

Paul Torrance who is called the 'father of creativity' developed Torrance Tests of Creative Thinking (TTCT) based on Guilford's (1967) concept of divergent thinking to measure a person's capacity to produce different and original ideas to find a solution to a problem. These tests are one of the most popular tests in creativity research used to measure creative thinking, and they were translated into more than 35 languages (Millar, 2002). The test is based on measuring divergent thinking as conceptualized by Guilford (1967). Guilford views divergent thinking as a thought process used to produce various ideas to address a problem. This process is based on four sub-skills or sub-facets namely fluency, originality, elaboration and flexibility. Fluency is the ability to generate a great number of ideas to address a problem. Originality is defined as the ability to generate creative ideas different from those of others. Elaboration refers to the ability to develop ideas by adding details. Flexibility is described as the ability to produce a variety of ideas and solutions across various categories and different points of view.

It is important to note that two well-known frameworks have directed understanding and study of creativity. The first framework is the Four Ps of Creativity (Rhodes, 1961), in which creativity is structured in terms of Person, Product, Process and Press. Person refers to the individual or the creator who produces the creative product. Process are the steps or ways the creator follows to produce original ideas. Press is the environment around the creator, like school, family or culture that influence how they think and create. Product is the creative outcome or result of a creative process. The second framework is the Four Cs Model proposed by Kaufman and Beghetto (2009) which delineates four constructs that distinguish various degrees of creativity. It should be highlighted that it is inaccurate to describe creativity in people in terms of existence or non-existence (Dilekçi & Karatay, 2023). This is because creativity is present at various levels in everyone. Kaufman and Beghetto point out four levels of creativity (Beghetto & Kaufman, 2007, 2014; Kaufman & Beghetto, 2009). With respect to children, Little-c and Mini-c can be observed and nurtured. Figure 1 summarizes the descriptions of each level.
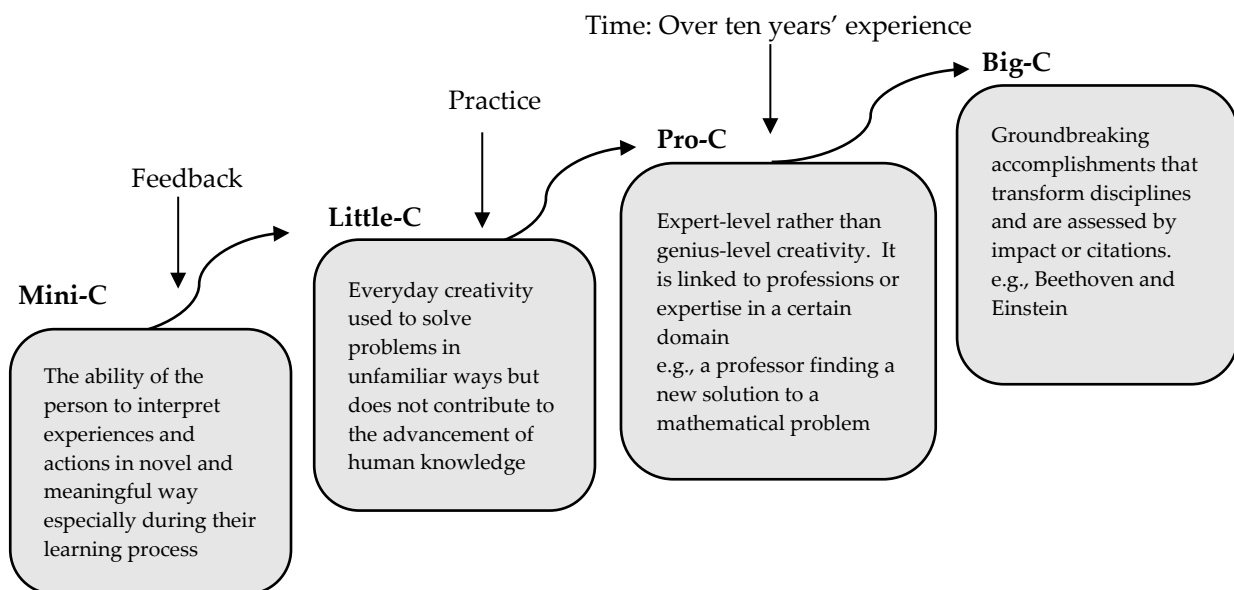


**Figure 1.** The Four Cs Model of Creativity (Beghetto & Kaufman, 2007, 2014; Kaufman & Beghetto, 2009)

In relation to creativity development, the environment or press plays a significant role. The first

theories and models of creativity focused on the person and the measurement of individual attributes related to creativity using psychological or psychometric approaches; however; more recent views and theories put emphasis on the role of the contextual factors that influence the ability to think creatively (Gomes et al., 2016; Henriksen et al., 2016; Shalley et al., 2004). Indeed, creativity does not emerge in a vacuum, rather it occurs within and is shaped by the social context. Sawyer (2006) and Wilson (2009) emphasize that the skill can be nurtured or stifled within the community in which the individual lives. An individual who is in an environment where creative ideas are not encouraged will find it difficult to be creative, whereas an individual who lives in an environment that promotes creative thinking is more likely to be a creative thinker (Kaufman, 2009).

**Creativity in Childhood**

Childhood is the golden age of creativity (Gardner, 2008). Each child has the ability to think creatively (Lee & Kemple, 2014) and to demonstrate and develop their creativity (Craft, 2002). However, if creativity is not encouraged in childhood, the likelihood of having adults equipped with this skill is low (Kaufman, 2018). Neurologically, the first years of life are very critical for developing the skill when the brain is still wiring (Eliot, 1999). As Shonkoff and Phillips (2000) indicated, the brain's capacity to develop and cope with environmental changes is more powerful during early childhood compared to other stages of life. Nevertheless, though children are endowed with a natural instinct to create, there is a need for an environment that supports creativity to develop in the early years of childhood (Shonkoff & Phillips, 2000). That is to say, creativity can be influenced by not only genetic factors, personality characteristics, cognitive capability, but also the surrounding environment, with the environment being a significant factor (Kandler et al., 2016; Velázquez et al., 2015). Korzynski, Paniagua, and Rodriguez-Montemayor (2019) add that creativity is not only a personal attribute but also a social phenomenon.

**Present Study**

To the best of our knowledge, there is no systematic review on the factors influencing the development of children's creativity. Existing systematic reviews focus on themes such as obstacles and opportunities for educators in promoting children's creativity in online learning environments (Maslin et al., 2023), how interventions, trainings and programs can foster creativity from an early age (Alves-Oliveira et al., 2021; Ruiz-del-Pino et al., 2022), creating a framework to explain how children are creative using complex dynamic systems theory (Kupers et al., 2019) and how digital technologies influence the development of young children's creativity (Fielding & Murcia, 2022). One systematic review investigated the role of context in developing adolescents' creativity (Zanden et al., 2020).

Systematic analysis of factors that might facilitate or hinder children's creativity is therefore scarce. A systematic review in this area is much needed to help understand the factors related to children's creativity development. The current review aims to fill this gap. A clear understanding of the factors that foster or impede the promotion of children's creativity would help parents, educational policy makers and teachers establish a supportive environment for nurturing creativity. Instead of asking a child at home or in the classroom to be creative, we need to provide them with an encouraging and an appropriate environment that can stimulate their creativity. Therefore, in line with the purpose of the current review, this study sets out to answer one research question: What factors influence the development of children's creativity?

These factors which are based on the findings of previous empirical studies were identified and categorized as effective recommendations discussed later.

It is important to clarify that this systematic review does not present a meta-analysis but rather aims to provide a comprehensive synthesis of the literature on factors influencing children's creativity. While meta-analyses statistically combine data from multiple studies, our systematic review aims to provide a thorough narrative synthesis of relevant literature.

## Method

Once the research question was formulated, systematic and explicit methods were employed to identify, choose and critically analyze pertinent research findings from major educational databases. Clear criteria for inclusion were formulated to specify which studies to choose for the review. The studies included are:

- studies on individual, family, educational and social-cultural factors that influence the development of children's creativity
- published between 2010 and 2022
- empirical
- published in English
- published in peer reviewed journals

Including individual, family, educational, and socio-cultural factors ensures a holistic understanding of creativity development in children. Focusing on empirical studies published between 2010 and 2022 ensures the incorporation of recent literature while maintaining relevance to contemporary insights and trends in understanding creativity development in children. Moreover, limiting the review to English publications enhances accessibility, making the findings valuable to a wider audience. Inclusion of peer-reviewed journals ensures the reliability and credibility of the reviewed literature.

Our inclusion criteria were designed to review studies that contribute to understanding the factors influencing children's creativity, including those published in journals with a broader disciplinary focus. By including these more general journals, we aimed to ensure a comprehensive review of the literature, encompassing diverse perspectives and insights that contribute to understanding the development of children's creativity.

The exclusion criteria for the current systematic review are as follows:

- Studies focusing on adult populations or individuals outside the specified age range.

- Non-empirical studies (e.g., literature reviews, theoretical papers).

- Non-English language publications.

- Studies published before 2010.

- Studies unrelated to factors influencing children's creativity

- Non-peer-reviewed research.

- Studies lacking methodological rigor (e.g., significant flaws).

### Data Collection

An extensive search for relevant studies was conducted in February 2023 and was based on different sources in order to include all the relevant studies in the review. The search process involved the use of various search databases, including ERIC (Education Resources Information Center), Taylor & Francis, Scopus, Web of Science, Springer Link, ScienceDirect and Jstore in addition to the search engine Google Scholar. Key journals specialized in studies on creativity and children such as Creativity Research Journal, Journal of Creative Behavior, Thinking Skills and Creativity, Psychology of Aesthetics Creativity and the Arts, Early Child Development and Care and Journal of Child and Family Studies were also searched. We also examined the reference lists of the articles identified to find additional pertinent studies. Studies were considered eligible if they met all the outlined inclusion criteria. Figure 2 provides a summary of the primary stages involved in gathering data for the systematic review.
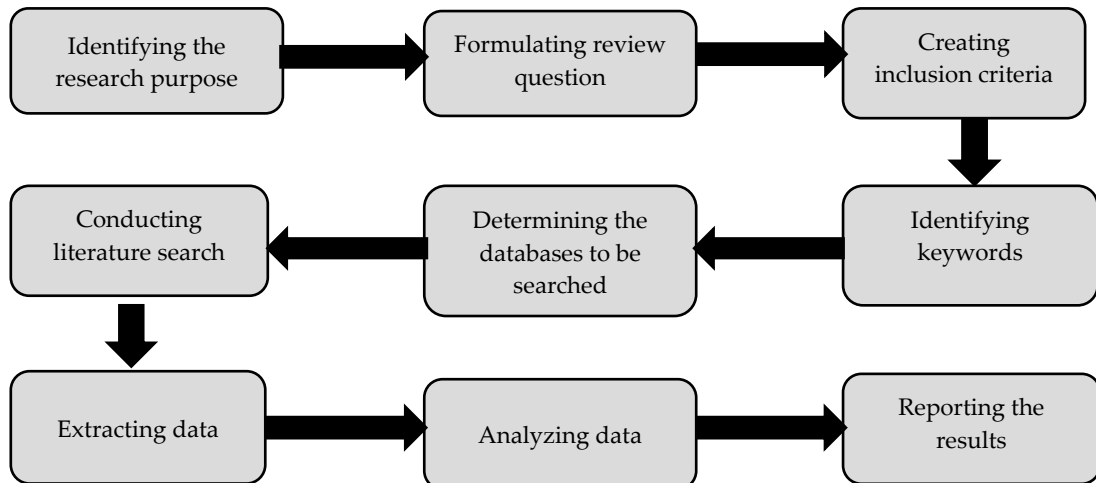
**Figure 2.** Steps in collecting data for the systematic review

To ensure the selected studies met the inclusion criteria, we engaged in the process of selecting relevant studies as illustrated in Figure 3. In the first stage, we removed 400 irrelevant studies by meticulously reading the title of the retrieved studies, after which 3839 studies remained. Subsequently, in the second stage, we excluded, unpublished papers, review articles, theses and commentaries and studies that did not have children as samples, resulting in the removal of an additional 3778 articles with 65 remaining. During the last stage, we conducted a comprehensive search to locate the full text of the remaining 55 articles used in this systematic review.
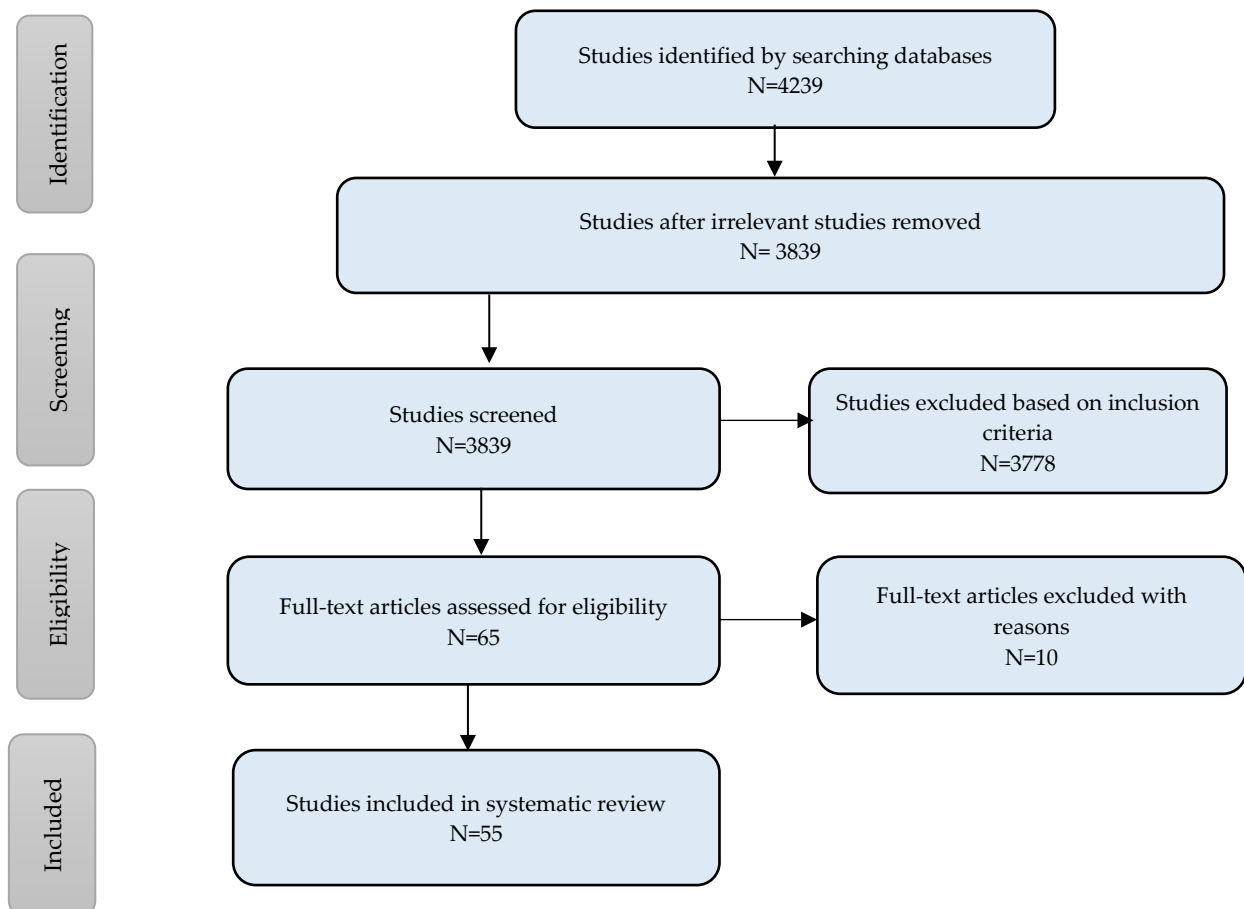


**Figure 3.** Selection process of studies in systematic review

**Data Analysis**

Following the compilation of pertinent studies, we tried to create a descriptive overview of these studies. To achieve this, we formulated a coding scheme for the purpose of scrutinizing the studies for specific characteristics in alignment with the review's purpose. We systematically extracted and documented the subsequent details from each empirical study:

- Year of publication
- Country
- Journal
- Type of factors
- Major findings

The extracted data was organized and recorded within a Microsoft Excel spreadsheet. The coding process was created based on Creswell's design of qualitative analysis (2016). Table 1 is an example illustrating how the studies were classified based on the established coding system.

**Table 1.** Example of the coding scheme of the selected studies for analysis

| Study | Journal | Country | Type of factors | Major findings |
|---|---|---|---|---|
| (Vong et al., 2020) | Creativity Research Journal | China | Individual Family | Boys scored higher than girls in three domains: originality, fluency, and imagination. Children who didn't have siblings exhibited higher levels of creativity in fluency and originality compared to those with siblings, though this difference wasn't observed in imagination. |
| (Cantero et al., 2016) | Creativity Research Journal | Spain | Family | Maternal sensitivity had a significant, direct, positive impact on self-esteem, and a direct negative impact on shyness and this significantly influence creativity |
| (Zhang et al., 2020) | Thinking Skills and Creativity | China | Individual Educational | The findings indicated a positive correlation between students' creative thinking and their perception of teacher support. Particularly, the influence of perceived teacher support on divergent thinking was stronger in boys than in girls. |
| (Massonnié et al., 2019) | Frontiers in Psychology | United Kingdom | Educational | The findings demonstrated that classroom noise did not enhance children's creativity; instead, some adverse effects of the noise were noticed. |
| (Leikin & Tovli, 2014) | Creativity Research Journal | Russia | Socio cultural | Bilingual children consistently achieved high scores in convergent thinking from an early age, and maintained stable cognitive abilities throughout their development. |

## Results and Discussion

This section presents a discussion of the key results in the present systematic review. Then recommendations for parents, educational stakeholders and future research are formulated based on our review insight.

The review identified 55 studies with the majority (n=26) published in the leading journals on creativity research namely Thinking Skills and Creativity (n=17), Creativity Research Journal (n=5) and Journal of Creative Behaviour (n=4). For each article, we examined which factors were predominant to determine in which column the study fits best. Table 2 provides a summary of the results regarding the main factors investigated in the sample of studies we analyzed. The table serves as a quick reference, emphasizing the multifaceted nature of creativity development in children and the varying influences present across various socio-cultural contexts.

**Table 2.** A list of all the selected studies

| Study | Country | Individual factors | Educational factors | Family factors | Socio cultural factors |
|---|---|---|---|---|---|
| (Massonnié et al., 2019) | UK | | X | | |
| (Dong et al., 2022) | China | | | | X |

| | | | | | |
|---|---|---|---|---|---|
| (Shah & Gustafsson, 2020) | UK | X | X | | |
| (Moghadam & Razavi, 2022) | Iran | | X | | |
| (Castillo-Vergara et al., 2018) | Chile | X | X | X | |
| (Albar & Southcott, 2021) | Australia | | X | | |
| (Gong et al., 2020) | China | X | X | X | |
| (Setiyowati et al., 2019) | Indonesia | | | X | |
| (Zhang et al., 2020) | China | X | X | | |
| (Craft et al., 2013) | UK | | X | | |
| (Roppola & Whitington, 2014) | Australia | | X | | |
| (Murcia et al., 2020) | Australia | | X | | |
| (Tang et al., 2022) | China | | | X | |
| (Lu et al., 2022) | China | | | X | |
| (Pang et al., 2020) | China | | | X | |
| (Liang et al., 2021) | China | X | X | X | |
| (Shi et al., 2021) | China | | | X | |
| (Zhang et al., 2018) | China | X | | X | |
| (Vong et al., 2020) | China | X | | X | |
| (Zbainos & Tziona, 2019) | Greece | | X | | |
| (Van Hooijdonk et al., 2020) | Netherlands | | X | | |
| (Schoevers et al., 2019) | Netherland | | X | | |
| (Willemsen et al., 2020) | Netherland | X | | | |
| (Üret & Ceylan, 2021) | Turkey | | X | | |
| (Tekin et al., 2012) | Turkey | | X | | |
| (Çetin & Ata, 2020) | Turkey | | | X | |
| (Celume et al., 2019) | France | | X | | |
| (Guignard et al., 2016) | France | X | | | |
| (Kyritsi & Davis, 2021) | Scotland | | X | | |
| (Kim & Park, 2020) | Korea | | | X | |
| (Huh & Lee, 2019) | Korea | | X | | |
| (Momeni et al., 2017) | Iran | | X | | |
| (Wei & Lee, 2015) | Taiwan | X | X | | X |
| (Liao et al., 2018) | Taiwan | | X | | |
| (Wei & Dzeng, 2013) | Taiwan | X | | | X |
| (Ibán et al., 2020) | Spain | | X | | |
| (Cantero et al., 2016) | Spain | X | | X | |
| (López-Martínez & Lorca Garrido, 2021) | Spain | X | | | |
| (Alfonso-Benlliure & Santos, 2016) | Spain | X | | | |
| (Krumm, Filippetti, et al., 2018) | Argentina | X | | | |
| (Krumm, Lemos, et al., 2018) | Argentina | X | | | |
| (Knox et al., 2022) | USA | | | X | |
| (Saggar et al., 2019) | USA | X | | | |
| (Al-Tamimi & Al-Qudah, 2019) | Jordan | | | X | |
| (Fearon et al., 2013) | Jamaica | | | X | |
| (Yildiz & Guler Yildiz, 2021) | Turkey | X | | X | |
| (Kwaśniewska et al., 2018) | Poland | | | X | |
| (Theurer et al., 2020) | Switzerland | X | | | |
| (David & Pastor, 2017) | Romania | X | | | |
| (Bezerra et al., 2022) | Brazil | X | | | |
| (Leikin & Tovli, 2014) | Russia | X | | | X |
| (Chung et al., 2016) | China/France | | | | X |
| (Hondzel & Gulliksen, 2015) | Norway/Canada | | | | X |
| (Pugsley & Acar, 2020) | Not indicated | | | X | |

The table above indicates that the studies included in the systematic review originate from diverse countries. Factors affecting creativity are categorized into four main areas: individual, family, educational, and cultural. Several studies explored one type of factor, while others explored a combination of factors.

Figure 4 provides a visual summary of research distribution across educational, family, cultural, and individual factors, giving a quick overview of where research emphasis lies within these domains.
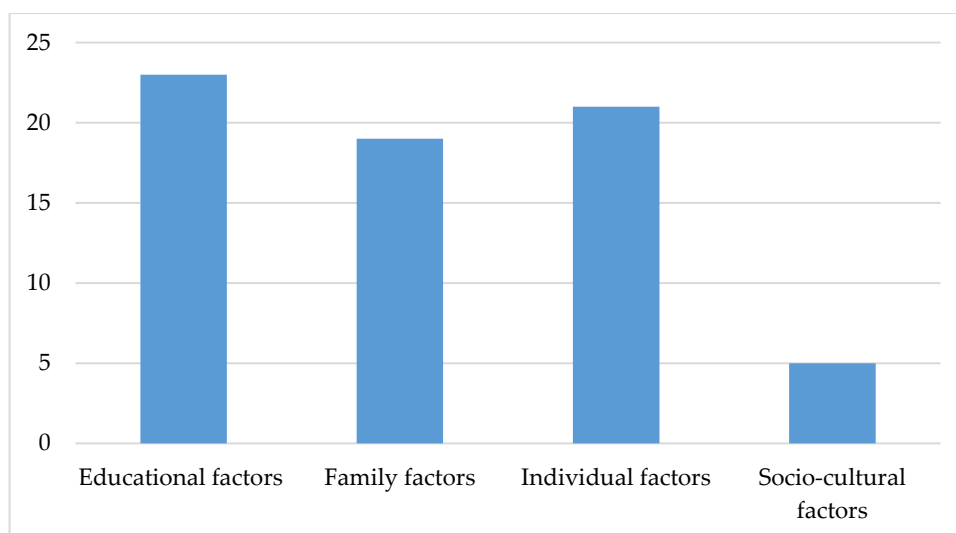
**Figure 4.** Type of factors that impact the development of creativity in children based on the selected studies

The figure illustrates that educational factors (n=23) have been the focus of the majority of studies on creativity in children, indicating a significant interest in understanding how educational practices impact creativity development in children. Individual factors (n=21) have also received considerable attention. Socio-cultural (n=5) is the least investigated factors in the reviewed studies. This suggests a gap in the existing literature regarding the influence of socio-cultural environments on children's creativity, suggesting a need for further research in this area.

In relation to the methodology design used in the sample, correlational studies (n=20) made up the majority followed by quasi-experimental or experimental studies (n=18), cross-sectional studies (n=10) and case studies (n=5). Correlational studies explored real-world relationships between different factors and creativity development without manipulating variables. This kind of studies provide insight into potential relationships between certain variables and creativity and also lay the foundation for more controlled experimental research. Experimental studies focused on manipulating variables to establish cause and effect relationships between specific variables and creativity. These controlled experiments enhance our understanding of how certain factors influence creativity and also verify hypotheses generated from correlational research. Cross-sectional studies helped capture a snapshot of creativity at a specific point in time, shedding light on differences among various groups or demographics. Finally, case studies provide in-depth, qualitative insights into the contextual factors affecting creativity within a real-life context. These kinds of research studies contribute to a more holistic comprehension of the factors affecting the development of children's creativity. Table 3 describes the selected studies in terms of the adopted methodology design, data collection instruments, the sample and the age of the participating children to facilitate comparison, and synthesis of the research findings presented in the review.

**Table 3.** The methodological design used in the selected studies

| Study | Research methodology | Data collection instruments | Sample | Age of the participating children |
|---|---|---|---|---|
| (Massonnié et al., 2019) | Quasi-Experiment design | Idea generation tasks, selective attention assessments, and working memory assessments | 44 | 5 and 11 |
| (Dong et al., 2022) | Correlational Design | Questionnaires | 329 student–parent pairs | Grade 4, 5, 7 and 8 |
| (Shah & Gustafsson, 2020) | Quasi-Experimental Design | Verbal task (Guilford's Alternative Uses Task) and figural task (Test for Creative Thinking–Drawing Production). | 111 | 7 to 11 years |
| (Moghadam & Razavi, 2022) | Quasi-experimental design | Pretest and posttest assessments of academic performance and creativity. | 756 | Grade 3 |
| (Castillo-Vergara et al., 2018) | Quasi-experimental design | Establishment Vulnerability Index (EVI) The Multifactorial Evaluation of Creativity | 1062 | 11 years |

| | | (EMUC) test | | |
|---|---|---|---|---|
| (Albar & Southcott, 2021) | Case studies | Observations<br>Semi-Structured Interviews<br>Artifacts Data | nineteen | 5 and 6-year |
| (Gong et al., 2020) | Experimental design | Torrance's Thinking Creatively in Action and Movement (TCAM) test<br>Questionnaires | 420 | 4-years |
| (Setiyowati et al., 2019) | Correlational design | Questionnaires | 677 | Grade 1, 2, 3 |
| (Zhang et al., 2020) | Correlational design | Perceived Teacher Support Questionnaire, Creative Self-efficacy Scale, Divergent Thinking Test, and Remote Associate Test | 362 | 8–12 years |
| (Craft et al., 2013) | A case study Micro-ethnographic study | Observation<br>Interview<br>Documentary evidence (school) | 560 children | 11-years |
| (Roppola & Whitington, 2014) | A descriptive case study | Non-participant Observation<br>Video Recording<br>Video-Stimulated Review Interview | 72 | 5-8 years |
| (Murcia et al., 2020) | Experimental design | Observation<br>Digital photographs<br>A to E of Creativity Framework. | 8 children | 3 and 4 year- |
| (Tang et al., 2022) | Correlational Research | Creativity Fostering Teacher Index<br>Karwowski's creative self-efficacy scale<br>Runco Ideational Behavior Scale | 5523 | younger than 18 years |
| (Lu et al., 2022) | Experimental design | Torrance Tests of Creative Thinking-Figural<br>the Alternative Uses Test<br>insight problem solving<br>video observation and post-coding | 74 pairs of students and their parents and grandparents | 9 on average |
| (Pang et al., 2020) | A cross-sectional survey design | Torrance Test of Creative Thinking-Figural and Alternate Uses tasks<br>Parents' reports | 1,710 | aged 6–13. |
| (Liang et al., 2021) | Correlational study | A divergent thinking figural, a product-oriented measure through CAT, a creativity domain questionnaire, MacArthur scale of subjective social status, questionnaire from the Parental Involvement in Activities Scale, The USC Parental Overcontrol Scale, Parental autonomy support, After-school activities participation questionnaire, creative self-efficacy questionnaire, Aurora battery of successful intelligence | 606 | 9 and 14 years |
| (Shi et al., 2021) | Correlational study | Consensual Assessment Technique (CAT), Family's Support of Perseverance in Creative Efforts questionnaire, search persistence scale, Disaster Exposure Scale, Motivation scale | 134 Chinese | |
| (Zhang et al., 2018) | Correlational study | The Family Affluence Scale, Parent-Child Relationship Scale, the Chinese Five Personality Inventory for Children, The Social Creativity Questionnaire for Elementary School Children | 955 | 8 to 13 years |
| (Vong et al., 2020) | Correlational study | Torrance's Thinking Creatively in Action and Movement tests (TCAM), Chinese version | 493 | M age = 74 months |
| (Zbainos & Tziona, 2019) | A quasi-experimental design | Graphic-artistic form of the Evaluation of Potential Creativity (EPoC) test | 90 | 11 years |
| (Van Hooijdonk et al., 2020) | Experimental design | Creative problem-solving tasks | 140 | Grade 4 and 5 |
| (Schoevers et al., 2019) | A case study | Observation<br>Interviews | 22 | Grade 4 |
| (Willemsen et al., 2020) | Quantitative with a focus on structural equation modeling (SEM) | Mathematical creativity test (MCT), Test of Creative Thinking–Drawing Production Form A, Creative Writing Task, Dutch standard mathematical achievement test, the Dutch standard literacy achievement test, Raven's | 331 | 8.5 to 11.5 years old |

| | | Standard Progressive Matrices (Raven | | |
|---|---|---|---|---|
| (Üret & Ceylan, 2021) | A quasi-experiment | 'Torrance Tests of Creative Thinking Figural A Form and Figural B Form' were used as data collection tools in the research. | 30 | 5-year-old |
| (Tekin et al., 2012) | A quasi-experiment | How creative are you scale? | 251 | 6th, 7th, 8th |
| (Çetin & Ata, 2020) | A correlational design | the Korea Integrative Creativity Test and Parental Bonding Instrument Scale | 71 mothers, 71 fathers, and 71 4-6-year-old children | 4-6-years |
| (Celume et al., 2019) | Experimental design | EPoC battery of test to measure convergent and divergent tests Valence and arousal Self-Assessment Manikin scale (SAM) | 55 | 9 and 11 years |
| (Guignard et al., 2016) | A correlational design | Wechsler intelligence scale validated for children and adolescents EPoC (Evaluation of Potential Creativity) | 338 | 3 to 10 years |
| (Kyritsi & Davis, 2021) | A qualitative case study design | Field Notes Interview Transcripts: | 25 children | 11–12 years |
| (Kim & Park, 2020) | A correlational design | TTCT RIBS to measure everyday ideational capacity | 333 Korean Students with their parents (333) | M age= 11.96 |
| (Huh & Lee, 2019) | An experimental design | Torrance Test of Creative Thinking (TTCT), pretests and posttests of English, and a questionnaire. | Twenty-seven | Grade 5 |
| (Momeni et al., 2017) | An experimental design | Creativity test of Jean-Louis Cellier | 52 | 4 to 6 years |
| (Wei & Lee, 2015) | Experimental research. | A revised version of the Torrance Test of Creative Thinking and the Creativity Test for Preschoolers | 149 children | 4 to 6 years |
| (Liao et al., 2018) | A quasi-experimental approach | English receptive vocabulary test, the Torrance Test of Creative Thinking, and an English learning motivation questionnaire | 256 elementary | 6 to 7 years |
| (Wei & Dzeng, 2013) | Cross-sectional design | Creativity Test and Scoring Scale People-drawing Test Scorings Scale Free-drawing Test and Scoring Scale | 1,055 | 6 to 8 years |
| (Ibán et al., 2020) | Experimental design | CREA test to measure creative thinking Grade Point Average (GPA) | Sixty | 9 and 10 years |
| (Cantero et al., 2016) | Correlational design. | Children's Creativity Test Creative Intelligence Test Questionnaire Assessing Self-Esteem during Elementary School Shyness Scale | 151 | 6–12 years |
| (López-Martínez & Lorca Garrido, 2021) | A correlational, cross-sectional, quantitative approach | A creativity test (PIC-N) and a test about intelligence | 323 | 9 and 12 years |
| (Alfonso-Benlliure & Santos, 2016) | Cross-sectional design | Test de Creatividad Infantil (Child Creativity Test) | 1491 | 6 and 12 years |
| (Krumm, Filippetti, et al., 2018) | Cross-sectional design | The figural torrance tests of creative thinking (TTCT), CREA. Creative intelligence, K-BIT, Kaufman brief intelligence test, Working Memory, WISC-IV, Stroop color-word test, Shifting tasks | 209 | 8- to 13 years |
| (Krumm, Lemos, et al., 2018) | A correlational research design | The Torrance Test of Creative Thinking-Figural Form B; and the Creative Personality Scale (EPC). | 359 | 9 to 13 years |
| (Knox et al., 2022) | A qualitative research design | Video recordings of family groups and wider classroom settings and Conversation analysis. | five child-caregiver dyads | Grade 1 and - 6 |

| (Saggar et al., 2019) | Experimental design | NEPSY-II Inhibition task, Emotionality, Activity, and Sociability (EAS-TS) Scale, Child Behavior Checklist (CBCL), Torrance Test of Creative Thinking-Figural (TTCT-F), Wechsler Abbreviated Scale of Intelligence, Second Edition (WASI-II), Functional Near-Infrared Spectroscopy (fNIRS) data were collected using a 52-channel Hitachi ETG-4000 Optical topography system | 48 | 9 years |
|---|---|---|---|---|
| (Al-Tamimi & Al-Qudah, 2019) | Cross-sectional design | Parenting Style Measure (a questionnaire) Creativity Measure (a questionnaire) | 677 | grades 1-3 |
| (Fearon et al., 2013) | Correlational design | Torrance Tests of Creative Thinking Parenting Styles and Dimensions Questionnaire (PSDQ) | 54 parents and 66 students | M age= 9.4 years |
| (Yildiz & Guler Yildiz, 2021) | Correlational | A demographic information form, Torrance Tests of Creative Thinking Figural Form A, the Scientific Concepts and Scientific Process Skills Instrument for Preschool Students, and the Home Screening Questionnaire for children of 3–6 years of age | 70 | 60 and 66 months |
| (Kwaśniewska et al., 2018) | Correlational | The ten-item personality inventory The climate for creativity in parent-child relationship questionnaire | Mothers in Poland (N = 3073) | ▪ |
| (Theurer et al., 2020) | Correlational research | Holistic Measure for Creative Potential Divergent Thinking Tasks Openness to Experience Scale | ▪ | Grade 5 |
| (David & Pastor, 2017) | Cross-sectional correlational study | Creative Attitude Survey (CAS), Two samples of creativity tests (one verbal and one figurative), Four tasks of Generating alternatives, Bonnardel 53 test to measure intelligence, Academic performance | 22 | 10 and 12 years |
| (Bezerra et al., 2022) | Cross-sectional observational study | Brazilian Figural Creativity Test (TCFI) Wechsler Abbreviated Scale of Intelligence (WASI), Phonological Awareness - Sequential Assessment Tool (CONFIAS), Reading Assessment of Words and Pseudowords Isolated (LPI), | 75 | Grade 1, 2, 3 |
| (Leikin & Tovli, 2014) | Cross-sectional comparative study | Working Memory Test, Creative Thinking Tests, | 31 | M age =71.9 months |
| (Chung et al., 2016) | Cross-cultural comparative research study | (Wallach-Kogan Creativity Tests; WKCT), (Evaluation of Potential Creativity; EPoC) | 288 | 6 to 11 years old. |
| (Hondzel & Gulliksen, 2015) | Qualitative research | semi-structured interviews | 2 of the participants are fathers and 9 are mothers | ▪ |
| (Pugsley & Acar, 2020) | Correlational Research Design | Torrance Ideal Child Checklist, Attitudes and Values Scale, The Creative Environment Scale, Interpersonal Mindfulness in Parenting Scale, Marlowe-Crowne Social Desirability Scale, knowledge of Resources for Infant Educarers (RIE) Parenting, Demographic collection survey | 1324 parents | ▪ |

The inclusion of various research methodologies across the selected studies highlights the diversity and comprehensive approach taken towards investigating children's creativity development. The sample sizes in the reviewed studies vary widely, including children, parents or caregivers and specific demographic groups. The participating children's ages range from 3 to 14 years old and reflect the varied developmental stages and educational levels of the children involved in the studies. This variety in sample selection, contexts, and age allow for a richer and more nuanced understanding of creativity development in children.

Regarding years of publication, Figure 5 shows the general trend of the number of studies on the factors affecting the development of creativity in children from 2010 to 2022. The year 2020 was a particularly productive period as 12 out of the 55 articles were published. This is consistent with what was found in Fielding and Murcia's review (2022). Also, the increase in publications indicates researchers' growing awareness of the significance of creativity for children. This corresponds also with the findings of previous systematic reviews (Fielding & Murcia, 2022; Maslin et al., 2023; Smare & Elfatihi, 2023).
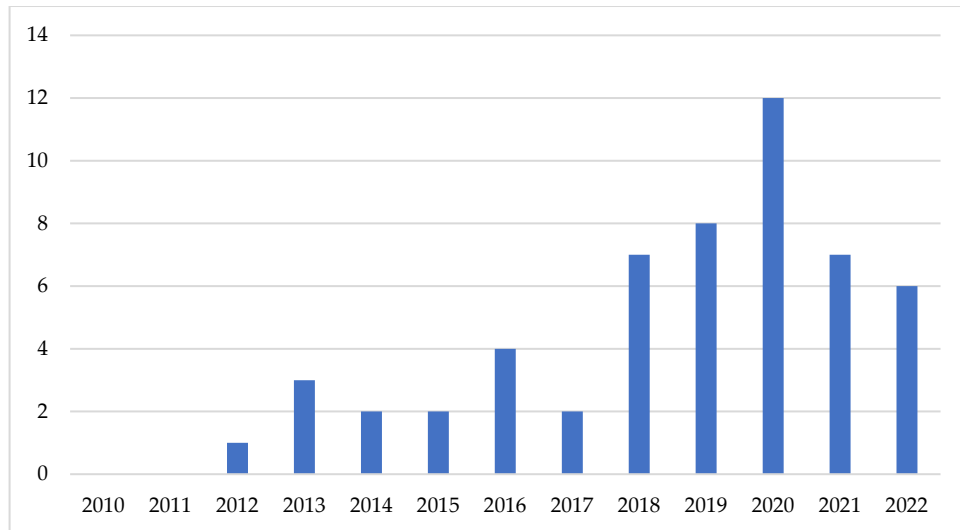


**Figure 5.** Distribution of studies between 2010 and 2022

The fifty-five studies that were included in the current review were conducted in 25 countries. Most commonly, the studies were conducted in China (n=11). Figure 6 illustrates the distribution of studies by country.
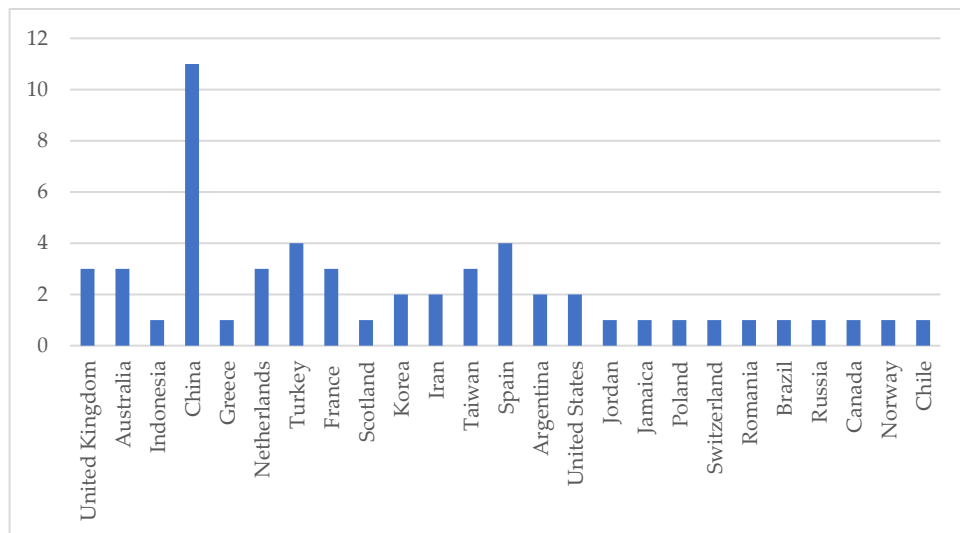


**Figure 6.** Distribution of the selected studies by country

Although the studies were distributed across 25 countries, many of them were conducted in China. This is understandable as creativity has attracted increasing attention recently in the country. A shift from 'Made in China' to 'Created in China' is the China's economic future strategy (Wuwei, 2011). The phenomenon of 'Made in China' and 'created by foreign capital' which is based on sweat industries and China's dependence on exports and low-cost processing has produced unwanted consequences such as exhaustion of natural resources, environmental pollution and lack of innovation (Wuwei, 2011). Therefore, the development of creativity in this country is viewed as a crucial educational objective to be integrated into the regular curriculum and across all subjects (Cheng, 2010). Additionally, the development of

creativity in young children has become a key focus in the educational policies outlined by Chinese policymakers (Vong, 2008).

Figure 7 provides a summary of the major factors that were investigated in the reviewed studies, offering a quick and comprehensive overview of the foci of the studies included in the review, along with their corresponding findings. Noteworthy, (+) shows a positive correlation with measures of creativity, (−) indicates a negative correlation with creativity, while (~) is inconclusive, meaning no obvious conclusions can be deduced from findings.



**Children's creativity**

**Individual factors** | **Family factors** | **Educational factors** | **Cultural/social factors**

**Demographics**
-Gender (~)
-Age (~)
**Personality traits**
-Neuroticism (-)
-Shyness (-)
-Intelligence (~)
-Rule-breaking (+)
-Openness (+)
-Conscientiousness (+)
-Agreeableness (+)
-Extraversion (+)

**Parenting styles**
-Permissive parenting style (-)
-Democratic parenting (+)
-Positive parenting (+)
-Authoritarian parenting style (-)
-Mindful parenting style (+)
**Parent-child relationship**
-Parents' support (+)
-Secure attachments to parents (+)
-Parent– child interactions (+)
-Good parent-child relationships (+)
-Maternal sensitivity (+)
-Children without siblings (+)
**Home environment quality**
-Overemphasis on unquestioned authority (-)
-Co-parenting of grandparents and parents (-)
-Parent's enabling children's freedom (+)
-Families' encouragement of perseverance in creative efforts (+)
-Encouragement of nonconformism (+)
**Educational and socio-economic status**
-Socio-economic status (+)
-Fathers with higher education levels (+)

**Pedagogical environment**
-Problem-and-project-based learning strategies (+)
-Inquiry-based pedagogies (+)
-Creative drama pedagogy (+)
-Dynamic assessment (+)
-Fact finding and problem finding (+)
-STEM education (+)
-Tolerance of ambiguity and mistakes (+)
-Pressure on teachers to evidence the outcomes of their work (-)
-Regular museum visits (+)
**Psychosocial environment**
-Perceived teacher support (+)
-Listening to children (+)
-Provoking children's thinking and emotions (+)
-Encouragement of children's control/ agency/ownership (+)
-Cooperative learning (+)
-Encouraging children to express themselves (+)
**Physical environment**
-The physical environment (+)
-Classroom noise (-)

**Geographical location (~)**
**Bilingualism** (+)

**Figure 7.** Factors that influence children's creativity

In the subsequent sections, we discuss the results reported in the studies in our sample. Even though we acknowledge that these factors can be interconnected, for the purpose of clarity, we discuss each of these factors individually, starting with results related to individual factors.

**Individual Factors**

*Demographics*

Twenty-one studies explored individual factors related to children's creativity development including demographics and personality traits. Demographic analysis focused on possible differences in gender and age. In relation to gender, the studies in our sample produced mixed results regarding the correlation between gender and creativity. David and Pastor's study (2017) showed that there was no

significant difference in creativity between girls and boys. However, Yildiz and Guler Yildiz (2021) found that girls scored higher in fluency and elaboration. Shan and Gustafsson's study (2020) also indicated that girls outperformed boys in fluency and flexibility. Similar results were obtained in Castillo-Vergara and colleagues' study (2018) in which girls scored higher in flexibility and oringality than boys. Contrasting findings were reported in other studies. The study of Alfonso-Benlliure and Santos (2016) revealed that boys scored higher than girls on Global Creativity. Similarly, Gong, Zhang, and Tsang (2020) found that boys obtained higher scores in creativity including fluency, and originality than girls. Wei and Lee (2015) reported similar results that boys possessed significantly more originality than girls. The findings of Vong et al. (2020) also demonstrated that boys outperformed girls in all three dimensions of originality, fluency and imagination. Additionally, the impact of perceived teacher support on divergent thinking showed a greater significance in boys compared to girls (Zhang et al., 2020). However, boys brought up in three-generation family were more likely to show disadvantages in creativity development compared to girls (Pang et al., 2020).

Regarding age, it was found that the relationship between creativity and openness consolidates with age (Leikin & Tovli, 2014; Theurer et al., 2020). That is to say, as children get older, the relationship between being creative and being open to new ideas or experiences becomes stronger and more stable. Another study conducted in Taiwan indicated that older children scored higher than the younger ones on people-drawing and free-drawing, but not on overall creativity (Wei & Dzeng, 2013). Contrary to the 4th grade slump reported in previous studies (Piaget, 1977; Torrance, 1968), divergent thinking, generally showed an increase with age for originality, and elaboration (Shah & Gustafsson, 2020). The findings in the study of Liang and colleagues (2021) revealed that Little-c is mostly affected by age while mini-c creativity is mainly impacted by family environment and parenting.

### Personality Traits

Personality traits also served as a focus of analysis. Regarding intelligence, studies in our sample provided somewhat mixed findings. David and Pastor (2017) found a positive relationship between creativity and intelligence. López-Martínez and Lorca Garrido (2021) indicated that intelligence was associated with general creativity and narrative creativity, but not to the specific domain of graphic creativity. Willemsen and colleagues' study (2020) showed that intelligence was also found to be important for creativity in all domains. It was also found that there is a progressive development of creativity and intelligence in children from the first to the third year, with significant progress in the third year (Bezerra et al., 2022). Furthermore, correlations between creativity with intelligence and reading skills were observed across all three grade levels, with the third year demonstrating particularly strong correlations (Bezerra et al., 2022). Contrary to these results, Guignard and colleagues (2016) found that there is a weak correlation between intelligence and creativity. Krumm and colleagues (2018) investigated executive functions in relation to creativity. Executive function is a multidimensional concept that involves the subprocesses of inhibition, working memory and shifting (Miyake et al., 2000). It is also a higher-order cognitive process that enables the regulation of cognitive, behavioral and emotional activity. Executive functions especially shifting and inhibition made a significant contribution to creativity (Krumm, Filippetti, et al., 2018). The study added that shifting is a stronger predictor of creativity than fluid and crystallized intelligence.

Other studies demonstrate that the way creativity develops in children does not seem to be related to how intelligent they are, or how old they are, or whether they're a boy or a girl; rather it is linked to personality. Saggar and colleagues (2019) indicated that there is a significant positive correlation between externalizing problem behavior particularly rule-breaking and aggressive behavior and creativity. In fact, classic tasks used to measure creativity such as tests of divergent thinking (Guilford, 1950) involves the process of breaking rules to create new connections between cognitive elements that were not previously associated. Furthermore, neuroticism was proved to be negatively related to creativity (Krumm, Lemos, et al., 2018). Most creative children are likely to exhibit independence, self-confidence and emotional self-control when dealing with the demands of their surrounding and also tend to display less vulnerability,

irritability and emotional distress (Krumm, Lemos, et al., 2018). Shyness was also found to block and limit creativity in children. Cantero and colleagues (2016) found a negative relationship between shyness and creativity. Shy children feel anxious when dealing with unknown and new situations and prefer conformity for fear of being rejected (Cantero et al., 2016). Personality traits particularly openness, conscientiousness, agreeableness and extraversion were also found to be significantly associated with social creativity (Zhang et al., 2018). These personality traits are commonly shaped by the family environment in which a person is raised, and this environment also has an impact on creativity. The next section discusses the family factors that influence the development of children's creativity.

**Family Factors**

*Parenting Style*

The way parents raise, guide, interact with and discipline their children influence significantly child's creativity development. The study of Al-Tamimi and Al-Qudah (2019) showed that there is a negative relationship between the overprotective and negligent parenting styles and the level of creativity. Overprotective parenting instills in parents fear of the consequences of anything the child does and thus becomes excessively overprotective. As a result, the child becomes a follower, dependent on others and void of freedom and will to think for themselves. Negligent parenting also affects negatively creativity as parents are not involved enough in their children's lives and are indifferent to their needs. Permissive (Setiyowati et al., 2019) and authoritarian (Fearon et al., 2013; Setiyowati et al., 2019) parenting styles were also found to lead to low creativity development in children. Permissive parenting which is characterized by a high degree of warmth and affection from parents and low levels of control and discipline results in having a child who is not ready to make decisions and thus unable to think creatively. Authoritarian parenting which is characterized by high control of children's practices, unquestioned obedience to parental authority and punitive discipline leads to having children who have negative thoughts and fear to experience new things and consequently inability to think creatively. Moreover, parents' overemphasis on cultural values, particularly social conformity and unquestioned authority was also found to be negatively related to their children's creativity (Kim & Park, 2020).

Democratic parenting style (Dong et al., 2022; Setiyowati et al., 2019) and mindful style (Pugsley & Acar, 2020) were proved to result in high creativity development. A positive parental style involving support, warmth, understanding and encouragement of autonomy has a positive impact on creativity while parenting style involving reproach, pressure, restriction, severe punishment, parental indulgence, and too much control has a negative impact on creativity (Dong et al., 2022). Mindful parenting style also appears to indirectly foster creativity because it is related to lower conform for socially acceptable characteristics (Pugsley & Acar, 2020). Therefore, as indicated by Gong and colleagues (2020) to develop creativity in children, it is obligatory to enable children's freedom by their parents and reduce the external factors that inhibit creativity, such as an authoritarian family environment. In addition to that, maternal sensitivity has a significant, direct, positive impact on self-esteem, and a direct negative impact on shyness and this significantly influence creativity (Cantero et al., 2016). In other words, children who believe that their mothers respond sensitively to their needs tend to be less shy at school and indirectly, show more creative behavior.

*Parent-Child Relationship*

The parent-child relationship plays a significant role in shaping and nurturing a child's creativity. Building a good and close parent-child relationship positively impacts children's creativity (Zhang et al., 2018). Parents' support of their children in their creative pursuits significantly enhances children's ability to produce more original ideas and boosts their creative self-efficacy (Shi et al., 2021; Tang et al., 2022). Liang and colleagues (2021) found that parents' encouragement of autonomy was positively correlated with both mini-c and little-c creativity whereas pressured parenting and overcontrolling was negatively correlated with both mini-c and little-c. Furthermore, children who have secure attachments to their parents have a sense of self-sufficiency that results in better development of creativity (Çetin & Ata, 2020). Research also indicates that parents' interaction with their children is more influential compared to

grandparents. The findings of Lu and colleagues (2022) demonstrated a significant improvement in children's creative performance following interactions with parents, whereas interactions with grandparents resulted in minimal improvement. When interacting with children, employing directive questioning, restating/reframing, idea blending, and using shared experiences as dialogic forms by caregivers were found to shape children's creative thinking (Knox et al., 2022).

*Home Environment Quality*

Children raised in homes characterized by high-quality environments demonstrated high scores on creativity indicators (Yildiz & Guler Yildiz, 2021). Elements of home environment quality include providing sufficient stimulation for children, spending time with them inside and outside, playing with them, and giving them their own space at home, all foster children's creativity (Yildiz & Guler Yildiz, 2021). Additionally, encouraging the child to endorse nonconformity, experience novelty and variety, be perseverant in creative efforts and fantasize, all contribute for creating a climate for creativity at home (Kwaśniewska et al., 2018).

Studies have also shown that the co-parenting of grandparents and parents had a negative impact on children's creativity. Children raised in the three-generation families, especially in the grandparents-headed families, tended to have less creativity compared to living without grandparents (Pang et al., 2020). Researchers offered many reasons that explain the negative impact grandparents exert on children. One of the reasons is having a conflicting family climate between parents and grandparents during the child-rearing practice due to values differences between the two generations. Also, living with both parents and grandparents limit independence and autonomy, discourage divergence and restrict creativity (Pang et al., 2020). Strong grandparental control that emphasizes safety more than education and their use of direct instruction to solve problems instead of responding to children's psychoemotional needs could also affect negatively the development of creativity. Additionally, the decreasing direct involvement of parents as the primary caregivers in the upbringing of children deprives children of chances to develop their creativity (Pang et al., 2020).

Research also showed that in nuclear families, children without siblings exhibited significantly higher creativity than children with siblings (Pang et al., 2020; Vong et al., 2020). This could be explained by the fact that children without siblings have much more chances to interact with their parents, have greater access to resources for implementing their creative ideas, and have opportunity to develop higher levels of autonomy, which consequently foster their creativity (Pang et al., 2020; Vong et al., 2020).

*Parent's Educational and Socio-economic Status*

Factors like a parent's educational background and socioeconomic status also have an impact on the promotion of children's creativity. Family socio-economic status was found to positively influence children's creativity (Castillo-Vergara et al., 2018; Liang et al., 2021; Zhang et al., 2018). This is because families from higher socio-economic status tended to offer more resources and were more likely to involve their children in after-school activities which consequently facilitate their creativity (Liang et al., 2021). Fathers with higher education levels were also reported to have a positive influence on children's creativity (Yildiz & Guler Yildiz, 2021). The researchers think that fathers with higher educational levels possess more advanced parenting skills. Hence, children with fathers who have a higher educational background are more likely to be advanced in their creative thinking skills. The following section discusses other educational factors that influence children's creativity. These are categorized into pedagogical, psychosocial, and physical environment factors.

**Educational Factors**

*Pedagogical Environment*

The pedagogical environment entails the school activities, teaching methods, and strategies that affect students' creativity. Regarding the question of whether the type of school affects children's creativity, it was found that in Beijing, public preschool attendance correlated positively with children's creativity

(Gong et al., 2020). The researchers explained that public preschools in Beijing could have done well in developing children's creativity probably because public preschools receive students who are better at creativity than private preschool students in the very beginning (Gong et al., 2020). Conversely, in other studies, private schools scored higher than public schools regarding creativity (Castillo-Vergara et al., 2018; Wei & Lee, 2015). In Taiwan for example, private kindergarten children were significantly more fluent and flexible than those from the public schools (Wei & Lee, 2015). The researchers argue that one of the main reasons behind this finding is that children in private schools are generally from a higher socio-economic background which made it easier for them to have access to resources such as interactive devices. Also, private schools tend to provide a curriculum that encourage creativity compared to public schools (Wei & Lee, 2015). In Chile, creativity in private schools was found to be higher than public schools because of participation in extracurricular activities (Castillo-Vergara et al., 2018). Therefore, though children are naturally curious and inquisitive, they need outside support to promote their creativity such as a creativity-fostering curriculum and extracurricular activities.

An example of extracurricular activities that can develop children's creativity is visiting museums. Frequency of visits to science museums was found to positively affect creativity (Gong et al., 2020). Children's museum offers a natural space that motivates children to be creative. As compared to formal institutions like school, children's museum stimulates curiosity and the desire to explore which are both essential for the development of creativity. The space, with the various exhibits and objects it offers, allows children to look, move and think with the various new experiences in life, arts and sciences, which consequently ameliorate their ability to produce creative ideas (Gong et al., 2020). Therefore, it is necessary for educational institutions to offer their students opportunities to visit children museums. Also, the government and social funds need to invest in creating such spaces like children's museums, as they benefit children and develop their creative potentials.

As far as classroom tasks are concerned, problem-and-project-based learning strategies immensely aroused children's creative processes (Albar & Southcott, 2021). This is because such tasks encourage risk-taking, resilience, experimentation, curiosity and thus creativity (Albar & Southcott, 2021). Inquiry-based pedagogies also support and create opportunities for the development of children's creativity (Murcia et al., 2020). Researchers advocate that teachers should create a non-prescriptive learning environment where children think for themselves, wonder, imagine and create new ideas using digital technologies. The teacher has to use inquiry questions and dialogic learning conversations that motivate children to adapt and persist with open ended tasks. (Murcia et al., 2020). Research also revealed a positive correlation between fact finding and problem finding with the number of ideas produced and the originality of these ideas (Van Hooijdonk et al., 2020). Therefore, it is beneficial to integrate fact finding and problem finding before engaging in idea finding when aiming for encouraging students to think creatively.

Research also revealed a long-lasting positive impact of STEM education on the creativity of 5-year-old children in kindergarten (Üret & Ceylan, 2021). During STEM education, children are encouraged to create, test, produce, recreate new ideas when a solution does not work, communicate ideas and work together, and consequently trigger and empower children's creativity (Üret & Ceylan, 2021). Regarding assessment, dynamic assessment helps to provide a more vivid representation of students' creative potential which can be of valuable assistance for fostering and nurturing creativity (Zbainos & Tziona, 2019). The study of Zbainos and Tziona offered evidence that effective interaction between assessor and the participant, along with the active intervention by examiners and the evaluation of examinees' responses to interventions fosters students' creativity. Contrary to static normative assessment that focuses on the score, dynamic assessment involves mediation and takes into consideration the expressed ability (level) of a student before and after guidance (Zbainos & Tziona, 2019).

Drama Pedagogy Training or creative drama is reported to have a significant impact on creativity (Celume et al., 2019; Momeni et al., 2017). Drama Pedagogy Training encourages the sharing of ideas through an open learning environment that allows children's-free expression. It also fosters interthinking among children resulting in co-creation in a positive space and thus promote creative thinking (Celume et

al., 2019). This form of active pedagogy encourages students to co-construct their learning through engaged dialogue, collectively reflecting on the learning experiences presented as collaborative dramatic games and thus promoting creativity (Celume et al., 2019). Creative drama provides a chance for children to build their own fantasy worlds and every time they wish, they can travel between realities to fantasy (Momeni et al., 2017).

The creativity technique pedagogy such as brainstorming significantly improved students' creativity (Liao et al., 2018). It provides students with a degree of autonomy to choose the responses and significantly improves their motivation to learn. The creative-pedagogy approach supports the children's use of the English language creatively, and gives them a degree of independence regarding their choice of responses (Liao et al., 2018). Furthermore, flipped learning method that requires students to learn the instructional content individually at home or in another spaces before coming to the classroom to talk about knowledge increases academic performance and creativity in students (Moghadam & Razavi, 2022). However, increased academic pressure related to examination impede children's creativity development (Liang et al., 2021).

### Psycho-social Environment

The psycho-social environment refers to the social and emotional atmosphere in the classroom and how students feel and interact with their peers and their teacher. Research showed that perceived teacher support impacts students' creative thinking. Academic support such as repeating explanation, emotional support like encouraging the student in study and life and competence support such as recommending the students to take part in different activities or competition, all contribute to promoting creativity (Zhang et al., 2020). In addition to that, listening to students, provoking their thinking and emotions; and tolerating ambiguity and mistakes are all pedagogies that foster imagination and creativity (Roppola & Whitington, 2014). Also, the teacher's encouragement of children's autonomy, risk taking, ownership of learning and collaboration contributed to promoting creativity (Kyritsi & Davis, 2021).

Research also showed that creativity is promoted in a classroom where the teacher creates an open atmosphere for students to express their ideas and take these ideas seriously (Schoevers et al., 2019). Hence, teachers should allow students to take ownership of their learning and equip them with a mindset that utilizes creativity as the path to self-directed and authentic learning (Huh & Lee, 2019). They also have to give students opportunities to work together as collaboration enhances creativity (Craft et al., 2013; Ibán et al., 2020).  It is important to note that emphasizing children's ownership and placing high expectations on skillful creative engagement are all pedagogic practices that promote creativity (Craft et al., 2013). However, pressure placed on children to perform well and focus on their individual progress are all barriers to creativity (Kyritsi & Davis, 2021).

### Physical Environment

The physical environment can influence differently children's creative potential. Children in the art room indicated, on average, greater levels of creative thinking compared to those in the classroom task due to the more comfortable feeling elicited by this environment (Shah & Gustafsson, 2020). Also, research demonstrated that classroom noise does not promote children's creativity (Massonnié et al., 2019). On the contrary, some negative effects of noise were noticed especially for children with low selective attention skills. In the study, these children with the presence of noise gave fewer ideas which were rated as less original. Thus, teachers have to create a quiet environment especially for children with low selective attentions skills to minimize the influence of noise and enhance their focus and creativity.

## Social Cultural Factors

### Geographical Location

In relation to variations between countries, Canadian children living in rural areas achieved higher scores on the TTCT compared to their Norwegian peers. Conversely, in urban areas, children in Norway outperformed their Canadian counterparts in similar urban settings (Hondzel & Gulliksen, 2015).

Surprisingly, it was found that Hong Kong-Chinese children achieved higher scores than those from Paris-French origin in all the divergent measures (verbal and figural fluency, flexibility, uniqueness, and unusualness), regardless of gender and grade (Chung et al., 2016). This finding was unexpected as in the traditional view, individualistic western people tend to outscore the collectivistic eastern people in creativity. This is because western countries value independence and freedom, while eastern countries emphasize obedience and respect of the norms (Hofstede et al., 2010). This could be explained by the influence of school on children (Niu & Sternberg, 2003). The study of Cheung & Lau (2013) asserted that the recent curriculum and education reform in Hong Kong which focuses on promoting divergent thinking contributed to the growth of creative thinking in children.

Research showed that the suburban children's fluency and originality scores are higher than those from the city possibly because they enjoy greater freedom and fewer restrictions. Also, city schools tend to apply more pressure on students, which may limit the development of young children's creativity (Wei & Lee, 2015). However, in another study conducted in Taiwan, urban children scored higher than rural children on creativity because cultural and educational advantages of urban Taiwanese children help in the development of creativity and also rural Taiwanese families typically do not put emphasis on the importance of school education and also because they live in isolated mountain regions where educational resources may be limited (Wei & Dzeng, 2013).

*Bilingualism*

Bilingual children scored high from early years in verbal and nonverbal creativity compared to monolingual children (Leikin & Tovli, 2014). Thus, language proficiency plays a crucial role in the effect of bilingualism on creativity. Increasing evidence shows that speaking more than one language does not only ameliorate one's verbal skills but also more general, non-linguistic cognitive abilities such as problem solving and creativity (Hommel et al., 2011). Bilingual individuals are faced with the challenge of selecting the appropriate language and ignoring the interreference from the other language. This makes them advantaged in executive functioning and good at organizing their tasks compared to monolinguals. Executive functioning enables individuals to manage complex tasks and pay attention to pertinent information and ignore irrelevant information. These skills are also important for creative thinking (Leikin, 2012).

**Conclusion**

This paper presents an exhaustive systematic review of the existing empirical studies investigating the factors which influence children's creativity. The results of the systematic review showed that parents and teachers play a key role in developing children's creativity. Individual differences produced mixed results regarding their impact on creativity, especially gender and age. However, personality traits such as rule breaking, openness, extraversion and self-esteem had a significant impact. These personality traits are shaped and influenced by the surrounding environment especially family. Family factors are also shown to play a significant role in the promotion of children's creativity. These include parenting style, parent-child interaction, home quality environment and parent's support of creative endeavors. In fact, not all children are privileged to live in an environment which fosters creativity. This is why, education has to compensate for such a gap and help children from disadvantageous background to be able to think creatively. Pedagogical, psychosocial and physical environments all play a role in influencing the development of children's creativity.

**Limitations**

We have to acknowledge that one of the major limitations in the present review is the possibility of missing some pertinent studies unintentionally. Also, including only studies published in English is another limitation of the review. Another limitation lies in the decision to include studies only from 2010 to 2022, which, while ensuring incorporation of recent literature and contemporary perspectives on children's creativity development, may overlook valuable insights from earlier studies.

## Recommendations

### For Parents

Parents have to foster with their child positive relationship characterized by open communication and support. They also need to engage actively with their children by creating opportunities for play, creative thinking and exploration. Parents have to spend quality time with their children and use directive questioning, restating/reframing, idea blending, and shared experiences to engage in meaningful conversations that stimulate creativity in the child. Secure attachments to parents is important; therefore, parents have to strive to make the child feel safe, loved and supported. Parents have to demonstrate maternal sensitivity by being attuned to the child's emotional needs and responses, showing sensitivity and responsiveness, which can positively influence their creativity.

Regarding home environments, parents have to allow their children to express themselves freely and encourage creativity and expose the child to various experiences and activities that stimulate their curiosity and exploration. They also have to celebrate their children's creative endeavors and their imaginative thinking and nurture a sense of perseverance and creativity. Parents have to provide autonomy and freedom to their children and enable them to experiment, make choices and pursue their interests.

For parenting style, parents have to adopt mindful and democratic parenting approach that encourage parents to be attentive in their interactions with their children. They also have to embrace nonconformism and avoid overemphasis on social conformity to allow their children to be independent and explore unconventional thoughts. They have to strike a balance between discipline and rules to encourage their children to think outside the box.

### For Educational Stakeholders

Educational curricula and programs should aim at nurturing creativity especially for children from disadvantaged backgrounds. Regarding pedagogical environment, educational policy makers and teachers should incorporate problem-and-project-based learning strategies, dynamic assessment, STEM education, drama pedagogy and inquiry-based pedagogies to stimulate children's creative processes. They also have to encourage students to work collaboratively and avoid overemphasis on individual progress. They can also equip students with a mindset that puts emphasis on self-directed and authentic learning.

Educational policy makers and teachers should aim at creating less formal educational settings that allow freedom, collaboration, autonomy, risk taking and ownership of learning. Teachers should focus on offering support including academic, emotional and competence support to their students. They also have to create a calm and focused learning environment in the classroom to minimize noise and thus enhance creativity. Schools should organize frequent visits to children' museums and provide access to enriched physical environments such as well-equipped rooms.

### For Future Research

Future research may:

- Conduct long-term studies to investigate the quality of parent-child and its effects on creativity across different developmental stages from childhood to adolescence.

- Explore the influence of cultural differences on parent-child and teacher-student relationships and their impact on developing creativity within diverse cultural backgrounds.

- Examine how digital technology and time spent on screens influence the home environment and its potential effect on children's creativity.

- Investigate how various parenting styles align or conflicts with different educational systems and their potential impact on creativity development in school-aged children.

- Investigate the outcomes of specific teacher training programs aimed at promoting autonomy, risk-taking, and ownership of learning among students and evaluate the effectiveness of these strategies in enhancing creativity and student engagement.

## Declarations

### *Authors' Declarations*

### *Publisher's Declarations*

*Editorial Acknowledgement:* The editorial process of this article was completed under the editorship of Dr. Ibrahim H Acar through a double-blind peer review with external reviewers.

*Publisher's Note:* Journal of Childhood, Education & Society remains neutral with regard to jurisdictional claims in published maps and institutional affiliation.

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# Looking beyond enrollment rates: The long-term influence of preschool science curricula on children's science achievement

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**Abstract**: This study provides evidence that what happens in preschool (i.e., preschool curriculum) can have long-term consequences years later. In the current study, we seek to answer the question of whether the inclusion of science in the preschool curriculum is associated with fourth- and eighth grade science achievement scores. Based on science achievement data from the Trends in International Mathematics and Science Study (TIMSS 2015 and 2019 cycles), the quality of preschool science learning opportunities showed long-term impacts on science achievement at the fourth grade level. Even after controlling for enrollment rates, the quality of the preschool curricula was a statistically significant predictor of fourth grade science scores with a high effect size (d=0.74). The observed impacts, however, appeared to diminish by eighth-grade. Results from this study suggest that science concepts and skills should be an integral part of preschool curricula and curricular frameworks, and policy makers should allocate resources to provide well-designed preschool education programs with high quality curricula.

## Introduction

The gap in cognitive and social skills among children from low and high socioeconomic (SES) groups appears to emerge prior to formal schooling and persists into adulthood (Heckman, 2006). Because preschool education has the potential for short- to long-term impacts on various economic, societal, and child related outcomes, researchers and educators have suggested expansion of preschool education as a viable option to address these disparities (Barnett, 2011; Cebolla-Boado et al., 2017; Cortázar et al., 2020; Heckman, 2006; McCoy et al., 2017). Evidence to support these claims comes from studies that evaluated the impact of preschool education at either local or national levels (Gormley et al., 2008; Melhuish et al., 2008), with few comparisons at the international level. The limited international studies solely examined the impact of preschool enrollment or public preschool expenditures on children's later academic achievement at fourth grade, and the results indicated that increased preschool enrollments did not necessarily lead to increased achievement (Cebolla-Boado et al., 2017; Richter et al., 2021; Strietholt et al., 2020; Waldfogel & Zhai, 2008).

Here we provide evidence for the importance of refocusing our efforts from simply expanding preschool enrollment rates to designing and providing high quality preschool education programs for children with diverse needs and to inform policy makers' decisions. High quality preschool education programs can act as an equalizing factor to close gaps in child related outcomes at the national and international levels (Heckman, 2006). Quality indicators of preschool education programs typically include staff qualifications and staff-child ratios (Sabol et al., 2013). However, the strongest predictors of preschool children's learning are the concepts and skills targeted in educational programs, which are identified and described in curricular documents (Anders et al., 2016; Sabol et al., 2013). Here we argue that the provision of expanding preschool education only has enduring effects on children's academic outcomes when they have high quality preschool curricula. Countries with high quality preschool curricula that target

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developmentally appropriate concepts and skills might be more likely to demonstrate higher performance in international large-scale assessments. We test this hypothesis within the context of science achievement.

Factors contributing to the variations in children's science performances across countries in international large-scale assessments have been the focus of several studies since the inception of the Trends in International Mathematics and Science Study (TIMSS) and the Programme for International Student Assessment (PISA). International large-scale assessments, such as TIMSS, allow researchers to gather and compare data specific to children's mathematics and science performances, and the data can serve as an indicator of the quality of different countries' educational systems at the preschool, elementary, and middle school levels.

Previous studies that utilized international large-scale assessment data have examined the association between children's science achievement and various child, classroom, and school level factors (e.g., gender, type of instruction, academic climate) to explain performance differences in test scores across countries (Drent et al., 2013). Few studies have focused on the association between preschool or early education and children's later achievement on international large-scale assessments. These limited studies have solely examined the relationship between preschool enrollment or public preschool expenditures and impacts on children's later academic achievement at the fourth and eighth grade levels (Waldfogel & Zhai, 2008; Strietholt et al., 2020; Richter et al., 2021). No previous studies have examined the relationship between early learning opportunities provided in preschool and potential impacts on children's later science achievement as measured by international large-scale assessments.

Previous studies indicate that preschool education has the potential for short- to long-term impacts on various economic, societal, and child related outcomes (Barnett, 2011; Cebolla-Boado et al., 2017; Cortázar et al., 2020, Heckman, 2006; Knudsen et al., 2006; McCoy et al., 2017). However, the vast majority of these studies evaluated the impact of preschool education at a local or national level (Gormley et al., 2008; Melhuish, 2008). Except with one recent example (Richter et al., 2021), the extant literature includes few multiple country studies, and these studies included a limited number of countries and did not focus on curriculum-based learning outcomes. International, large-scale assessments, such TIMSS, have the potential to fill this void by allowing researchers to gather evidence about the performance of different countries' educational systems at the preschool, elementary, and middle school levels with regard to literacy, mathematics, and science outcomes.

Therefore, the current study seeks to answer the following research question "Is the inclusion of science in the preschool curriculum associated with fourth- and eighth grade science achievement scores?" We hypothesized that inclusion of learning outcomes specific to science concepts and skills in preschool curricula is a significant predictor of children's later science achievement. More specifically, we hypothesized that, even after controlling for preschool enrollment rates, the inclusion of science in preschool curricula will be a statistically significant predictor of children's fourth- and eighth-grade TIMSS science achievement scores.

## Method

### Study Countries

A total of 57 countries and 7 benchmarking entities (regional jurisdictions of countries such as states or provinces) participated in the 2015 round of TIMSS. The country-level measure of fourth-grade science achievement results was calculated and reported for 47 countries. Of these 47 countries, four countries did not have preschool curricula issued at the state or national level. Therefore, these four countries were not included in this study. The effective sample for the analysis of fourth-grade science scores included 43 countries, with the State of Florida representing the United States and the Province of Ontario representing Canada (Please see the list of countries in Appendix 1. Study data set). More than 312,000 students, which included nationally representative samples of approximately 4,000 students from each country,

participated in the fourth-grade assessments during the TIMSS 2015 cycle (see https://timss.bc.edu/timss2015/ for more information).

A total of 64 countries and 8 benchmarking entities participated in 2019 TIMSS cycle. The country-level measure of eighth-grade science achievement results were calculated and reported for 39 countries, of which 29 countries had matching fourth-grade science achievement results reported in the previous 2015 TIMSS cycle. Therefore, the effective sample for the analysis of eighth-grade science scores included 29 countries, with the Province of Ontario representing Canada (Please see the list of countries in Appendix 1. Study data set). More than 250,000 students, which included nationally representative samples of approximately 4,000 students from each country, participated in the eighth-grade TIMSS 2019 assessments (see https://timss.bc.edu/timss2019/ for more information).

**Measures**

*Fourth- and Eighth-Grade Science Achievement Test Scores*

The country-level assessment scores of fourth-grade science from TIMSS 2015 and eighth-grade science from TIMSS 2019 were used as outcome measures in the present study. The fourth- and eighth-grade science assessment frameworks were organized under two dimensions: content and cognitive. The content dimension for the fourth-grade assessment included three domains: Life science (45%), physical science (35%), and Earth science (20%). Life science was represented by five topic areas, physical science content included three topic areas, and Earth science content included three topic areas (Mullis & Martin, 2013). The content dimension for the eighth-grade assessment included four domains: Biology (35%), chemistry (20%), physics (25%), and Earth science (20%). Biology was represented by six topic areas, Chemistry was represented by three topic areas, Physics included five topic areas, and Earth science content included four topic areas (Mullis & Martin, 2013).

The cognitive dimensions for the fourth-grade science and eighth-grade science assessments included three domains: Knowing (fourth-grade: 40%, eighth-grade: 35%), applying (fourth-grade: 40%, eighth-grade: 35%), and reasoning (fourth-grade: 20%, eighth-grade: 30%). The fourth- and eighth-grade science achievement assessments contained a total of 176 and 220 items respectively in two formats including multiple-choice and constructed-response. The test-takers answered up to 28 science items for the fourth-grade assessment and 36 science items for the eighth-grade assessment in 36 to 45 minutes (Martin et al., 2016; Martin et al., 2020; Mullis & Martin, 2017). The international median Cronbach's alpha reliability was 0.78 for the science assessments. The science assessments scores were examined utilizing the item response theory framework and the country level science achievement scores were scaled with a mean set to 500 and standard deviation of 100 (Martin et al., 2016; Martin et al., 2020).

*Preschool Science Curriculum Scores*

The preschool science curriculum score was calculated for each country included in the analysis. The preschool science curriculum scores were obtained via a scoring instrument developed by the researchers. Curricular documents used by the included countries during the academic year of 2010-2011 were collected from the websites of ministries of education or relevant governmental institutions. The collected PreK curriculum documents were analyzed and scored based on the document and curriculum analysis methods (Bowen, 2009; van den Akker, 2003).

The scoring instrument consisted of five dimensions that assessed inclusion of: 1) Science as a standalone domain in the curriculum, 2) Science process skills, 3) Learning outcomes specific to Earth and space science concepts, 4) Learning outcomes specific to life science concepts, and 5) Learning outcomes specific to physical science concepts. Dimensions were rated 0 if there was no evidence of inclusion of science, rated 1 if there is partial inclusion of science and rated 2 is there is adequate level of inclusion of science. The possible total score for each country ranged from 0 to 10. Half of the countries curriculum documents were randomly selected and rated independently by two researchers to establish the inter-

scorer reliability. The Cohen's weighted kappa coefficient was 0.72, suggesting high inter-scorer reliability (Cohen, 1968).

### Preschool Enrollment Rate

The country-level measure of the gross enrollment rate in preschool was used as a control variable in the study. The enrollment rate data represented children aged three to five who were attending center- or school-based programs aimed to meet the educational and developmental needs of children who are yet to start primary school. The preschool enrollment rate data were obtained from the Organisation for Economic Co-operation and Development (OECD) Family database (http://www.oecd.org/els/family/database.htm) .

## Data Analysis

We used bootstrapping linear regression models (Stine, 1985) to test the hypothesized association of preschool science curricula with fourth- and eighth-grade science achievement scores. This nonparametric analytical approach was selected for the analysis of the study data because this approach does not require strict distributional assumptions, and it works well with limited sample sizes (Fox, 2016). Bivariate correlation coefficients and unstandardized β coefficients, with their corresponding confidence intervals for simple and multiple regression models, were calculated using a bootstrap procedure where a large number of random samples (n=1000) with replacements were drawn from the actual data. Coefficients were estimated for each sample.

We first tested a simple regression model, with fourth-grade science scores as a dependent variable and science curriculum scores as an independent variable. Next, we tested a multiple regression model with fourth- and eighth-grade science scores as dependent variables, science curriculum scores as independent variables, and preschool enrollment rates as control variables. Model assumptions were examined using graphical methods and formal tests. No violation of assumptions or outliers were detected. Also, the mean science achievement scores of countries with low and high science oriented preschool curriculum (countries with science as a standalone domain in their preschool curriculum versus countries who did not have science as a standalone domain in their preschool curriculum) were compared using independent samples t-tests. All analyses were performed using SPSS version 26.

The dependent variables (outcome) were fourth- and eighth-grade science scores collected in the 2015 and 2019 TIMSS cycles respectively. The mean of fourth-grade science scores (n=43 countries) was 512.18, with a standard deviation of 52.71, and the scores ranged from 352 to 590. The mean of eighth-grade science scores (n=29 countries) was 505.93, with a standard deviation of 46.23, and the scores ranged from 394 to 608. The independent variable (predictor) was the preschool science curriculum score of participating countries in the 2015 TIMSS cycle. The mean science curriculum score (n=43 countries) was 4.67 with a standard deviation of 2.331, and the scores ranged from 0 to 9. The 2010-2011 preschool enrollment rates of countries were used as a control variable. The mean preschool enrollment rate (n=43 countries) was 73.03% with a standard deviation of 21.39%, and the rates ranged from 11.13% to 100%.

## Results

We found partial support for the hypothesis that inclusion of learning outcomes specific to science concepts and skills in preschool curricula have a positive impact on children's later science achievement (see Fig. 1). Initially, we calculated bootstrapped bivariate correlation coefficients for the outcome, predictor, and control variables. The relationship between countries' fourth grade science scores and science curricula scores was moderate and statistically significant (r=.44, p=0.003, BCa 95% CI for r=0.15-0.66). The relationship between countries' fourth grade science scores and preschool enrollment rates was high and statistically significant (r=.55, p=0.001, BCa 95% CI for r=0.30-0.71).

The researchers calculated a bootstrapped partial correlation coefficient for countries' fourth grade science scores and science curricula scores, using preschool enrollment rates as a control variable. The relationship between countries' fourth grade science scores and science curriculum scores remained

significant (r=0.33, p=0.036, BCa 95% CI for r=0.04-0.54).

The results of the bootstrapped simple regression analysis indicated that the preschool science curricula scores explained 19.6% of variance in countries' fourth grade science scores (F1,41=10.01, p=0.003), and were significant predictors of countries' fourth grade science scores (B=10.032, p=.013, BCa 95% CI for B=3.27-16.53). A one-point increase in science curricula scores corresponded to about a 10-point increase in countries' fourth grade science scores.

The results of the multiple regression analysis of science curricula scores on fourth grade science scores, accounting for preschool enrollment rates, indicated that the preschool enrollment rates of countries alone explained 30% of variance in countries fourth grade science scores (F1,41=17.57, p=0.001). The inclusion of the science curriculum scores into the regression model explained an additional 3.7% of variance in countries' fourth grade science scores (F1,40=4.71, p=0.036). The whole regression model explained 24.1% of the variance (F2,40=4.13, p=0.001). In the regression model, both the countries' preschool enrollment rates (B=1.11, p=0.004, BCa 95% CI for B=0.49-1.63) and the science curricula scores (B=6.55, p=0.044, BCa 95% CI for B=1.21-12.08) were statistically significant predictors of countries' fourth grade science scores. While a one-percentage increase in countries' preschool enrollment rates, on average, corresponded to about a one-point increase in countries' fourth grade science scores, a one-point increase in science curricula scores, on average, corresponded to about a seven-point increase in countries' fourth grade science scores.
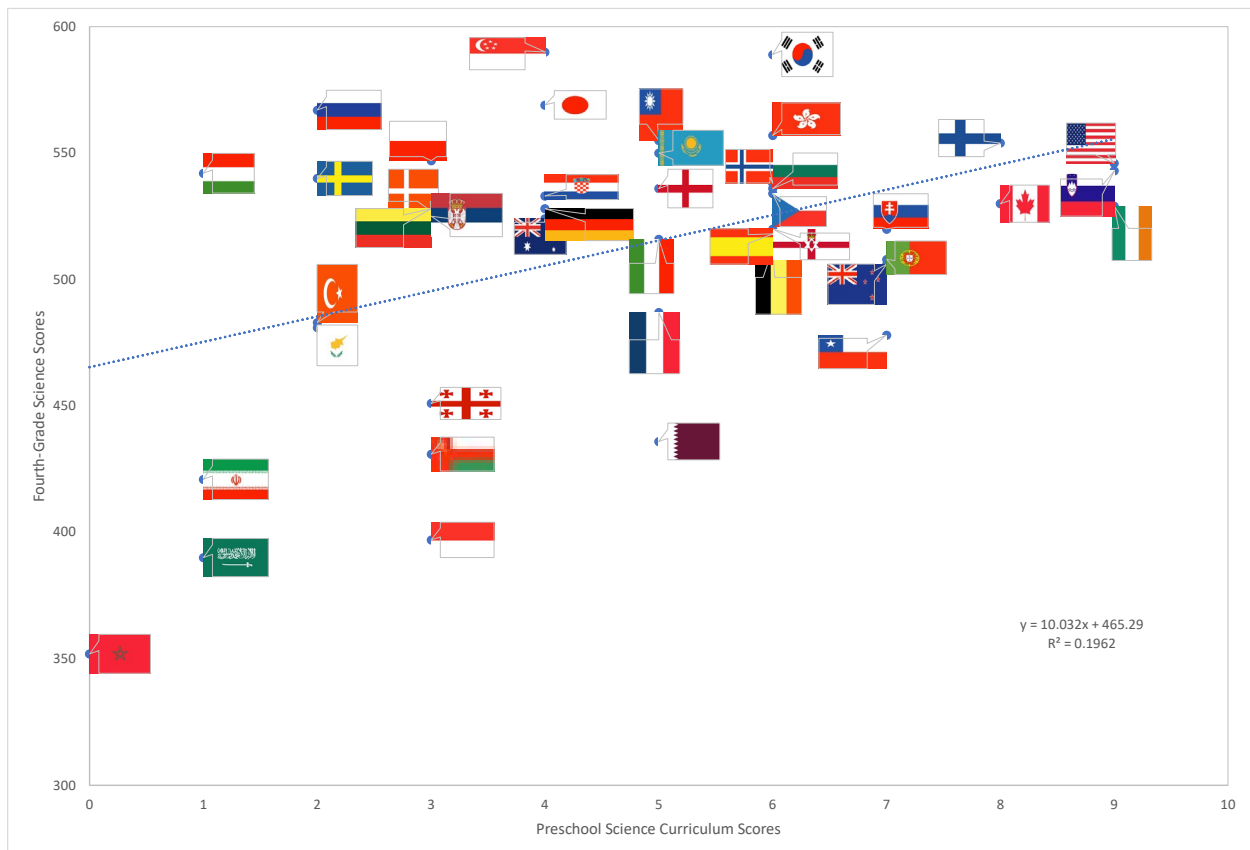


**Figure 1.** Preschool science curriculum scores predict fourth-grade science achievement scores

A final bootstrapped multiple regression analysis was performed to examine whether science curricula scores predicted countries' eighth-grade science scores observed in 2019 after controlling for the preschool enrollment rate of countries. The results indicated that countries' preschool enrollment rates alone explained 20% of variance in countries' eighth-grade science scores (F1,27=6.91, p=0.014). The inclusion of the science curricula scores into the regression model explained an additional 3.7% of variance in countries' eighth-grade science scores, but this effect was not statistically significant (F1,26=1.27, p=0.27).

In the whole regression model, neither the countries' preschool enrollment rates (B=0.77, p=0.053, BCa 95% CI for B=-0.01-1.51) nor the science curricula scores (B=3.96, p=0.27, BCa 95% CI for B=-3.27-10.43) were statistically significant predictors of countries' eighth-grade science scores.

The comparison of the mean science achievement test scores of countries with science as a standalone domain in their preschool curriculum (high science focus, n4th grade= 11, n8th grade=7) and countries who did not have science as a standalone domain in their preschool curriculum (low science focus, n4th grade= 32, n8th grade=22) demonstrated that countries with high science focus tend to obtain higher mean science achievement test scores at fourth-grade assessment (see Fig. 2). The difference was statistically significant for the fourth-grade assessment (p=0.042) with high effect size (d=0.74).



502.66   530.91   498.36   529.71

| Low Science Focus | High Science Focus | Low Science Focus | High Science Focus |
| Fourth Grade | Fourth Grade | Eighth Grade | Eighth Grade |
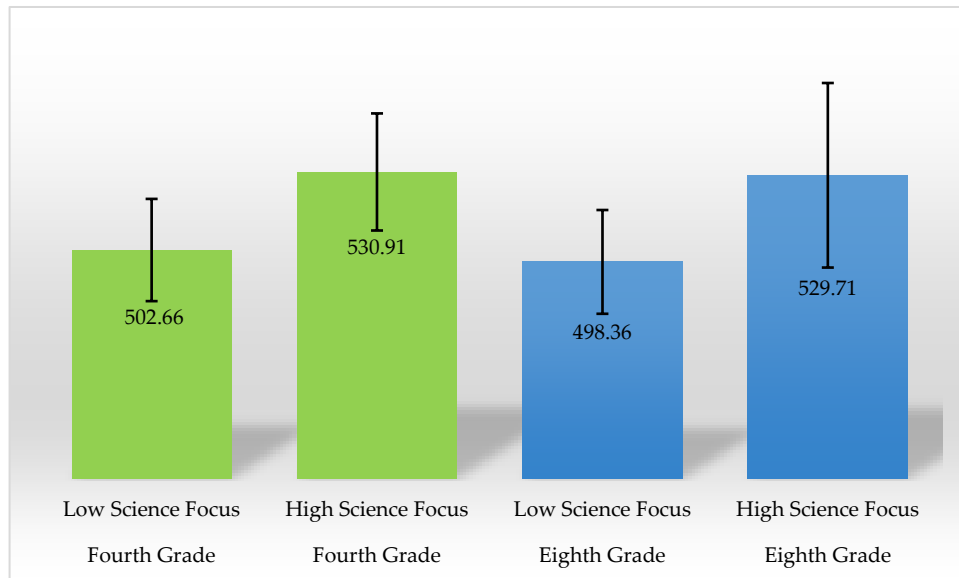
**Figure 2.** Mean science achievement scores of countries with low and high science oriented preschool curriculum

## Discussion

In the current study, we utilized the TIMSS data set, and the findings provided partial support for the hypothesis that the inclusion of learning outcomes specific to science concepts and skills in preschool curricula have a positive impact on children's later science achievement. Even after controlling for preschool enrollment rates, the inclusion of science in preschool curricula was a statistically significant predictor of children's fourth-grade science achievement scores but not their eighth-grade science achievement scores. Countries that included science concepts and skills in their preschool curricula were more likely to obtain higher scores on fourth grade science achievement tests than countries with limited science focus in their preschool curricula. However, the observed impact of the preschool science curricula on science achievement was not durable beyond fourth-grade and appeared to diminish by eighth-grade.

There are at least two possible explanations for this observed trend in the eighth-grade data. First, the initial gains in science concept learning and skill development may have faded-out by the end of middle school. Many preschool education programs or early interventions often do not produce enduring effects on children's academic and socio-emotional outcomes (Bailey et al., 2017; Lipsey et al., 2018). The fade-out of these initial gains might be observed over the next several years, during adolescence or up to young adulthood (Bailey et al., 2017; Hogrebe & Strietholt, 2016). Decrease in the quality of science learning opportunities provided at middle grades might be responsible for the weakened preschool effect observed in our study (Cortázar et al., 2020). The second explanation comes from the loss of statistical power due to the reduced sample size in the TIMSS eighth-grade science assessment data. While the effective sample for the analysis of fourth-grade science scores included 43 countries, the effective sample for the analysis of eighth-grade science scores included 29 countries.

Nevertheless, our study suggests that preschool curricular frameworks that explicitly target science concepts and skills improve later science achievement. The findings of the current study contrast with the previous research where early science learning opportunities reported to have no short to long term impact on young children's science achievement (Kinzie et al., 2014; Saçkes et al., 2011; Saçkes et al., 2013). The findings also corroborate the results from a recent study where children who enrolled in preschool programs had higher science test scores at age 15 than their peers who did not attend preschool (Richter et al., 2021).

There are some limitations of the current study that requires caution in the interpretation of the findings. In the present study PreK curricular documents were examined in the extent to which they included science concepts and skills as a learning area. The extent to which teachers effectively implemented the curricula in preschool classrooms was not examined. There is a great degree of variability in science teaching practices in preschool classrooms which might increase or decrease the association between the quality of curricular documents and children's science achievement. In addition, some countries use a national-level preschool curriculum, such as Türkiye, while others, such as Germany, only have general guidelines or frameworks, and the extent to which federal level guidelines or curricula frameworks are adopted in local practices is not clear (Kluczniok et al., 2016). Consequently, the findings of this study should be carefully interpreted for countries with no nationwide preschool curriculum.

## Conclusion

Development of cognitive and non-cognitive skills follow a hierarchical process where higher-level functions build on lower, preceding skills (Knudsen et al., 2006). Thus, high-quality preschool education programs support the development of fundamental knowledge and skills, which provide a solid foundation for the development of subsequent concepts and skills encountered in elementary grades through college. Increasing preschool enrollment rates alone, though significant, does not appear to be an effective strategy to improve educational and societal outcomes. Expanding the coverage of preschool education at the expense of quality may not return the investment costs and may result in limited or no long-term benefits (Barnett, 2011; Heckman, 2006). Policy makers should allocate resources to provide well-designed preschool education programs with high quality curricula that target developmentally appropriate concepts and skills for long-term gains.

International, large-scale assessments provide opportunities for researchers and policy makers to understand how well countries' educational systems perform in producing child outcomes specific to reading, mathematics, and science. The results of this study suggest that science concepts and skills should be an integral part of preschool curricula. Learning outcomes that are specific to science concepts and skills should be formally specified in countries' preschool curricular frameworks.

## Declarations

### Authors' Declarations

### Publisher's Declarations

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# Describing the play of three-year-old children in the home context

**Petra Varttinen[1], Päivi Pihlaja[2], Piia af Ursin[3]**

**Abstract**: This study examines play in the Finnish home context by specifically concentrating on the forms of play, quality factors of play and social nature of play. It is of particular interest to study play especially of three-year-olds, because the research on play for this group, in home environment is scarce especially in the Finnish context. This study is part of longitudinal, multidisciplinary study (STEPS) and is based on the responses from 921 families who answered the questionnaires both at the study recruitment point and at three years. The data were gathered during the years 2011–2013 for the first time ever from the Finnish home context and are a basis for research to be done later. There is a need for this kind of descriptive and identifying study to understand play in the home context. The results suggest that play, and especially playing outdoors, had a strong position in children's lives. Some forms of play were clearly gender-based and some demographic factors had a connection to the social nature of play. In addition, the level of participation in early childhood education and care was associated with play. No earlier studies have been conducted on the associations between participating in ECE and an increase in the sociability of play in the home context. Participating in ECE expands children´s social network and promotes possibilities to form friendships. In public discourse, the need to increase children's participation in ECEC has been strongly emphasized. This research supports these views.

## Introduction

Although play is seen so critically important to children´s physical and mental development and wellbeing that it is included in the article of United Nations Convention on the Rights of the Child (UNICEF, 1989), opinions on the nature of play have been controversial for many years in the field of educational studies. Play, as a phenomenon, is hard to define so that every researcher agrees on the term with the same conceptual clarity. Diversity in characterizing play can lead to a situation that research and results cannot be compared (Burghardt, 2012).

Despite several different perceptions of play, researchers have reached a consensus on one thing - play is seen as a mental process (Burghardt, 2012; Lillard, 2015), and it evolves and changes along with a child's age and development as well as during the actual play situation. Play is largely a social process (Burghardt, 2012; Eberle, 2014; Hakkarainen, 2001; Helenius & Lummelahti, 2014) and this socially structured process continues into adolescence, although the form of play naturally evolves. In the field of developmental psychology, play has often been designated using different criteria and/or stages. Although these criteria can vary depending on the point of view, it is common for all researchers to perceive play as voluntary, imaginary, self-rewarding, satisfying and pleasurable social process (e.g. Burghardt, 2012; Caillois, 2006; Eberle, 2014; Hughes, 1998; Kalliala, 1999).

Researchers and early childhood teachers agree on the importance of play (Hakkarainen et al., 2013; Lillard, 2015). It has been claimed that play is disappearing or at least radically diminishing in childhood

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and from children´s everyday lives (e.g., Gray, 2011; Ginsburgh, 2007; Järvinen et al., 2012; Nicolopoulou, 2010; O´connor et al., 2017; Whitebread, 2012). In conjunction with this, there have been critical views expressed as to whether early childhood educators understand the meaning of play for children's well-being and development (Hakkarainen et al., 2013; Kalliala, 2008; Murray, 2018).  Moreover, parents have received some criticism about their ignorance of children´s play and its meaning for development and wellbeing. The value of play has been too often under valuated according to several studies (e.g. Baluja et al., 2012; Bento et al., 2017; Ginsburg, 2007; Little et al., 2011). Although Heljakka (2024) is also concerned about the diminishing of play and its premature end, she doesn't fully endorse this point of view. She has studied the technologization of play in Finland between 2018 and 2022 and sees, instead of a decline in play, a transformation within play-viewing the digital world as an opportunity and gaming as one form of play.

A growing culture of fear about the possible accidents that might occur affect parents´ and professionals´ attitudes toward outdoor play, so children tend to be kept inside, occupied with structured activities, and controlled by adults (Brussoni et al., 2012; Singer et al., 2009). Many parents do not know how to support children´s play and have a limited perspective about their role in joining children´s play (Vandermaas-Peeler et al., 2012). This notion is interesting because the conceptions, beliefs, and values that parents have about what constitutes a good life and how to care and educate their child, as well as their attitudes toward play, child image, and concept of an ideal human being all influence a child's opportunity to play (Puolimatka, 1999).

According to Kalliala (2008) the circumstances needed for play to succeed should be noted. Adults can organize space, give time, and offer different kinds of toys and tools to children. Adults can also enrich play by offering experiences for their children such as going on trips or reading stories (Kalliala, 2008). A safe play environment is at the core of all activities, as children cannot fully engage in play if they feel unsafe. Therefore, in addition to the physical environment, it is important to also ensure the safety of the psychological environment, as young children need safe and sensitive adults around them (Kalliala, 2008). It is important that children have the opportunity to continue their play for as long as they want and have the opportunity to create play themselves because play should occur from the children's point of view (Bergström, 1997). When shifting the focus to the field of neuroscience, we can address the significance of play for development from the perspective of brain function. In order to thrive and adapt, the brain requires a neurotransmitter called dopamine. The shared joy generated by play connects individuals through strong dopamine activation (Sajaniemi et al., 2015).

To be able to promote children´s opportunities to play at home, it is necessary to obtain more information about small children´s play in home context. It is essential to discover, what and how children play at home and with whom they play because play and playfulness is significant in children's formation and maintenance of friendships, which are important in supporting healthy social and emotional development of a child (Panksepp, 2007). The importance of studying three-year-old children's play is based on the fact that, at this age, most children start their early childhood education and care (ECE) in Finland because that is when the parent's right to childcare leave ends and also because the social nature of play intensifies at the age of three.

Knowledge gained from home facilitates cooperation between parents and early childhood education when aim is to strengthen children´s long-lasting play to continue and evolve. This study reinforces consistent guidance in play between home and early childhood education and enhances parents' understanding of the importance of play. Every environment around the child, from immediate environment (microsystem) concerning child´s family to the relationship and interaction between educator and family (mesosystem) influence children´s play (Bronfenbrenner, 1974).

Also, at the age of three, the perception of gender (i.e. the child's awareness of whether they are a boy or a girl) has been developed (Kohllberg, 1966; Martinez et al., 2020). This Kohllberg´s theory of gender identity development has been later contradicted, but the influence of the social interaction and expectations towards children how to behave according to gender stereotype, is commonly acknowledged

(e.g., Paechter, 2007; Stainton-Rogers, 2003). In many studies (e.g. Boe & Woods, 2018; Mesman & Groeneveld, 2017; Morawska, 2020) evidence has been found that play is strongly gender-based. Boys and girls play differently using different kind of forms of play (e.g. Green et al., 2004; Sherman & Zurbriggen 2014) and also toy preferences are gender-typed (Zosuls et al., 2018). The aim of this study is to describe children's play in the home context—the forms of play, quality of play, and social nature of play - and to find out if gender, family factors (social status, income level, family structure, parent's current activity), and participation in ECE associates with children's play in the home context.

**The Forms of Play, The Quality of Play, and The Social Nature of Play**

Play can be divided and observed from either the perspective of cognitive development or social interaction (Whitebread, 2012). From the cognitive development point of view, play is categorized into different forms and examined play is examined based on its features because, in this way - when observing children, it can be discovered what children play and the extent of their repertoire of play. Each form of play supports different part in children's learning and development. In the field of the study, notion of the forms of play is quite unanimous, even though there are some slight differences between authors. In this study, the forms of play are derived from the most commonly occurring forms of play, for example, imaginary play, role playing, building, and playing with objects. Each form supports children's overall development (e.g. Parten, 1932; Piaget, 1972; Smith, 2005; Whitebread, 2012).

Play has already been divided into five social categories in the 1930s by Milfred Parten (Parten, 1932; see also e.g. Helenius, 2014). This basic categorization of Parten is still valid, although additions have been made over the years (see e.g., Garvey, 1990). These categories are not hierarchical, although they are partly age-related. The categories are onlooker behavior, solitary independent, parallel, associative, and cooperative play. In onlooker behavior, the child's play is apparently passive and can entail watching others. In solitary independent play, the child plays on their own. In parallel play, the child plays next to another child but without any clear interaction or joint play. In associative play, the child shares materials and talks to others, but there is lack of coordinative play activities and shared interests. In cooperative play, children organize their play toward some specific goal and negotiate roles (Parten, 1932). At the age of three, children's play increasingly evolves from solitary independent play into associative and cooperative play, although this transition is not hierarchical. In the play of three-year-olds, every social form from solitary to cooperative play can be observed, and the social nature of play can change depending on the situation (Smilansky & Shefatya, 1990).

In this study we focus on describing the amount of solitary play (playing alone), playing with others (with parents, siblings, other child) and the amount of onlooker play (child watches other children's play). The amount of playing alone and playing with other children are key factors when evaluating the social nature and promoting children's possibilities for social play with other children. Although an adult's guidance is significant for play to evolve, the most significant role in learning in play is with other children. When playing together with peers' children adopt and mirror from each other. The importance of peers needs to be emphasized compared to the importance of adults. Children learn to plan and negotiate together (Hännikäinen, 1995b; Kronqvist, 2006.)

When discussing the quality of play, we focus on the quantity and continuity of play, and concentration in play. These factors are present in play and parent's attitudes and actions; physical and emotional availability influences them greatly (Kalliala, 2008; Singer, 2009). According to Vuorisalo (2009) to enhance play, it needs time, space, toys, and other players. Play is so essential to children, as mentioned earlier, that when children can play as much as they want, they do play a lot and when they have possibility to continue the same play in the following day – they do. The continuity of play develops a child's memory and creates a basis for storytelling. At the same time, it is important to notice that duration of play or a single play situation can vary considerably for a three-year-old depending on what the children themselves value most in the situation. It is often more important to children to participate and to be able to affect to situation than how the play itself proceeds. The motives for play are then social and arise from the peer group (Vuorisalo, 2009).

Although we are talking about the quality of play, it is challenging to say that a certain kind of play is either good or bad. However, in the play of three-year-olds, the foreseeable elements are growing sociability, concentration, continuity, and role taking in play with the help of adults (Dunderfelt, 2011; Keltikangas-Järvinen, 2012). If children are not given the time, space, and the independence to develop their own spontaneous and self-initiated play, even the most skillful will not be able to play (Whitebread, 2012).

**Importance of Play at Home Environment**

Perhaps surprisingly, it is common in many studies for play to be regarded as only having instrumental value. As such, play has been seen to help children acquire academic skills: learning readiness, learning behaviors, and problem-solving skills (Coolahan et al., 2000). These studies have been conducted in official contexts like in early childhood education (ECE) while fewer studies have been conducted in the home context. However, in studies concerning play at home, the same instrumental role of play can be seen as in the formal education context (Lin and Li, 2018; LaForett & Mendez, 2017).

The amount of time families spend together has been progressively decreasing during recent years and this might influence also to the mutual playtime (Miettinen and Rotkirch, 2012). Parents have an essential role as being the first ones to enable small children´s world of play (Lindqvist, 2001). The studies concerning play in the home context concentrate mainly on interaction between children and their parents (Lin and Li, 2018; Lyytinen and Lautamo, 2003; Runcan, 2012). There are no descriptive studies regarding the form of play, quality of play and social nature of play. In the home context, small children often play alone and parallel play and therefore, parents' involvement in the play situation and the joint play situation is important. This is because it gives the child the opportunity to practice their skills, limitations, and ability to learn to regulate their own actions and the interaction in the situation. However, if a parent has difficulties to interpreting child´s initiatives and suggestions, the play situations are experienced to be difficult (Esdaile & Olson 2004). Adult guidance and involvement in play situations are essential in order to evolve long-lasting play (Lillard, 2015; Mikkola & Nivalainen, 2011). Home is a significant environment for a child's development, and play is a central part of this development.

By understanding how children play at home, we can gain valuable insights into how they develop cognitive, social, and emotional skills. Examining the amount of play is important because, it gives us an idea of how much time children spend playing at home. This can affect the opportunities they have, to develop various skills through play. Additionally, it is important to gather information about the social nature of play - whether children play alone or with other children. A large amount of solitary play may be a risk factor to child´s social development and their ability to form and maintain relationships with others.

**Finnish Families**

In Finland, the number of families with underage children has been slowly falling over the past ten years. In the 1950sm the percentage of families with children was 64.4% and in 2013 it had decreased to 39.1%, and in 2021 it was 37%. The most common family type, to which 43 % of the families belong to, continues to be the nuclear family - a married couple with one child (Official Statistics Finland, 2019).

The Participation rate in ECE in Finland is very low when compared to other OECD countries (OECD 2016.) The main reason for this is that Finnish society financially supports families in taking care of their children at home until children are three years old (Karila, 2016). Children under age three are mainly taken care at home, only about 30 % of children under age three are in ECE. About 68 % of Finnish three-year-old children and 75 % of four-year-old children are in ECE (OECD 2015). In summary can be said that family sizes are small and nearly 70 % of the children at the age of three-year-old, participate ECE services outside home.

**Research questions**

The aim of this study is to describe children´s play in home context – the forms of play, quality of

play and social nature of play.

1. What forms of play do three-year-olds play at home, what kinds of quality factors of play can be found, and what is the social nature of play in the home context?

2. How do gender and family factors (social status, income level, family structure, parent´s current activity), and participation in ECE associate with children's play in the home context?

## Method and Participants

Participants were Finnish parents, whose children were born in the Hospital District of Southwest Finland. Originally 1797 mothers and 1658 spouses were recruited for the intense follow-up of this cohort study during the years of 2008 - 2010 (see Lagström et al., 2013 for more of the cohort and recruited). This part of the study is based on the responses of 921 families from 45 different municipalities from small- to large-sized cities, who answered the questionnaires both at the recruitment point and at three years. Most of the responses were given by mothers (95.9%) and only a small portion of the answers were given by fathers (4.1%). Due to the father´s low response rate, the associations between background variables and children´s play are examined based on mother´s answers. The sample of the families is in mostly consistent with the family structure in Finnish society during the research period 2013, but the sampling differs at small scale regarding the structure of the family (see Lagström et al. 2013). Compared to the cohort population, the number of families with single parent was lower (4.3 vs 18%) and regarding marital status, cohabitation more prevalent (35 vs 18%) than among the study population. (See anonymous et al., 2013). The demographic information of the participating families is shown in Table 1.

**Table 1.** The distribution of data according to family (N=921) background variables

| Variables* | N | % |
|---|---|---|
| Age | 896 | |
|    < 25 | 43 | 4.8 |
|    25-35 | 693 | 77.4 |
|    > 35 | 160 | 17.9 |
| Social Status | 864 | |
|    Experts or senior executives | 652 | 75.5 |
|    Other | 212 | 24.5 |
| Income level | 903 | |
|    < 2000 | 181 | 20 |
|    ≥ 2000 | 722 | 80 |
| Family structure | 899 | |
|    Nuclear family | 710 | 79 |
|    Blended family | 149 | 16.6 |
|    Single parent | 40 | 4.4 |
| Current activity | 900 | |
|    Working full-time | 396 | 44 |
|    Full-time parent | 278 | 31 |
|    Other** | 226 | 25 |

*Due to the father´s low response rate, data gathered is based on mother´s answers.
** Other: working part-time, on shift leave, unemployed, studying, on sick leave, retired. Note: N varies between different variables due to missing answers.

### Instrument

The present data derives from the parent´s self-reported answers to the questionnaires, which were prepared for the third year and distributed between the years of 2011-2013 (see Lagström et al. 2013). The questionnaire targeted to gain information about well-being and family contexts (somatic and mental health, living conditions, socio-economic factors, family functioning, family interaction and parenting) and the development of the child (temperament, cognitive and language development, gestures, play behavior, socio-emotional development and eating behavior). For this study, we applied the section measuring children´s play, which included 19 items (11 items regarding children's form of play at home, 3 items regarding quality, and 5 items regarding the social aspect of play). All the items were assessed using Likert scale from 1 to 4 (1 = never, 2 = seldom, 3 = sometimes, 4 = often/a lot), and they are as follows.

Forms of the play:
1. Imaginary play (Batman, stories, movies)
2. Role playing
3. Building
4. Jiggshaw puzzles
5. Playing with toy cars
6. Playing with soft toys or dolls
7. Running games, hide-and-seek
8. Play with objects/toys
9. Playing games (e.g. cards)
10. Playing computer games
11. Playing outdoors

The Quality factors of Play:
1. Child plays a lot / quantity of play
2. Child changes the play often / concentration on play
3. Child continues unfinished play in following days / continuity of play

The Social Nature of Play:
1. Child plays alone
2. Child plays with other children (not siblings)
3. Child plays with a parent / parents
4. Child plays with other siblings
5. Child watches other children's play (looker-on)

When examining associations between the family and other variables for the quality of play (table 5), the variables were dichotomized and re-coded for the analyses as follows: the "quantity of play" was coded 0 for playing only a little (values 1–3) and 1 for playing a lot (value 4). "Concentration of play" was coded 0 for low concentration (values 3–4) and 1 for high concentration (values 1–2). Similarly, "continuity of play" was coded 0 for weak (values 1–3) and 1 for strong (value 4) continuity.

Like the quality of play, the items describing the social nature of play (see Table 6) were dichotomized and re-coded. For "playing alone," values 1–3 were coded as 0 meaning the child never/seldom/rarely plays alone, and value 4 was coded as 1 meaning the child often plays alone. For "playing with others," values 1–3 were coded as 0 meaning the child never/seldom/rarely plays with others, and value 4 was coded as 1 meaning the child often plays with others.

To discover the diversity in three-year-old children´s play we formed an additive variable including all forms of play children were reported playing often. The scale for the "diversity of play" varied between 0–11.

Background variables in this study are the following ones: child´s gender, the existence of siblings, income level, social status, current activity of the parents, family structure and child`s participating in ECE. In actual questionnaire the age of the parents was originally continuous variable, in this article these variables were changed to a new three-class variables so that years from 17 to 25 got the value 1, years from 26 to 35 got the value 2 and years from over 35 got the value 3.

The parent´s current activity was re-coded as working full-time and not working full-time. The parent's social class (manager, professional, technician/associate worker, skilled agricultural worker, forestry and fishing worker, craft and related trades worker, plant and machine operator, assembler, and other) was based on the International Standard Classification of Occupations (ISCO-08) made by International Labour organization (ILO) in 2008 (and was re-coded as a higher (at least professional) or lower (all others) occupational status. As independent variables, the existence of siblings and the level of income in the family were used in this study.

The existence of siblings was re-coded as follows: A child with no siblings was given a value 1 and a child with siblings was given a value of 2. In this study, the income level was re-coded to a family-level

income that was either under or over 2,000 euros per month; the classification is based on the definition of Statistics of Finland for the at-risk-of-poverty threshold (OSF, 2015).

For further analysis, dicotomic sum variable was made from the quality items: child plays a lot, child changes play often and child continues unfinished play next day. These items were originally scaled from 1 - 4: 1= never, 2 = seldom, 3 = sometimes and 4 = often/a lot. Child plays a lot was re-coded as 0 for not playing a lot/not focusing on play/ not continuing the play next day and as 1 for playing a lot/focusing on play/continuing the play next day.

## Analysis

All statistical analyses were made using SPSS program (SPSS Manual, version 27). First, the descriptive statistics were observed to obtain a general impression of the children´s play. Independent samples t-test were used to study the differences in play between boys and girls. P-value < 0.05 was considered statistically significant. In addition to the P-value, the substantive significance of the difference (the effect size) was reported. In this study we used Cohen´s (Cohen, 1988) d value. When the effect size is 0.2, connection is considered weak. When d is 0.5, the connection is medium/strong and if d is >0.8, connection is very strong.

Second, a series of Crosstabs were conducted to examine the associations between family demographics, ECE participation, and the form, quality and social nature of play. The Chi-Square Test of independence was used to test the significance of the associations between the variables.

## Ethical Considerations

This study is part of a longitudinal, multidisciplinary cohort study (STEPS study) that has been carried out since 2008. Ethics Committee and the Ministry of Social Affairs and Health has approved the study protocol in 2007. This authorization extends first seven years of the cohort study. Parents were notified with the option to discontinue at any point of the cohort study. Participation was voluntary and anonymity was guaranteed. After the recruiting process, families were kept informed with regular letters during the cohort research (see Lagström et al., 2013).

## Results

In this section, we present the results concerning the questions: What forms of play do three-year-olds play at home, what kinds of quality factors of play can be found, and what is the social nature of play in the home context.

First we describe the forms and diversity of play, secondly the quality of play (quantity, concentration and continuity) and thirdly, the social aspect (playing alone, playing with others; parents; siblings; other children) of play at home. Then we present results related to the background—how gender, family factors (social status, income level, family structure, current activity), and participation in ECE associate with children's play in the home context.

## The Forms of Play at Home

The five most common forms of play in the home context in order of preference were: playing outdoors, running games, hide-and-seek, building/blocking, role play and playing with objects/toys. As seen in Table 2, there were no differences between boys and girls in playing games, doing jigsaw puzzles, playing with objects, playing with computer or running games. Gender differences were found in the following forms: playing outdoors, block activities/play, role playing, playing with toy cars, playing with dolls and soft toys and pretending / imaginary play. Boys played more with toy cars and did blocking more than girls. On the other hand, girls played more with dolls and soft toys, and did more role playing. There was a statistical difference between the genders in two forms of play: playing outdoors and pretending/imaginary play. Boys played more outdoors than girls, and girls had more imaginary play than boys. Playing outdoors was the most common form of play compared to other forms of play, as 80% of the children were reported playing outdoors often or a lot. Looking at the diversity of children´s play, no

differences between boys and girls were found. Majority of the three year olds (42%) played from five to six different forms of play at home (M=5.1, SD= 1.729).

**Table 2**. Forms of play in the home context and the differences in forms of play between boys and girls (independent samples t-tests)

| Forms of Play | %[a] | Total (n=833) M | SD | Boys (n=431) M | SD | Girls (n=402) M | SD | p | d* |
|---|---|---|---|---|---|---|---|---|---|
| Playing outdoors | 79.5 | 3.78 | .644 | 3.82 | .438 | 3.74 | .507 | .000 | .168 |
| Running games, hide-and-seek | 67.3 | 3.63 | .564 | 3.63 | .567 | 3.63 | .561 | .963 | - |
| Building/Blocking | 61.0 | 3.53 | .636 | 3.67 | .522 | 3.38 | .685 | .000 | .466 |
| Role Play | 60.4 | 3.45 | .791 | 3.25 | .870 | 3.65 | .638 | .000 | .524 |
| Play with objects | 57.6 | 3.48 | .674 | 3.51 | .668 | 3.45 | .680 | .513 | - |
| Play with Toy cars | 50.1 | 3.19 | .926 | 3.82 | .803 | 2.52 | .848 | .000 | 1.95 |
| Play with dolls or soft toys | 42.7 | 3.10 | .919 | 2.56 | .848 | 3.67 | .580 | .000 | 1.53 |
| Pretense/imaginary play | 34.7 | 2.88 | 1.02 | 2.78 | 1.06 | 2.99 | .968 | .000 | .280 |
| Playing games (e.g. cards) | 13.2 | 2.56 | .834 | 2.44 | .821 | 2.68 | .831 | .899 | - |
| Doing jigsaw puzzles | 40.8 | 3.22 | .755 | 3.12 | .770 | 3.34 | .724 | .831 | - |
| Computer games | 2.3 | 1.44 | .742 | 1.42 | .714 | 1.43 | .771 | .254 | - |
| Diversity of Play** | | 5.1 | 1.729 | 5.42 | 1.82 | 5.67 | 1.98 | .058 | - |

[a] percentage of children playing a lot; * Cohen´s d; ** scale from 0-11. Notes: There were no differences in the diversity of play between children in the home context and those in ECE (p >0.05).

## Quality of Play at Home

The common features concerning the quality of play in the home context were that the most of the children played a lot at home and half of the children changed their play often and only one-fifth of the children often continued unfinished play in the following days. As seen in Table 3, no differences were observed between the genders regarding the quality of play, p > .05.

**Table 3**. Quality of Play at Home and the differences in the quality of play between boys and girls (independent samples t-tests)

| Quality items of play | %[a] | Total (n=828) M | SD | Boys (n=429) M | SD | Girls (n=399) M | SD | p |
|---|---|---|---|---|---|---|---|---|
| Plays a lot* | 92.0 | 3.92 | .192 | 3.92 | .243 | 3.91 | .285 | .498 |
| Changes play often** | 54.4 | 3.51 | .608 | 3.53 | .576 | 3.50 | .596 | .888 |
| Continues unfinished play next day*** | 17.7 | 2.77 | .844 | 2.79 | .814 | 2.76 | .801 | .575 |

Notes: a percentage of children playing a lot; * Quantity, ** Consentratio; *** Continuity.

## Social Nature of Play at Home

Table 4 presents different aspects of sociability of children´s play. The most common feature was that children played with their parents (M=3.39) and also that 35.7 % of the children played often alone (M=3.24). There was statistical difference between genders, suggesting that boys played more with a parent/parents than girls. There were no differences between boys and girls in other social factors of play.

### *Associations Between Background and Children's Play*

**Table 4.** The Social Nature of Play and the differences between boys and girls (independent samples t-tests)

| Social aspects | %[a] | Total (n=916) M | SD | Boys (n=477) M | SD | Girls (n=444) M | SD | p | d* |
|---|---|---|---|---|---|---|---|---|---|
| Plays alone | 35.7 | 3.24 | .647 | 3.23 | .658 | 3.26 | .031 | .391 | |
| Plays with a parent/parents | 46.5 | 3.39 | .632 | 3.45 | .598 | 3.32 | .661 | .003 | .200 |
| Plays with siblings[b] | 50.9 | 2.96 | 1.23 | 3.00 | 1.21 | 2.92 | 1.25 | .362 | |
| Plays with other children (not siblings) | 28.9 | 3.08 | .724 | 3.06 | .744 | 3.10 | .703 | .423 | |
| Watches other children´s play | 57.6 | 3.48 | .674 | 3.51 | .668 | 3.45 | .680 | .741 | |
| | 4.4 | 2.29 | .777 | 2.28 | .779 | 2.30 | .775 | | |

Notes: * Cohen´s d, [a] percentage of children playing a lot [b] including only children with siblings (n=651)

## Factors Associated with the Quality of Play (Including ECE)

Looking at the connections between background variables and different aspects of the quality of play, i.e. quantity, continuity and concentration, no significant associations were found. As seen in Table 5, all examined associations were statistically insignificant, p >.05.

**Table 5.** The associations between family and other factors to quality of play

| | Plays a lot [a] | | | Continues play next day often [a] | | | Concentrates to play often/ a lot [b] | | |
|---|---|---|---|---|---|---|---|---|---|
| Variables | n | % | X²(df) | n | % | X²(df) | n | % | X²(df) |
| **Gender** | | | 0.887(1) | | | 0.024(1) | | | 0.770(1) |
| Boy | 440 | 52.3 | | 474 | 51.9 | | 454 | 52 | |
| Girl | 401 | 47.7 | | 439 | 48.1 | | 419 | 48 | |
| **Siblings** | | | 1.770(1) | | | 0.205(1) | | | 0.460(1) |
| Yes | 600 | 75.9 | | 117 | 72.2 | | 254 | 29.1 | |
| No | 190 | 24.1 | | 45 | 27.8 | | 619 | 70.9 | |
| **Family Income** | | | 0.118(1) | | | 0.066(1) | | | 2.438(1) |
| <2000 | 368 | 45.8 | | 71 | 46.7 | | 377 | 45.1 | |
| >2000 | 436 | 54.2 | | 81 | 53.3 | | 459 | 54.9 | |
| **Current activity** | | | 0.464(1) | | | 1.250(1) | | | 0.262(1) |
| Working fulltime | 363 | 46.8 | | 63 | 42.6 | | 379 | 47 | |
| Not working fulltime | 413 | 53.2 | | 85 | 57.4 | | 14 | 42.4 | |
| **Social status of the family** | | | 1.770(1) | | | 1.133(1) | | | 1.549(1) |
| Experts or senior executives | 600 | 75.9 | | 120 | 78.9 | | 620 | 75.8 | |
| Others | 190 | 24.1 | | 32 | 21.1 | | 198 | 24.2 | |
| **Structure of the family** | | | 0.154(2) | | | 1.187(2) | | | 1.393(2) |
| Nuclear family | 706 | 79.2 | | 129 | 82.2 | | 676 | 79.2 | |
| Blended family | 147 | 16.5 | | 22 | 14 | | 142 | 16.6 | |
| Single parent | 40 | 4.5 | | 6 | 3.8 | | 35 | 4.1 | |
| **ECE** | | | 0.793(1) | | | 3.697(1) | | | 2.77(1) |
| Yes | 544 | 91.4 | | 95 | 16.0 | | 573 | 96.6 | |
| No | 297 | 93.1 | | 67 | 21.1 | | 300 | 94.3 | |

Note: [a] Classified 1-3=0, 4=1, [b] Classified 3-4=0, 1-2=1; * p<.05, **p<.01, ***p<.001

## Factors Associated with the Social Nature of Play (Including ECE)

The existence of siblings, family income level, structure of the family, and parent's current activity were all associated with the social nature of children's play (Table 6).

**Table 6.** The associations between background factors to the social nature of play

| | Plays often alone | | | Plays often together | | |
|---|---|---|---|---|---|---|
| Variables | n | % | X²(df) | n | % | X²(df) |
| **Gender** | | | 0.20(1) | | | 0.003(1) |
| Boy (n=474) | 167 | 35.2 | | 137 | 28.9 | |
| Girl (n=448) | 162 | 36.2 | | 127 | 28.4 | |
| **Siblings** | | | 16.869(1)*** | | | 3.822(1) |
| Yes (n=651) | 206 | 31.7 | | 175 | 27 | |
| No (n=270) | 123 | 46.1 | | 89 | 33.5 | |
| **Family income** | | | 5.655(1)* | | | 5.106(1)* |
| <2000 (n=181) | 163 | 40.4 | | 101 | 25.3 | |
| >2000 (n=722) | 155 | 32.7 | | 153 | 32.2 | |
| **Current activity** | | | 5.535(1)* | | | 4.203(1)* |
| Working fulltime (n=396) | 126 | 32.0 | | 125 | 31.9 | |
| Not working fulltime (n=452) | 179 | 39.8 | | 115 | 25.5 | |
| **Social status of the family** | | | 0.20(1) | | | 0.808(1) |
| Experts (n=652) | 233 | 36.0 | | 197 | 30.4 | |

| | | | | | |
|---|---|---|---|---|---|
| Others (n=212) | 77 | 36.5 | | 57 | 27.1 |
| **Structure of the family** | | | 3.686(2) | | **6.050(2)*** |
| Nuclear family (n=710) | 245 | 34.7 | | 203 | 28.8 |
| Blended family (n=149) | 61 | 41.2 | | 37 | 25.2 |
| Single parent (n=40) | 18 | 45.0 | | 18 | 45.0 |
| **ECE** | | | **12.085(1)*** | | **15.108(2)*** |
| Yes (n=600) | 190 | 31.9 | | 196 | 33.0 |
| No (n=320) | 139 | 43.4 | | 68 | 21.3 |

Note: $^{*}$p>.05, $^{**}$p<.01, $^{***}$p<.001

Playing alone was more common for children who did not have any siblings. Moreover, in families with lower income – the children tended to play alone more. In addition, almost 40 % of the children who´s parents were not working fulltime, often played alone. In families with a higher income level and in families where the parents worked full-time, children tended to play more with other children. Most of the children who played often with other children were from single-parent families. Children at home tended to play more alone than children who participated in ECE. Playing with other children in the home context (not with siblings) was more common for children participating in ECE than for children who did not attend ECE.

## Discussion and Conclusions

This study examined play in the home context by concentrating especially on the forms of play, quality of play and the social nature of play. In general, children´s play seemed diverse. The characteristics of play – the quality and social nature – did not differ between boys and girls; however, boys and girls played somewhat different forms of play. The study`s findings indicate that children tended to play outdoors a great deal and that several forms of play were gender-based. There is also an indication that the repertoire of the play did not differ between children who had been entirely at home compared to children who had attended to ECE. It seems that, in general, children played a great deal in the home context. Thus, according to parents, play was not diminishing at all (cf. Gray, 2011; Ginsburgh, 2007; Järvinen et al., 2012; Nicolopoulou, 2010; O´Connor et al., 2017; Whitebread, 2012), and on the contrary, play seemed to have a strong position in Finnish children´s lives at home.

According to reported answers of the parents, the majority of the three-year old children seldom played computer games at home. This result is convergent to earlier studies where young children`s (under three-years) most common way to use digital devices was watching TV and not, for example, playing computer games (e.g. Korhonen, 2010; Tena et al., 2019). During the last decade, the digitalization of our society has taken a huge leap forward. If this study would be implemented now in the year 2023, the results would probably differ since digitalization has increased strongly in the whole of society and influences families' ways of spending time together. Homes can be seen as changing media environments for children, and the media use of children is related to time spent alone, with family members, and with friends (Repo&Valkonen, 2017). It is evident that media use influences children's play in the Finnish home context in ways that we do not yet fully know. According to Heljakka (2024) who has studied the technologization of play, says that it doesn't do justice to play if it's thought of solely as playing with toys or imaginative role-playing. According to a broad definition, for example, gaming can be considered play (Heljakka, 2024).

In addition, children were reported to play outdoors quite often, result that is contradictory to earlier international discussion (see e.g. Singer et al., 2009). In the field of early childhood education at theEuropean level, playing outdoors has been seen as arbitrary (see e.g. Järvinen et al., 2012). Nevertheless, in these Finnish data, playing outdoors was extremely common for both boys and girls, for boys even more than girls. This perhaps indicates that in Finnish society outdoor activities are highly valued overall in every day lives and that the society and outdoor spaces are seen as very safe for children to play. According to Dodd et al., (2021) when parent´s attitudes around risk-taking in play are more positive, children spend more time playing outdoors.

Boys and girls played different forms of play. This result concerning gender-based play supports earlier findings (e.g. Davis & Hines 2020; Green et al., 2004; Sherman & Zurbriggen 2014; Lew-Levy at al. 2019). According to Davis & Hines (2020) children´s toy references are gender-related, girls prefer girl-related toys and boys prefer boy-related toys, girls also prefer more than boys - toys that has been classified as neutral. The differences between genders might be explained by different kinds of parenting, where gender acceptable behavior is influenced by gender stereotypes – for example girls are directed to play more inside and boys more outside. Morawska (2020) claims that this is because of subconscious thinking that girls need to be protected from injuries and boys are allowed to practice more risk-taking play. According to Finnish National Agency for Education (EDUFI, 2022) one core aim of ECE is gender equality. The foundation of educational work is based on perspectives of equality, gender equality, and diversity, which guide teachers in collaborating with families.ECE in Finland is gender-sensitive. The staff encourages children to make choices without being tied to stereotypical roles and expectations related to gender or other personal characteristics. Collaboration with families is planned and developed in a way that strengthens equality and gender equality, enabling the dismantling of traditional gender stereotypes. Based on this research, it can perhaps be concluded that families still need support and encouragement to create a gender-sensitive play environment and interaction in the home context. In early childhood education, it is increasingly important to strengthen and enhance collaboration with families regarding a gender-sensitive educational approach.

Slightly over one-third of the children played often pretense or imaginary play at home, boys less than girls - role playing was considered one form of imaginary play, and in this study, nearly 60% of the children often role played. Thus, together with pretend play, the most common form of play was imaginary play. This result is similar to earlier studies (see Cameron et al., 2011). In this study, parents answered a questionnaire where play was categorized into different forms and play was examined based on its features. The study was not designed to go any deeper into play situations—what happened inside the play—but it is very important to notice that almost every form of play might include imaginary play. For example, when a child is playing with toy cars or dolls or is building with blocks, the child can simultaneously imagine the cars to be a family and name them, present dolls as different roles, and use blocks to build a castle for toy animals. To deepen knowledge about imaginary play in general, it is necessary to study this further in the home context.

Concerning the quality of play (quantity, concentration and continuity of play) , it seems that in general, as mentioned at the beginning of this chapter – children played a lot at home context. Concerning the continuity of play, we found that children changed their play frequently. Only 18% of the children continued the same play the next day. Does this imply that the quality of this type of play is weak in the home context? Not directly because it is a natural phase of play in which the duration of the actual play situation varies, although there should also be long-lasting play in a three-year-old's life. As mentioned earlier, adults' interest and participation in play supports their child's play and focus (see Mikkola & Nivalainen, 2011; Lillard, 2015). The parents' role as an enabler in giving space and time for the same play to continue the next day requires adults to tolerate chaos at home. Thus, it is important to give knowledge to parents about the importance of long-lasting play in children's development and wellbeing. It would be relevant discuss the importance of play and observations related to children's play with parents. This way, we can promote the continuation of play between two different systems around the child. Shared knowledge gained from home might increase possibility for long-lasting play to continue and evolve when child is in transition from home (microsystem) to early childhood education environment (mesosystem). According to Bronfenbrenner (1974) the most important aspect is the cooperation between different developmental environments of the child, i.e., the functionality of the mesosystem.

When looking at the social nature of play,  parents reported that 36% of the children aged three years frequently played alone at home.The change in Finnish family structure can perhaps be seen in this result. Due to the decrease in family size, children do not have peer playmates inside the family anymore. This is also a somewhat worrying result, as children can make permanent friendships even before their third birthday, so the aspect of evolving loneliness is seen here. From this point of view, it would be important

for the child to have different kinds of opportunities outside of the home to have contact with peers.

Almost 40% of the children with a parent that did not work full-time frequently played alone. This might be explained by the fact that children, whose parent is working full-time, tend to participate in ECE services outside the home and, because of this, they have the possibility to enhance social connections to other children and play opportunities. Children who play together with other children regularly came from single-parent families where the parent worked full-time. Participation in ECE seems to strengthen the social nature of play—children play more with other children in the home context if they have been involved in ECE. Earlier studies have mainly represented single parenting to be a risk factor for a child's welfare (see Forssén et al., 2009) rather than a strength to a child's development; however, here, especially in the social aspect of play, it enriches the child's development. No earlier studies have been conducted on the associations between participating in ECE and an increase in the sociability of play in the home context.

Participation in ECE did have a major influence on the sociability of play. Overall, children who participated in ECE played with other children and with their siblings more compared to children in home care. This is a significant result. Participating in ECE expands children's social network and promotes possibilities to form friendships. In public discussions, there is a very strong opinion that supports an increase in the number of children able to participate in ECE so that every child could benefit from it. This study supports these views.

The time that families spend together and especially time that parents are with their children has been shortened due to the busy weekdays, long working and studying days along with several hobbies (Järvinen et al., 2012). In addition all parents don´t have skills to play with their children (Komi, 2014a). Parent´s self-efficacy is associated to the way children approach play (motivation to play) and in turn children´s motivation and positive feed-back during the play has effect on parent´s self-efficacy (see Román-Oyola et al., 2018). On the other hand, during the COVID-19 pandemic, the time families spent together grew significantly because of the isolation regulations, which caused ending children's participation in ECE and hobbies outside the home. Also, the time that the father and children spent together increased during the pandemic in Finnish families (Nurhonen et al., 2021). Although the time spent together grew, there is no knowledge about how the pandemic directly influenced children's play at home.

In the next chapter we present limitations of this study, but this study also has strengths. It can be seen as the first large quantitative study from three-year-old children's play at home in Finland—subject to where preface information of this phenomena is necessary to obtain. It is necessary to repeat this quantitative inquiry to compare possible changes in play during the past 10 years. On the other hand, for example, results concerning gendered play are consistent with contemporary studies, where the home environment for play is gendered (see MacPhee et al., 2019;  Mesman & Groeneveld, 2017). The question regarding the parent's ability to offer non-gendered play environments for children is still essential.

## Limitations and Further research

In this study, the limitations first concern the method of implementing the study.  In this kind of survey study, the possibility that respondents have understood questions differently, such as questions regarding the forms of play, quality and social nature of play and the concepts of play, might differ among parent´s and therefore influence their answers. The Likert scale (were options varied from never, rarely, seldom and often) might confuse some parents.It might be difficult to evaluate the difference between options, for example between seldom and rarely.

Second, limitations regarding the choices made in processing the variables, can restrict the results. This appears especially in the social aspect of play, were only two items  (playing alone and playing with others) were selected to represent the social nature of play. This was done due to stress of other children´s importance to social play (see Hännikäinen, 1995b; Kronqvist, 2006).

Third, using data that has been obtained during the years 2011–2013 does not necessarily describe

the forms of play, the quality of play, nor the social aspect of play in 2023. So, these results are not directly generalized to 2020´s.

Playing computer games had a minor role during years 2011-2013. Future research could concentrate to find out have digital games taken over space from other forms of play in children´s lives compared to the results here. Compared to classification of forms of play in this study, it is necessary in a future study to expand computer play to digital play, where interest lies on the social aspect of play. How does digital play influence children's development of social skills and time spent with other children and, in addition, how is digital play connected to development of compassion?

Future research could focus on finding out how much parents spent time with their children and how do they evaluate themselves as players – how does the parents self-efficacy and conceptions as players effect to their engagement and interest to support childrens play at home context. Interest lies also in the continuity of play – what kind of actions and conditions long-lasting play needs to transfer from ECE to home and vice versa.

## Declarations

### *Authors' Declarations*

### *Publisher's Declarations*

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# Developing professional ethical care through co-creation in ECEC in Norway: A qualitative study

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**Abstract**: The article analogizes findings from the project Children in Central Norway, Mental Health in ECEC. A preventive factor for children's mental health in early childhood education and care (ECEC) is the sensitive relationship between children and staff. ECEC staff in three municipalities participated in a competence-raising package for children's mental health. Subsequently, 33 members of staff attended five focus-group interviews. Research question: In what way have ECEC staff's experience changes in their relationship with the children after working with the competence-raising package for mental health, and what kind of processes appeared during this work? The qualitative data has been analyzed using reflexive thematic analysis, while the discussion is rooted in ethics of care and based on children's rights. The findings show that the staff describe the development of compassionate pedagogy and a common language for children's needs for attachment. This facilitates a collective professional language through co-creating processes and affects the relational quality in ECEC.

## Introduction

This article examines the ways in which a competence-raising package for children's mental health in Norwegian early childhood education and care (ECEC) improved the relationship between children and staff in the ECEC pedagogical work. The empirical data material is used to show and discuss how, through co-creation, the staff in ECEC by becoming more aware of ethical care and compassion. The competence-raising package was introduced under the direction of the Regional Centre for Children and Youth Mental Health and Child Welfare (RKBU). In Norway, the Early Childhood Education and Care (ECEC) system is guided by the Framework Plan for the Content and Tasks in Kindergartens (Norwegian Directorate for Education and Training, 2017), which is deeply rooted in humanistic traditions. One of its core values is respect for compassion, emphasizing meeting the children's needs for care, security, belongingness, and respect.

The children's experience of sensitivity and responsiveness in one-to-one interactions influence the relationships between staff and children in the whole. The way in which the staff interacts with all children in the group contributes significantly to the children's developing sense of confidence and the availability of the staff as a secure base (Ereky-Stevens et al, 2018). After taking a course on effective teacher-child interactions, ECEC staff were observed to demonstrate more effective emotional and instructional interactions (Hamre et al., 2012). An effective emotional interaction requires warm, sensitive staff in an emotionally supportive classroom (Pianta, 2008).

A literature review of the ECEC field (Dalli et al., 2011) shows that, when an adult is not sensitive enough in his or her interaction with children, the quality of the relationship for all the children in the ECEC section is affected. In other words, all staff in a section need to be sensitive and attuned to the children's needs (Bowlby, 1998, 2007; Biringen, 2012). To develop a shared understanding and a common

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way of responding – especially to children who challenge them – they need to have a mutual theoretical understanding of the child's development, make observations of the child, have the time to reflect systematically over their effect on the child, and, when necessary, know how to change the relationship (Schøn, 2013).

In a review of compassion training, several benefits are identified, such as increased social sensitivity and responsiveness, increased ability to identify emotional states, higher level of tolerance to distress, and reduced personal stress (Taggart, 2019). To increase ethical care Taggart found that it is essential for the staff to be trained in the use of emotional skills, including compassion.

There is consensus with regard to how important the relationship between staff and children is for children's development (Dalli et al., 2011; Ritblatt et al., 2017; Skogen et al., 2018). Some researchers find that sensitivity is a core factor, whilst other researchers add the staff's educational background. Research from Norway (Bjørnestad, 2019) shows that Norwegian ECEC staff demonstrate varying levels, ranging from moderate to good, of basic interaction skills according to the staff's interaction profile (CIP) scales. This suggests there is room for improvement in the relationship between ECEC staff and children, a notion supported by Veermer (2016). Training in compassionate skills is essential for developing of ethical care (Taggart, 2019) and co-creation.

A qualitative study found that ECEC staff consistently aim to cultivate a more reflective and precise approach to caring for individual children. This endeavor demands personal engagement (Eidsvåg, 2022). It necessitates a blend of practical skills and an intersubjective attitude, acquired through reflective actions.

A literature review from ten European countries points co-creation is seen as a part of professional development alongside critical thinking and reflexivity (Jensen, 2018). A significant trend in professional development makes use of collaborative learning and co-creation and target ECEC staff's competence in relation to vulnerable populations.

## Norwegian ECEC – The Context

Norwegian ECEC is rooted in a Nordic tradition that emphasizes child-centered values and a holistic socio-pedagogical approach (Alvestad, 2010), integrating both care and learning. The ECEC staff incorporate varied inputs into everyday activities and actively engage in both unstructured and structured activities. Approximately 44 percent of ECEC staff are trained preschool teachers (Ministry of Education and Research, 2022), while the remaining staff consists of unskilled assistants and skilled workers.

*The Kindergarten Act* (Ministry of Education and Research, 2005) and the *Framework Plan for the Content and Tasks in Kindergartens* (Norwegian Directorate for Education and Training, 2017) represent the legal framework governing the staff's efforts and activities in ECEC, and both are in alignment with the UN Convention on the Rights of the Child (UNCRC) (UN, 1989). Although ECEC is not obligatory in Norway, 93.4 percent of all children aged one to five attended ECEC in 2022 (Statistics Norway, 2023). In Norway, about 10–20 percent of children have some form of mental problem (Drugli, 2019), and about 7 percent have a mental disorder (Wichstrøm et al., 2012). The prevalence of mental health problems among children aged 0–6 years is relatively low compared to the USA.

A study in Norwegian ECEC settings (Buøen, 2021) implemented a multi-component, in-service professional development program, including systematic efforts throughout an ECEC year. The study found that such interventions enhanced the quality of relationships between toddlers and ECEC staff, as measured by the Classroom Assessment Scoring System (CLASS-Toddler) (La Paro, 2012). Conversely, ECEC facilities that lacked systematic efforts during the year experienced a decline in quality.

Additionally, one study emphasizes that Norwegian ECEC staff primarily focus on observing, responding to, supporting, and communicating with children, a concept termed 'sensitive responsiveness,' which constitutes a fundamental aspect of basic care interaction (Baustad, 2018).

**Background – The Competence-Raising Package**

The Regional Centre for Children and Youth Mental Health and Child Welfare (RKBU) was contacted by a local authority seeking to enhance the ECEC staff's awareness of children's mental health. The goal was to provide ECEC staff with a competence-raising package focused on children's mental health. In response, RKBU designed a multifactor study, including both quantitative and qualitative data (Tashakkori & Teddlie, 2004). The design process involved ECEC staff and leaders, municipal leaders, and RKBU professionals. Data material was collected quantitatively before and after the implementation of the competence package, and qualitative data was gathered through focus-group interviews conducted three years after the competence package. The competence package included ten lectures on various aspects of children's mental health, an observation and reflection method, and relevant literature. The observation and reflection method, called *interaction observation*, is based on the Tavistock model (Reid, 1997) and was adapted for ECEC by Abrahamsen (Abrahamsen, 1996, 2004). The objective of interaction observation is to enhance the sensitivity and emotional availability of adults (Biringen 2012, Biringen 2014, Marvin et al, 2002). This method uses observation to better understand young children's communication and to gain deeper insight into their emotional development. This theory is based on the work of Stern, Winnicott, and Bowlby (Abrahamsen, 1996), providing a foundation for understanding the child's internal world.

**Research Question**

*In what way have ECEC staff's experience changes in their relationship with the children after working with the competence-raising package for mental health, and what kind of processes appeared during this work?*

**Theoretical Perspectives**

There are two main theoretical perspectives that we want to outline in this article: compassion in ethical care and co-creation.

*Ethical Care*

ECEC research has been shaped by two often contrasting perspectives: a discourse of rights versus a discourse of care (Taggart, 2016). Taggart proposes that to bridge this divide, there should be a focus on compassion, which lies at the core of both enhancing the capabilities of marginalized groups and the psychological origins of the capacity to care.

In this article, we emphasize ethical care and professional development, considering children's right to receive care as outlined in the Convention on the Rights of the Child (UNCRC) (UN, 1989) and the Norwegian Framework Plan for Kindergartens (Norwegian Directorate for Education and Training, 2017). This framework asserts that ECEC must actively support children's mental health and fulfill their need for care.

A theoretical framework grounded in the discourse of ethical care adopts a psychological approach (Taggart, 2016), drawing, among other sources, from Noddings (1992, 2005), which critiques New Public Management. Ethical care is founded on the principle of how to respond when someone expresses their needs, emphasizing that our response should be attuned to the individual (Noddings, 2012).

Taggart (2019) employs ethical care as a bridge from maternal care to professional care in ECEC, advocating for an active process wherein caring professionals can further develop their skills. Ethical care is driven by a relational and situational understanding of meeting individuals' specific needs and abilities (Bergmark, 2020). Compassion is a fundamental aspect of ethical care, defined as "the affective state associated with caregiving towards those who suffer or are in need" (Taggart, 2016). Compassion entails being sensitive, warm, and attentive to children's needs. It is also considered a key principle in individual behavior and social relationships, encompassing empathy, responsiveness, flexibility, tolerance of distress, and awareness (Taggart, 2019). Compassion resides within everyone as part of their cultural space, and activating it necessitates a willingness to reflect (Taggart, 2016), involving both a social, active dimension and a personal, affective dimension (Taggart, 2019).

Noddings emphasizes that dialogue enables us to understand, empathize, and appreciate others in

a shared pursuit of understanding, and it fosters substantial knowledge of one another to guide our responses (Noddings, 1992). She underscores the importance of staff actively sharing their knowledge about individuals.

*Co-Creation*

Co-creation can be defined as a process where multiple participants collaborate voluntarily in a mutual and balanced manner to define problems, find solutions, and implement them in practice (Nabatchi et al., 2017; Torfing et al., 2019). It involves an active process wherein all relevant participants work together to address challenging situations and relationships, aiming to co-create development within their own practices (Benington, 2009). Participants engage actively within their own settings to address social needs, aiming for improved relationships and better utilization of resources and skills. Co-creation does not involve the participation of a single group; rather, all relevant participants collaborate to define problems, develop solutions, and implement them effectively (Bentzen, 2022). Changes occur within the setting where they are developed, enhancing participants' range of alternative courses of action. Co-creation entails both innovation and transdisciplinary cooperation. Successful co-creation requires explicit leadership, network-building, and access to resources such as increased competence, expertise, and relevant methods (Willumsen, 2020).

## Method

In this qualitative study, focus-group interviews were conducted after ECEC staff in three Norwegian municipalities had worked with a collective competence-raising package focused on children's mental health.

### Sample

All the ECEC staff in the three municipalities received the package. Some of the ECEC staff were invited to participate in the focus-group interviews three years after they had received the competence package and observation and reflection training. In order to be invited, they needed to have worked in ECEC for the three years after receiving the package and we invited both teachers, assistants, and skilled workers. There were 44 staff members who were invited and 11 declined to participate because they could not take time away from work or did not want to attend, and we ended up with five focus-group interviews. The informants were between 25 and 65 years old, 2 were men and all had worked at least 3 years in ECEC. The study proposal was approved by the Regional Committee for Medical and Health Research (REK), and the project complied with the ethical guidelines established by the National Committee for Research Ethics in the Social Sciences and the Humanities (NESH) (2018).

### Focus-Group Interviews

The focus group-interview is a group interview with an interview guide where the researcher is actively encouraging of, and attentive to the group interaction. The researcher has a focus on running the focus group discussion and ensuring that the participant talk among themselves and making sure everyone take their turn (Barbour, 2007). The focus-group interviews lasted from 45 to 105 minutes, one group had nine members and took more time than the others. In the invitation to the interview, the participants were informed that it would be taped, transcribed, and anonymized. The interview was semi-structured and based on an interview guide where the questions were organized into four categories: the competence-raising package, changes in relationships, risk and protection, and changes in the ECEC. This article focuses on the informants' answers relating to changes in relationships. Two researchers conducted the interviews (Kamberelis & Dimitriadis, 2011), one of whom was author one (ASB).

### Data Analysis: Thematic Analysis

When analyzing the data, support was found in reflexive thematic analyses (Braun & Clarke, 2006; Braun et al., 2019; Braun & Clarke, 2022) with in a qualitative paradigm where meaning is understood as being tied to the context in which it is produced. As researchers, we were actively engaged in interpreting

data through our own cultural membership, social positionings, theoretical assumptions, and choices as well as knowledge.

To find themes in the data, the six phases of reflexive thematic analysis were used (Braun & Clarke, 2022) – familiarization; coding; generating initial themes, developing, and reviewing themes; refining, defining, and naming themes; and writing the report. The themes reflect patterns of shared meaning organized around a core concept or idea, after a process going back and forth between the six phases, and the aim is to provide a coherent interpretation of the data, grounded in the data.

We familiarized ourselves with the interview material by reading it together and identifying what was actually being said, we looked for the action and meaning in each sentence and wrote this down using the informants' own words from the interview. This involved reading and re-reading the interview and becoming deeply familiar with the data from one of the municipalities.

We coded the interviews from one municipality and systematically and carefully worked through the dataset, identifying segments of data that appeared to be potentially interesting, relevant, or meaningful. Code labels were assigned a description and aimed to capture single meanings or concepts. Author one (ASB) then used the codes from one of the municipalities to further saturate the data using data from the other two municipalities.

Both authors then generated initial themes and started to identify patterned meanings across the dataset. We compiled clusters of codes that seemed to share a core idea or concept, using our research question to guide us. Once potential themes had been identified, all the coded data was collated into candidate themes. When developing and reviewing themes, we went back to the whole dataset and checked to ensure that the themes were consistent with both the extracted codes and the full dataset. The pattern of each theme was analyzed to determine whether the pattern gave a meaning that related to the research question. In refining, defining, and naming the themes, two core findings were clearly demarcated. These were renamed and gave clear meaning to our core findings: 1) ethical care and 2) co-creating collective competence.

The writing up of our findings began with the generation of initial themes and was an ongoing process. In dialog with the data, our analysis, and the research question, we developed a narrative that is a coherent and persuasive story from our dataset. Memos were used throughout the entire process, and our interpretations and conclusions appeared stepwise in dialog with the material.

**Methodological Limitations**

The qualitative data collected originated from three municipalities and exclusively involved staff from ECEC departments. While additional data or data from diverse sources might have yielded different or more comprehensive categories, we believe our dataset offers insights into the experiences and reflections of our participants. This understanding is informed by extracts from the interviews, as well as our systematic procedures, interpretations, and theoretical perspectives.

The interviews were conducted by the first author, who had also been involved in implementing the competence package three years prior. This prior involvement may have influenced the informants to express more positivity than they might have with an unfamiliar interviewer. However, the informants were specifically encouraged to share both positive and negative experiences.

## Findings

The findings have been divided into two main areas: 1) ethical care and 2) the co-creation of collective competence. In the realm of ethical care, compassion emerges as a hallmark for quality in the relationship between staff and children, while the co-creation of collective competence points to the changes among staff working together in a particular section.

**Compassion in Ethical Care**

Three years after the end of the implementation period, the ECEC staff were asked to describe developments in their understanding of children's needs in their relationships with the staff. The core issue is compassion, where the staff uses sensitivity, responsiveness, awareness, a lack of intrusiveness, and an understanding of the children's emotional expressions.

*Awareness*

The staff stated that, after working with the package, they responded more supportively to children's feelings by being compassionate and responsive when a child is sad or upset. The staff explained that they are now less inclined to underestimate the children, act intrusively, or define their feelings.

> Mina: The project has changed the way in which I try to understand the child. One example during the teaching made me think, "That's why he does that!" It made me understand why he did what he did. I understood what his behavior meant. I now feel that I see the children in a different way – maybe not all of them, but especially the quiet ones – and I know how important it is to see them.

> Mona: Things changed during the project. We're now more aware of how important our relationship with the children is – to be connected with them, see them, and listen. We have learned about feelings and are trying to regulate the children's feelings. We're not being intrusive, but we stay close to the children.

The ECEC staff state that they now have a better understanding of some of the children after taking the competence package, mentioning especially that they have more insight into how to understand quiet children. The staff also describe themselves as being more compassionate and aware of the children's various signals relating to attachment, and they think that they can read the children's signals more accurately.

> Lotte: It's very helpful to use the circle of security to see the children from within, trying to see why they react the way they do, and understanding that my role as a member of the staff is to regulate behavior and move on. I understand that what I thought I saw at first is not always the same as what the child meant to express.

In order to better understand the signals from the children, most of the informants told us that they stop, ask questions, and reflect: What does this child need now? What are the child's body language and emotional expressions telling us? Do the children feel secure or do I need to look after them when they are exploring the environment? The staff were now more aware than they had previously been of the children's signals about their feelings and needs.

*Regulation of Emotions and Challenging Behavior*

ECEC staff describe how, by becoming attuned to a child, they could help to regulate his or her emotions and change challenging behavior so the child can have a more secure attachment to the adult. After the competence-raising course, the staff saw more clearly that their role is to help children deal with emotions. They saw how they could change the way in which they act towards a child, and that their own reactions change the child's responsivity.

> Eline: There's one child I have big fights with. He gets furious with me. He can kick, bite, and be furious. Then I look at him and confirm that: "Yes, you're furious, but you can't hurt me. Let's sit down and talk about it until you calm down." We sit together and he calms down. He leaves me, and then he comes back to give me a rock. "Here, this is for you." Then I understand that, even if we fight, we can restore our relationship. This project has taught me how important it is to help the children to regulate their emotions. I developed a better relationship with this child after this project.

Eline provides a secure base and shows compassion for the child in a demanding situation, and there is reason to believe that, by giving her the rock, the child has signaled that he wants to fix their relationship. He verified that their connection was secure enough to return to the member of staff, thereby initiating a reparation of the relationship.

*Mutual Language About Attachment*

The staff's collective understanding of children's needs through theory, observations, and reflections seems to give them a mutual perspective on children. They have a shared compassion for the children, and

a shared understanding and language to respond to and describe the children's needs for attachment and their own roles as attachment caregivers. This facilitates their collective work and makes them more secure in their professional caregiving for the children.

> Lone: I have improved my professionalism when it comes to talking to the parents when I'm worried about their child. It's easier to explain what I'm worried about when I can give my reasons as a professional based on what we have learned. We have had cases that have been through the system and ended up in court, and I felt secure as a professional.

In their professional capacity, staff members sometimes engage in discussions with parents when they have concerns about a child. The informants asserted that this process became easier and more ethical when they possessed a stronger theoretical foundation for expressing concern, enabling them to connect their observations of the child with their theoretical understanding. Increased theoretical knowledge, coupled with direct observations of the child, fostered a greater sense of confidence among the staff when interacting with parents in their professional roles.

## Co-Creating Collective Competence Focusing on Children's Mental Health

The interviewees expressed a deeper comprehension of the children's requirement for staff proximity—both mentally, emotionally, and physically. They had established a shared understanding of why prioritizing what they perceive as the children's needs is acceptable. The staff reported increased flexibility in the activities they engage in with the children, guided by the children's needs for time and closeness with caregivers. Planned activities may be canceled if staff members sense that any child requires attention and compassion.

> Nina: Our understanding of attachment and being an emotionally available adult has changed. We have read literature, raised our competence level, acquired a shared theoretical foundation and understanding, and we have co-created collective competence on children's needs for attachment. We have developed a mutual language relating to attachment, and we're using it all the time.

In summary, the staff utilized the insights gained from working with the competence-raising package to collaboratively cultivate collective competence on how they, as a team, should demonstrate compassion to meet the children's needs for attachment and regulation. They collectively developed this shared understanding within their respective sections, drawing on theory and observations of the children's needs for adults to interact with them compassionately and to prioritize their needs collectively. A crucial aspect of this collective competence is the establishment of a shared language regarding the children's needs and methods to address them, along with mutual respect among staff members.

## Discussion

### Developing Ethical Care

The ECEC staff observe a notable difference in children's behavior and emotional expressions when they approach challenges with compassion. This approach aligns with practicing preventive care for children's mental health, as the staff acknowledge and validate each child's unique needs (Biringen et al., 2014). In their accounts, our informants articulate a nuanced understanding of their relationship with children, emphasizing sensitivity and awareness of how their own behavior influences children's responses. Within the ECEC setting, compassion plays a crucial role in addressing children's needs and vulnerabilities, creating a supportive environment where children feel secure. This concept, termed a 'holding environment,' involves adults responding to children with empathy, identifying their needs, and ensuring they are free from physical and emotional distress (Winnicott, 2006; Howes & Spieker, 2016). The quality of the relationship between staff and child can significantly impact the latter's mental health (Pianta et al., 2016; Bowlby, 2007; Howes & Spieker, 2016).

Furthermore, research supports the notion that being regulated by a caregiver attuned to the child's needs enhances the relationship's quality (Biringen et al., 2014; Ritblatt et al., 2017). By broadening their approaches to addressing children's needs and becoming attuned to them, staff gain insights into how to effectively support each child. Through a shared theoretical framework and systematic methods of

reflection and observation, staff develop a common understanding and witness changes in their relationships with children. This aligns with Noddings' (1992) assertion that dialogue fosters mutual understanding, empathy, and appreciation, enabling individuals to build substantial knowledge of one another to guide their responses. Research also underscores the importance of this for children's development (Dalli et al., 2011; Ritblatt et al., 2017), highlighting sensitivity to children's needs as a fundamental factor. Our informants describe their journey towards developing ethical care, characterized by staff members who are compassionate, warm, and attuned to children's emotional needs, thus supporting their mental health.

**Collaboratively Creating Collective Competence**

The project was explicitly led by RKBU in close collaboration with ECEC participants and municipalities actively addressing the need for improved relationships within their respective settings (Bentzen, 2022). Within the project structure, participants formed networks and gained access to resources such as enhanced competence, expertise, and relevant methods (Willumsen, 2020) to inform their pedagogical practices. In essence, the entire process can be described as a co-creation endeavor. Together, they developed an ethical approach to care (Taggart, 2016) grounded in compassion and empathy, along with a co-creation process that mirrors what Sameroff (2009) describes as an understanding of how adults influence children through their behavior. Through reflective dialogues about their actions and attitudes, utilizing relevant theories, observations, and guidance, staff members deepened their comprehension of their relationships with children. They engaged in team reflections on practice, leading to a shared understanding of how their actions impacted children, both positively and negatively

According to our informants, they collaboratively developed a competence for integrating theoretical and practical knowledge on the core principles of attachment theory and gained a mutual understanding of the importance of meeting children's needs. As our informants describe how their understanding of attachment and emotional availability has evolved, they demonstrate compassion in challenging situations, establish a common theoretical foundation, and co-create a shared language related to attachment. We conclude that the development of an understanding of the importance of compassion appears to be the most significant outcome of this process.

Relational work in ECEC represents a form of ethical practice (Taggart, 2016), and the process described in this article illustrates how the staff cultivated their professional approach, transforming it into ethical practice in the best interests of the child. The interview excerpts demonstrate how the informants have cultivated a shared understanding, reflecting an ethical approach in their co-created practice. This process has led to the development of new perspectives and alternative courses of action. As a result of this collaborative approach, instances of challenging behavior among the children have decreased, and the staff have forged stronger relationships with them, gaining a deeper understanding of their needs. From the staff's viewpoint, employing the Circle of Security framework (Marvin et al., 2002) to illustrate attachment and understanding the children's needs from adults' perspectives have proven beneficial, especially in their roles as secondary attachment figures. As professional ECEC staff, they have developed more nuanced attitudes and responses.

The co-creation process has not only led to the development of a compassionate organization but has also fostered a shared understanding among staff regarding the importance of sensitivity to children's needs (Taggart, 2016). Enhancing ethical care necessitates equipping the staff with emotional skills, including compassion (Taggart, 2019). Through sharing reflections in a supportive environment and demonstrating respect, compassion, and empathy toward each other, the staff have restructured their approach to work. Drawing upon their increased theoretical knowledge and ethical practice, they have integrated attachment theory into their everyday care practices in ECEC settings. Moreover, they now align their actions more closely with what they believe is in the best interest of the children, as they become attuned to the children's perspectives and intentions in the communication process. Consequently, they have fortified their capacity to act in accordance with the UN Convention on the Rights of the Child and the Kindergarten Act (Ministry of Education and Research, 2005), prioritizing care and ethical conduct.

Key factors in fostering mutual trust during co-creation include establishing equivalence among participants, providing explicit leadership, and fostering network-building (Nysveen et al., 2012; Willumsen, 2020). In this project, all ECEC staff, regardless of their educational background in ECEC, underwent the same training. The focus of the competence-raising course and observations was made transparent. Additionally, they developed a shared identity as professional ECEC staff and a common language through the competence-raising package. This unified approach strengthened their focus as attentive caregivers, which, in turn, can positively influence children's development.

## Conclusion

This project has a comprehensive focus on mental health, integrating theory, observation, and reflection into an ongoing learning process involving the entire staff in ECECs. Our study has engaged with the insights of 33 ECEC staff members, who have clearly identified crucial factors to prioritize in nurturing the relationship between staff and children.

The ECEC staff describe how they have collectively developed a shared language and understanding of children's behavior and needs through their work and the embedded co-creation process. Our conclusion is that achieving a higher level of reflection and the ability to respond in more nuanced ways to children's needs requires increased ethical awareness and collaborative efforts to foster a compassionate organizational culture that reflects knowledge of caregiving and children's rights.

By strengthening the ethical dimensions of professional practice, we argue that our project has enhanced the daily operations of ECEC, grounded in children's rights (UN, 1989). By prioritizing the protection of children and being attuned to their communication cues and needs (Article 19), and by empowering them to express their feelings and desires (Article 12), children can be better understood and taken more seriously. This protection enables children to realize their potential (Article 29) (UN, 1989).

The use of competence-raising packages, where ECEC staff collaboratively engage in their practice over time, appears to have a positive impact on both the ethical and practical dimensions of ECEC professionalism.

This article provides key insights into fostering close relationships with children in ECEC, yet it represents just one facet of the ongoing efforts to enhance understanding in this intricate field. A potential limitation is our study's focus on three municipalities in Norway, with qualitative data exclusively sourced from ECEC informants, excluding input from other stakeholders. Nonetheless, the study contributes to our comprehension of mechanisms for enhancing competence in ECEC, particularly concerning children's mental health.

## Declarations

### Authors' Declarations

### Publisher's Declarations

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**Appendix: An example from the coding process**

| Familiarization | Coding | Searching for themes | Core category |
|---|---|---|---|
| Nina: Our understanding of attachment and being an emotionally available staff has changed. We have read literature, raised our competence and acquired a shared theoretical foundation and understanding, we have co-created collective competence about children's needs for attachment. We have developed a mutual language relating to attachment, and we're using it all the time. | Attachment emotionally available staff<br><br>shared theoretical foundation and understanding<br><br><br>children's needs for attachment.<br><br>a mutual language relating to attachment,<br>using it all the time | Understanding has changed<br><br>Raised our competence<br><br><br><br>A mutual language<br><br>Using it all the time | co-created collective competence |

# The effect of Philosophy for Children (P4C) activities on the development of moral perception and social rules of preschool children

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**Abstract**: The purpose of the study was to examine the effects of P4C implementations on children's perceptions of moral and social rules. The study was carried out with a total of 48 children aged five years old, 23 of them in the experimental group and 25 of them in the control group, attending a public school in the 2023–2024 academic years. A quasi-experimental design was used in the research, and the fully mixed sequential equal status design, one of the mixed research typologies, was applied. The Preschool Children's Conceptions of Moral and Social Rules Scale was applied in the quantitative dimension of the research, and observation, interviews, and anecdotal records constituted the qualitative data collection dimension. Briefly, after the implementation process, the experimental group's perception of moral and social norms improved. In the current study, a substantial difference between the children's moral rule and social rule perceptions after the P4C sessions was discovered when the experimental group's moral rule and social rule perception scale scores were analyzed before and after the implementation. A noticeable improvement in cognitive and social-emotional development was seen. It was determined that positive behaviors improved, particularly in moral situations requiring tolerance, in the experimental group. The study came to the conclusion that teaching children philosophy helps them enhance their critical thinking skills.

## Introduction

Moral development progresses alongside cognitive development, with distinct stages of formation. As children's reasoning skills improve, they become better equipped to make moral judgments (Piaget, 1932, 1965). According to Baker et al. (2021), especially in childhood, the capacity of social reasoning is dynamic. Although this capacity is sensitive to task demands, task performance may suffer under new conditions (Sodian et al., 2016). While Piaget's work (1932, 1965) suggested children primarily focus on the consequences of actions, recent studies reveal that even eight-month-old infants can make judgments about the underlying intentions behind those actions (Hamlin, 2013; Lee et al., 2015; Margoni & Surian, 2016). Piaget's theories of moral development (Piaget, 1932, 1965) and cognitive development (Piaget, 1952) emphasized children's ability to understand abstract principles in later stages (formal operational stage). This concept has been the subject of long-standing debate. Recent studies (Dumontheil, 2014; Gunes & Sahin, 2020; Woolley & McInnis, 2015) have shown that children as young as five years old can demonstrate an understanding of abstract concepts. Groundbreaking research on the moral development of babies, conducted nearly two decades ago, revealed that toddlers possess a moral core (Hamlin et al., 2007; Kuhlmeier et al., 2003; Wynn, 2008; Wynn & Bloom, 2014). To briefly summarize, the results of these experiments were carried out with toddlers (you can also watch these experiments from from Pressbooks, n.d.); choosing the one that helps the object trying to climb, not the one that hinders it (Hamlin et al., 2007), choosing the puppet that helps the puppet trying to open the box (Hamlin & Wynn, 2011) and asking to punish the puppet which escaped by picking up the ball (Hamlin & Wynn, 2011), demonstrates that babies

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have moral judgments towards the helpful/good one, and also they have sense of justice towards the harmful/wrongdoer, who should be punished. These results are opened to question not only Piaget's (1932, 1965) approach to moral development of children but also Kohlberg's (1958) thoughts about children up to nine years of age are primarily motivated to avoid punishment and seek rewards.

Toddlers, who can exhibit positive choices towards abstract concepts such as good, bad, helpful, punishment and justice, continue to develop their moral development and their ability to follow social rules which serve social harmony by the help of improving their conceptual development and critical thinking skills at the early childhood period. One of the educational approaches used to improve children's thinking ability is Philosophy for Children (P4C) (Lam, 2021; Lipman, 2003). At this point, Lipman et al., (1980) listed the benefits of philosophy for children on children's moral development as follows:

- Philosophy for children enables the child to recognize the emotions of others and develop empathy skills through dialogue.

- Philosophy for children contributes to children's moral development by directing them to discuss moral concepts.

- Ethical inquiries are carried out with children by discussing concepts such as truth and justice in philosophy.

- With ethical questions, children can evaluate their own value judgments and their impact on themselves.

The approach to philosophy with children is based on the understanding that a philosophical perspective can be acquired by individuals through appropriate education from an early age. The prerequisite for raising children who think, want to acquire knowledge, are curious and act rationally is to integrate pre-school education with thinking skills (Lipman et al., 1980). Philosophy for children, which is a thinking education program that gives children different perspectives; It also guides children to learn and think better (Lam, 2021). The program helps children make meaning from their experiences, giving them 'tools' to think and be aware of their own thoughts and the thoughts of others (Fisher, 1999). Philosophy for Children is a cognitive program that uses dialogic pedagogy to develop children's reasoning, creativity, social skills and ethical understanding (Trickey & Topping, 2004). Actually, the definitions of P4C in the literature such as approach (Zoabi & Lobont, 2022), thinking skills program (Trickey & Topping, 2004) or pedagogy (Lipman, 2003) shows that there was no consensus on the conceptual definition of Philosophy for Children. However, it can be thought that the content of Philosophy for Children includes vital requirements for improving inquiry-based learning via thinking skills such as; critical, collaborative, global, analytic, creativity, and reasoning.

Philosophy for Children, often abbreviated as P4C, aims to develop the four thinking skills as Creative, Caring, Collaborative and Critical thinking skills. P4C sessions begin with a stimulus on the topic to be discussed. The stimuli of P4C, which are chosen in accordance to the developmental level of the children or the participants, can be books, pictures, cartoons, poems or songs. Everyone sits in a circle during P4C sessions, with the teacher acting as a facilitator, not a leader. At the end of the session, the group tries to reach a philosophical question on the subject and the answers of the participants to this philosophical question are discussed objectively (Fisher, 2008; Lipman, 2003).

According to McGuiness (2005), P4C plays an important role in improving thinking skills, especially in the classroom via philosophical inquiries focused on exploration and questioning. P4C can be accepted as a strong pedagogy that helps individuals become people who think more, can put forward a judgment, can defend and exemplify their judgment (Lipman, 2003). Moreover, P4C supports child academic and social achievement (Millett & Tapper, 2012), improves their tolerance level and acceptance level of respect to new ideas, values and differences (Siddiqui et al., 2019). Children make their own reasonable judgements and think about philosophical issues and also develop their curiosity via P4C (Oyler, 2016). The socio-structural and pragmatist aspect of P4C pedagogy (Roversi et al., 2022) contributes to the development of different perspectives and flexible and active thinking of children (Lipman et al., 1980). In addition to these,

P4C implementations have positive effects on the students' reasoning, reading and non-cognitive skills (Ventista & Paparoussi, 2016). As P4C provides an environment for critical thinking, conceptual analysis and interpersonal dialogue on common problems in a democratic and philosophical environment, it contributes to children's being researchers and staying that way (Fletcher et al., 2021). On the other hand, Gorard et al. (2017) emphasized some criticism toward P4C such as; there are some problems about the clarity in the measurement of objectives (Slade, 1992), inability to provide an environment of free thought and questioning (Hayes, 2015), P4C pedagogy perception is not fully established and its implementations are not fully understood (Vansieleghem, 2005).

## Significance and Purpose of the Study

Pre-school education and thinking skills should be integrated as a prerequisite for raising children who think, want to gain knowledge, are curious and act rationally. According to Lipman et al. (1980) including P4C pedagogy in pre-school education will make a difference in children's thinking skills, academic achievement and social development. In addition, it is stated that P4C can contribute positively to the moral development of children with the following items:

- enabling the child to realize the feelings of others and to develop empathy skills through dialogue;

- contributing to the moral development of children by directing them to discuss moral concepts;

- conducting ethical inquiries with children by discussing concepts such as truth and justice;

- through ethical inquiries, children evaluate their own value judgments and their impact on themselves.

Contrary to the opinions of influential theorists such as Piaget or Kohlberg, who emphasized children could not exhibit mature moral development before abstract thinking skills or formal operation stage, examining the effects of P4C on pre-schoolers' development of moral judgments based on abstract concepts, seen as the significant of the current study.

The stimuli used in the P4C sessions developed specifically for this research were unique and had not been tried in any implementation before. On the other hand, in the screening of P4C-based studies conducted in Türkiyebetween 2008 and 2023, it was reported that only 31 studies in total were found, 15 of which belonged to pre-schools. According to the results obtained in these studies, the effect of P4C implementations on five basic areas of participants' thinking skills, social skills, philosophical thinking skills, cognitive achievements and creativity were examined. Among these 31 P4C studies, the most implementations were for thinking skills (21 implementations), followed by social skills (14 implementations), followed by philosophical thinking skills (10 implementations) and cognitive achievements (5 implementations), while the least implementation was for creativity (2 implementations) have been determined to be relevant to the fields (Lafcı-Tor, 2023). Similarly, when focusing on international literature, it is seen that P4C contributes to children's critical thinking skills (Ab Wahab et al., 2022; Wu, 2021), reading skills, reasoning, non-cognitive skills (Ventista, 2017), their ability to understand the cause-and-effect relationship (Ventista & Paparoussi, 2016) and also citizenship education for marginalised children (Cassidy et al., 2018).

The current study's focus on moral development, apart from thinking skills, creativity or philosophical thinking skills, has the potential to contribute to the gap in the field. Thus, the aim of the study was to examine the effects of P4C activities on pre-schoolers' perceptions of moral rules and social rules.

## Method

### Participants

The study was conducted with a total of 48 children aged five years old, 23 of them in the

experimental group and 25 of them in the control group attending a state preschool in Ankara during the academic year of 2022/2023, selected to purposive sampling method. Control and experimental groups were randomly selected. Children in the control and experimental groups attend two different classes, the control group is in class A and the control group is in class B. There are no children with learning disabilities or special education needs in both the control group and the experimental group. All children participating in the study are Turkish, and 23 of them belong to middle socio-economic level families (10 in the experimental group and 13 in the control group), and 25 (13 in the experimental group, 12 in the control group) belong to high socio-economic level families. The parents of all children in the control and experimental groups have a bachelor's degree. Purposeful sampling is used for the identification and selection of deep information cases in cases limited resources (Patton, 2014). In this technique, the participants are in the immediate vicinity, easily accessible, and volunteers are selected as the study group for participating in the research. The strengths of this method are not only useful in in-depth examination, discovery and explanation of situations, facts and events that think to have rich information (Patton, 2014) but also examine the participants feelings, experiences, thoughts, opinions, events, activities, experiences (Onwuegbuzie & Leech, 2007).

**Ethical Process**

Ethical permissions were obtained from the provincial national education directorates where the research was conducted (protocol number: E-14588481-605.99-66954112) and Mersin University (approval number: 2021/05) to which the researchers were affiliated. The children and their parents were informed about the study. The study was started after signed voluntary consent forms were obtained from the families of the children who wanted to take part in the study. Children who attended the current study were coded with numbers, e.g., C1, C2, C3, … C48 to record the data.

**Research Design**

In the research, both qualitative and quantitative data were used in accordance with the nature of the mixed method in order to examine the effect of philosophy activities for children on children's perceptions of moral and social rules in a comprehensive and multidimensional way and to ensure the validity and reliability of the collected data. The mixed method model is based on the idea that the deficiencies of each data group can be eliminated by integrating qualitative and quantitative design data (Johnson et al., 2007), as a type of research in which qualitative and quantitative research approaches are combined to address and validate various elements with a broad and deep understanding (Creswell & Creswell, 2018).

The time and dominance dimension determines the typology of mixed method (Leech & Onwuegbuzie, 2009). In the current study, fully mixed sequential equal status design, coded as F3, was followed as a methodological path of mixed method (see Figure 1). In the first stage of current research, quantitative data were collected for the pre-test, and then qualitative data were collected during the implementation process and finally quantitative data for the post-test. The F3 that was employed in the current study is compatible with models of mixed methods and were suggested by other researchers (Creswell & Creswell, 2018; Johnson & Onwuegbuzie, 2004).
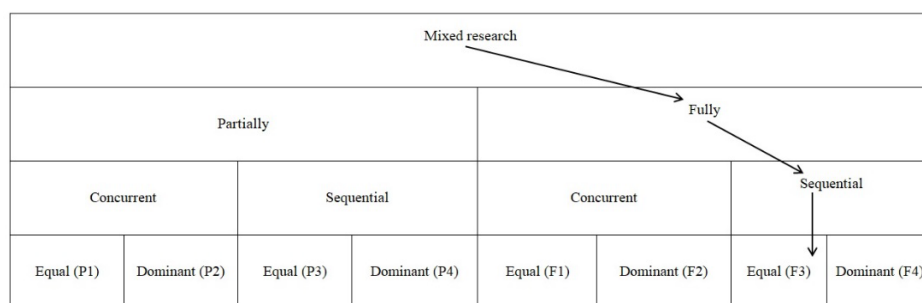


**Figure 1.** The mixed method typologies of Leech and Onwuegbuzie (2009) and the methodological path followed in the current study

The implementation process was applied in different classes rather than in the researcher's own class as one of the precautions for taking into account the risk of validity and reliability. The experimental and control groups were determined by considering this precaution. The quasi-experimental design was preferred in this study, in which both the participants and the control and experimental groups were not randomly assigned (Creswell, 2008), in accordance with the purposive samplings. In the analysis of quantitative data based on scales, statistical analyses were used to compare control and experimental groups. Moreover, the content analysis, for making inferences by systematically and objectively identifying messages from participants (Holsti, 1968), was used in the analysis of qualitative data obtained through observation, interview and anecdotal recording (Creswell & Creswell, 2018, Onwuegbuzie & Leech, 2004).

**Data Collection Tools**

*Preschool Children's Conceptions of Moral and Social Rules Scale*

In the current study, Preschool Children's Conceptions of Moral and Social Rules Scale, was used for determining the children's conceptions of moral and social-conventional rules, was developed by Smetana (1981) and adapted to Turkish culture by Secer and Sari (2006). The scale consists of two subscales that aim to measure adherence to moral items 1 from 5 and social rules items 6 from 10. Both Moral and Social rules dimensions of the scale consists of five sub-dimensions are Seriousness, Absence of Authority, Absence of Rules, Generalization and Punishment. The item testing each sub-dimension is scored between 1 and 3, and a minimum of 10 and a maximum of 30 points can be obtained from the whole scale, with a minimum of 5 and a maximum of 15 points from both the moral rules and social rules dimensions. The Cronbach alpha value of Preschool Children's Conceptions of Moral and Social Rules Scale was calculated .74. In another study where the scale was applied in Turkish culture, Cronbach alpha values were found to be .80 for the moral rules and .83 for the social rule (Özcan & Güngör-Aytar, 2023). The Pearson Correlation value was found .78, p=.000 of test-retest reliability was obtained three weeks after the initial interview for 32 of the 48 participants. Similarly, Smetana (1981) found the reliability value of test-retest of scale was .66, p<.01.

The five moral stimulus items were;

1. One child hitting another child;
2. A child not sharing a toy;
3. A child shoving another child;
4. A child throwing water at another child;
5. A child taking another child's apple.

The five social-conventional stimulus items were;

6. A child not participating in show and tell;
7. A child not sitting in the designated place (on a rug) during story time;
8. A child not saying grace before snack;
9. A child putting a toy away in the incorrect place;
10. A child not placing her belongings in the designated place (Smetana, 1981, p. 1334).

In order to evaluate the children's perceptions of moral and social rules, the following questions were asked about each of the pictures:

1. Do you think the event in the picture is true or false? If this is wrong, how wrong do you think it is? (Severity Dimension)

2. If the teacher did not see what the child in the picture was doing, would this behaviour of the child be correct? (The Dimension of Lack of Authority)

3. Would this behaviour of the child be correct if there was no rule set before regarding the event in the picture? (Absence of Rules Dimension)

4. Would it be right for this child in the picture to behave like this in another school or at home? (Generalization Dimension)

5. Should the teacher punish this child for this behaviour? If yes, how much punishment? Is it a

little or a lot of punishment? (Penalty Dimension)

While the items were scored between 1 and 4 points for (smallest face), "a little bit bad", "very bad" or "very, very bad" (largest face)" in the original scoring of the scale (Smetana, 1981) as a result of our pilot implementations, the items were scored between 1 and 3 because children could not fully understand the distinction between "very bad" and "very, very bad.

Scoring of the scale is as follows:

- Happy facial expression (approving) = 1 point
- Slightly angry facial expression (disapproving) = 2 points
- Very angry facial expression (no disapproval, that's too bad) = 3 points

*Observation*

Due to the facilitator role of the researcher in P4C activities, the observations made during the implementation processes were carried out in accordance with the participant observation method. In this method, researchers collect the data, as in the form of field notes which are unobtrusive and systematical (Bogdan, 1973). All the implementation processes of the 10-week P4C activities were recorded via video recordings of approximately 400 minutes in total, as well as the observation forms (see Table 1) filled by the researcher as a participant observer. Expert opinions were obtained from four experts (academicians from early childhood education) with more than 10 years of professional experience and that have PhD in early childhood education regarding the scope validity of the observation form.

**Table 1.** Observation form

|   |   |   | Very good | Good | Under development | Should be supported |
|---|---|---|---|---|---|---|
| 1 | Agreeing/disagreeing with the opinion | | | | | |
| 2 | Justify | | | | | |
| 3 | Comparison | Distinguish | | | | |
| | | Connect with | | | | |
| | | Analogy | | | | |
| 4 | Inference | | | | | |
| 5 | Logical reasoning | | | | | |

*Interview*

In order to increase the quality of the interview and to obtain the most appropriate interview form (Marshall & Rossman, 2014), expert opinions were obtained from five experts with PhD degrees who have 10-15 years of experience working in the field of measurement and evaluation (two experts), P4C (two experts), and one in the field of early childhood education. The interview form is presented in Table 2.

**Table 2.** Interview Form

|   |   |   |
|---|---|---|
| | | Chid code: |
| | Questions | Responses |
| 1 | Did we listen to each other caringly today? | |
| 2 | Have we thought about the activity we did today? | |
| 3 | Have we answered the questions today? Did we provide explanations? | |
| 4 | How did we treat each other today? | |
| 5 | Did we think of new things today? Have we got any new ideas/thoughts? | |

*Anecdotal Records*

In the current study, anecdotes including the participation of the children in the activity process and the answers they gave to the questions about the P4C session and the general observations in the process were recorded during each P4C session and a total of ten anecdotes were recorded.

**Trustworthiness**

Reliability and validity play a crucial role for acceptability of the findings in scientific reports. The

methods used to ensure the reliability of data in research based on qualitative paradigms differ from quantitative-based studies. While reliability is tried to be ensured in quantitative research methods, trustworthiness is taken into consideration in qualitative studies. Despite the fact that there are many ways to improve trustworthiness (Creswell, 2014), four criteria-credibility, transferability, dependability, and confirmability-were used in the evaluation (Guba, 1981; Shenton, 2004).

Credibility: In this criterion, Merriam (1998) focused on the question "how compatible are the findings with the reality?" A mixed method, which combined qualitative and quantitative data was used, and data were obtained from a wide variety of sources such as scale, observation, interview and anecdotal records, which are considered important to increase reliability (Brewer & Hunter, 1989). In addition to these, Yin (1994) stated that that the progress of the techniques, methods and implementation happens correctly, in the right order and as planned reflecting the consistency of the findings highlighted in this criterion with reality at the highest level.

Transferability: To achieve these requirements, Shenton's (2004) six-step method was used. First, we selected appropriate schools to allow supervisors of P4C sessions in line with the goals and scope of the study. The fact that the researcher was also a teacher at the school and that the school had easy access was effective in choosing the implementation school. To avoid any validity and reliability problems, the implementation was carried out in classes other than the researcher's own class. Second, we chose the suitable sample using the purposive sampling technique in order to gather pertinent and transferable data. Thirdly, compared to P4C sessions which conducted with a relatively small number of populations, the number of experimental group (23 children) and control group (25 children) in the current study is sufficient to allow for the diversity of qualitative data and for the implementation of statistics to quantitative data. Fourthly, we used a variety of measurement techniques, including scale, observation, anecdotal records, and interview. The fifth phase involved several data collection sessions (each P4C session lasted nearly 40 minutes, interviews lasted nearly 10 minutes for each child, so observations records required about 400 minutes and interviews records about 230 (for 23 children), total of data recording time about 11 hours). The sixth and final point is that we collected data over the course of about three months, which gave us access to information that was sufficiently in-depth and detailed.

Dependability: Using independent, repeated, and cross-comparison procedures, the findings were verified by researchers. A total of 21 meetings were held during the research, with 20 meetings before and after each P4C session, and another meeting at the end of the process, where the general evaluation was made.

Confirmability: The implementations were verified again in chronological sequence with the records, and we independently and frequently studied and compared the findings in-depth findings.

**Validity and Reliability Techniques for Analyzing to Quantitative Data**

In addition to the trustworthiness steps listed above, the validity and reliability of the current study were increased with some other implementations. One of these implementation,Cronbach alpha internal consistency coefficient for the reliability of the quantitative data, test-retest Pearson correlation coefficient for the consistency of the scale and normality test results were taken into account for the determination of the statistical procedures to be applied. In addition, the P4C sessions were carried out in a classroom other than the researcher's classroom in order to avoid the risk of the researcher directly affecting the results on the participants. One of the other measures taken against the risks that may adversely affect the validity and reliability of the implementation is to seek expert opinions for the content validity of the instruments.

**Information About Philosophy for Children (P4C) Activity Set and Implementation Process**

In the process of creating the Philosophy for Children (P4C) Activity Set (see App. I for an example of P4C Activity Set), both researchers participated in a total of three courses/seventy-five hours of training programs in order to conduct the research more effectively and accurately and were accredited and received an internationally valid philosophy practitioner and educator certificate.

After the supervision process, the P4C activity set was sent to the four experts, who have experience about P4C and child development, and its final version was created. While creating the activities, the acquisitions in the fields of moral development, social and moral rules were included, while the program was created by taking into account the age and developmental characteristics of the children. P4C activity set consists of 10 activities planned as a 10-week practice for pre-school children. An intervention process lasted approximately three months, from January 9, 2023 to March 27, 2023. All implementation and data collection processes were carried out by the researcher. In Table 3, the 10 concepts and 10 activities in the P4C Activity Set are given together with the implementation dates and implementation periods.

**Table 3.** P4C weekly activity set

| Week | Topic | Philosophical question (philosophical meaning) | Title of the P4C session | Date of P4C session* |
|------|-------|-----------------------------------------------|--------------------------|----------------------|
| 1 | Intention | What is intention? | Who is guiltier? | 9 Jan. 2023 |
| 2 | Rules | What is rule? | Cheerful forest | 16 Jan 2023 |
| 3 | Power-Authority | What is power/authority? | Otter | 23 Jan. 2023 |
| 4 | Share | What is share? | Tiny rabbit Bobi | 30n Jan. 2023 |
| 5 | Criteria of sharing | Are there any criteria for sharing? | It's mine | 20 Feb. 2023 |
| 6 | Benevolence | What are benevolence / help? | Grumpy flower | 27 Feb 2023 |
| 7 | Criteria of benevolence | What is the criterion of benevolence? | Kind-Hearted Giant Memo | 6 March 2023 |
| 8 | Truth | What is truth? | I did not do that | 13 March 2023 |
| 9 | Honesty | What is honesty? | Tree Mounted Kite | 20 March 2023 |
| 10 | Favour | What is favour? | Why is the deer sad? | 27 March 2023 |

*all P4C session lasted about 40 minutes

## Findings

The findings regarding the results of the quantitative and qualitative data obtained as a natural result of the mixed method implementation were reported under separate headings such as "Results of quantitative data" and "Results of qualitative data" to strengthen the conceptual expression.

## Results of Quantitative Data

### What are the Moral and Social Rule Perception Levels of Children?

First of all, normality test was applied to understand the distribution of the Preschool Children's Conceptions of Moral and Social Rules Scale and the results are shown in Table 4.

**Table 4.** Preschool children's conceptions of moral and social rules scale's normality test results

| | Kolmogorov-Smirnov | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
| Preschool Children's Conceptions of Moral and Social Rules Scale | statistic | df | p | statistic | df | p |
| | .076 | 48 | .200* | .973 | 48 | .327 |

Since Kolmogorov-Smirnov and Shapiro-Wilk normality test results indicated normal distribution (p>.05), analysis procedures were continued with parametric tests.

The Moral and Social Rule Perception Scale Pre-Test descriptive statistics results are presented in Table 5.

**Table 5.** Experimental and control group total pre-test descriptive statistics results of preschool children's conceptions of moral and social rules scale

| | Min. | Max. | $\bar{X}$ | S | SD |
|---|------|------|-----------|---|-----|
| Moral rules sub-dimension | 16.00 | 37.00 | 29.73 | 21.05 | 4.59 |
| Social rules sub-dimension | 13.00 | 37.00 | 28.75 | 28.45 | 5.33 |
| Total | 29.00 | 73.00 | 58.48 | 84.64 | 9.20 |

N=48

In the pre-test results, it was determined that the children participating in the study exhibited approximately 65% positive attitudes in both moral rules and social rules sub-dimensions, which were

above the medium level. Similarly, it was calculated that they had a positive retention rate of 67% in the context of moral and social rules from the whole scale.

T-test analysis results for moral and social rule perception between experimental and control groups are presented in Table 6.

**Table 6.** Pre-test results of the preschool children's conceptions of moral and social rules scale of the experimental and control group

|  | Group | $\bar{X}$ | SS | t | SD | P |
|---|---|---|---|---|---|---|
| Moral rules sub-dimension | Experimental | 30.78 | 5.03 | 1.548 | 46 | .128 |
|  | Control | 28.76 | 4.00 |  |  |  |
| Social rules sub-dimension | Experimental | 30.13 | 5.59 | 1.758 | 46 | .085 |
|  | Control | 27.48 | 4.86 |  |  |  |
| Total | Experimental | 60.91 | 10.00 | 1.799 | 46 | .079 |
|  | Control | 56.24 | 7.94 |  |  |  |

$N_{experimental}$=23, $N_{control}$=25

It is seen that the pre-test mean scores of the experimental group and the control group are close to each other both in the whole of the scale and in both dimensions (moral rules and social rules), and there is no statistically significant difference between the groups (p>.05).

**The Effect of P4C Implementations on Children's Perceptions of Moral Rules and Social Rules**

After the P4C sessions, T-test was applied on post-test scores of experimental and control groups' points belong to Preschool Children's Conceptions of Moral and Social Rules Scale, to understand the effect of the implementation (P4C sessions) on participants' perceptions of moral and social rule. The results of T-test analysis are presented in Table 7.

**Table 7.** Post-test results of the preschool children's conceptions of moral and social rules scale of the experimental and control groups

|  | Group | $\bar{X}$ | SS | t | SD | p |
|---|---|---|---|---|---|---|
| Moral rules sub-dimension | Experimental | 33.78 | 3.25 | 4.980 | 46 | .000 |
|  | Control | 27.68 | 4.99 |  |  |  |
| Social rules sub-dimension | Experimental | 31.91 | 4.34 | 5.356 | 46 | .000 |
|  | Control | 25.12 | 4.44 |  |  |  |
| Total | Experimental | 65.70 | 6.98 | 5.929 | 46 | .000 |
|  | Control | 52.80 | 7.99 |  |  |  |

$N_{experimental}$=23, $N_{control}$=25

It is seen that there is a statistically significant difference in favour of the experimental group in the whole of the scale and also in both sub-dimensions of moral rules and social rules (p=.000). From this point of view, it can be said that the P4C sessions applied within the scope of this research, have a positive effect on the perceptions of moral and social rules of the participating children. In order to understand whether the implementation caused a significant difference between the Preschool Children's Conceptions of Moral and Social Rules Scale pre-test and post-test scores of the experimental group, a t-test was conducted and the analysis results are presented in Table 8.

**Table 8.** Preschool children's conceptions of moral and social rules scale's pre-test and post-test t-test results of the experimental group

| Group | Dimensions | Test | $\bar{X}$ | SD | t |
|---|---|---|---|---|---|
| Experimental group | Moral rules sub-dimension | Pre-test | 30.78 | 5.03 | -2.580* |
|  |  | Post-test | 33.78 | 3.25 |  |
|  | Social rules sub-dimension | Pre-test | 30.13 | 5.59 | -1.497 |
|  |  | Post-test | 31.91 | 4.34 |  |
|  | Total | Pre-test | 60.91 | 10.00 | -2.216* |
|  |  | Post-test | 65.70 | 6.98 |  |

*p<.05; $N_{experimental\ group}$=23

It is seen that the post-test mean scores of the implementation in the experimental group in the total score of the scale and in the moral rules sub-dimension are statistically significant and higher than the pre-test mean scores. Although it does not indicate a statistically significant difference in the social rules sub-dimension of the experimental group, it is realized that the post-test scores are higher than the pre-test scores. These findings show that philosophy activities for children contribute to increasing the moral rule knowledge score and social rule knowledge score of the experimental group participants. As a result of the implementation applied to the participants, it can be said that philosophy activities for children increase the level of children's knowledge of moral and social rules.

## Results of Qualitative Data

### Children's Responses in P4C Sessions

Qualitative findings regarding the effects of P4C implementations on children's perceptions of moral and social rules were obtained from observations, interviews and anecdotal records, and in the following section, these data are included through examples selected from the implementation weeks.

### *Theme: Power (authority) - Otter Story*

In the Story of Otter which is the third week activity, the following questions was discussed;

Should hedgehogs do what they are told or not? Why? (prompt question)
Why do animals fulfil the wishes of the otter? (transition question)
Should we always do the wishes of those who are stronger than us? Why? (transition question)
What is power (authority)? (philosophical question)

The story Otter was read in two parts in practice. After reading the first part, the children were asked the prompt question, should the hedgehogs do what they are told or not?, Why?.

They shouldn't, because the otter didn't treat them nicely and didn't use nice words (C1).
They shouldn't do it because he didn't use the magic word (C23).
They shouldn't, because the otter wasn't chosen as king. He is not the king (C9).
They shouldn't do it because the otter disrespected the hedgehogs and didn't treat them kindly (C3).
They shouldn't, because the otter gives orders to the hedgehogs. This is not a good thing (C13).

While all of the children answered they should not do it, they explained their reasons in different ways. At this point, an imaginary opponent was created as a facilitator. It was observed that three of the children changed their minds after the imaginary opponent was created.

Let them do it because the otter has declared himself king. There is no disrespect to the king (C19).
Let them do it, because together with the lion, the otter can become king (C15).
They should do it because the otter might get very upset and angry if they don't (C21).

After reading the second part of the story, participants were asked: Why do animals fulfil the otter's wishes? (transition question).

Because the otter is bigger than them, because what the big guys want is done (C11).
What the kings want is done, if it is not done; he punishes them and puts them in prison (C3).
Kings are powerful and what they want is done. If it is not done, the kings will be angry (C7).

Should we always do the wishes of people who are stronger than us? (transition question)?

Yes, because powerless people cannot do what they want on their own (C23).
No, we shouldn't do it all the time. Because they can lie to us and if we do whatever they want, bad things may happen to us (C6).
Yes, because if we don't do it, they may treat us very badly and punish us (C12).

Lastly, the philosophical question that what is Power (Authority)? was asked to the participants.

To rule everyone in the world (C3).
Keeping everything in your hands (C18).
To change and become stronger, and therefore to be able to do anything (C11).
Having the power of the world in your hands, having everything you want (C1).

Expressing their different perspectives on the concept of power (authority), children stated that it is the authority that holds the power, and that angering the powerful can have bad consequences.

### Theme: Criteria of Sharing - It's Mine

In the story of It is Mine which is the fifth week activity; the following questions were discussed;

Should Piccolo give his banana to Oskar or not? Why? (prompt question)
Should we share our belongings with people who do not share their belongings with us? (transition question)
Is there a criterion for sharing? (philosophical question)

After reading the story, the participants were asked the prompt question Should Piccolo gives his banana to Oskar or not? Why? and an investigation was initiated.

Let him give, because sharing is nice (C17).
He should give it, because if he doesn't, their friendship cannot be maintained (C4).
He shouldn't give it because she didn't share it with him (C9).
He should give it; otherwise, he will get angry with her (C2).
He shouldn't give it to her; he didn't give her the toy (C14).

The second question (prompt question). was asked to the participants: Should we share our belongings with people who do not share their belongings with us?

Yes, maybe when we share, he will learn how good it is to share (C3).
Yes, maybe he will realize the mistake he made (C13).
We don't have to share, we can do it if we want, if we don't want, we cannot share it (C9).
Those who do not share will be doing evil. If we do not share, we will also be doing evil (C4).
We must share so that he can like us (C10).

Lastly, the philosophical question was asked to the participants; Is there a criterion for sharing?

While all of the participants answered, there is a criterion for sharing; they expressed their reasons in different ways.

There is, I can share it with people I know (C4).
It exists, if I like it, I will share it (C1).
There is, if he is my friend and he shares his things with me, I will share his things too (C10).

While the criterion for sharing according to children is stated to be people they love or know, it has been observed that sharing their belongings is perceived as doing well, while not sharing their belongings is perceived as doing evil. Children also expressed that not sharing is a bad thing, while the perspective of I will share if he shares or maybe he will share is dominant. When the answers received from the interview questions were examined, the children stated that they enjoyed the activity process and were curious about what we would do in the next activity. We always read new stories and talk about different things.

I'm very curious about what we will do next time (C4).
I think we talk about very entertaining things, we all say different things (C9).

### Theme: Favour – Why is the Deer Sad?

In the tenth week, the implementation, titled Why is the Deer Sad? The picture of a crying deer and its friends near to it was shown to children and the following questions were discussed;

What do you think could be the reason why the deer is sad? (prompt question)
What can its friends do for the deer? (transition question)
What is favour? (philosophical question)

After the picture was shown, an investigation was initiated with the prompt question which was what do you think could be the reason why the deer is sad?

He might have injured his foot and it hurts (C20).
Some evil-hearted person might have hurt the deer (C16).
He might have been pricked by a thorn in his foot (C23).
He might have fallen and injured or cut himself somewhere (C17).

Since the answers given by the participants were that the deer might be upset due to physical pain, the question, which was not included in the activity plan, was asked; do you think we only get upset when a part of us is injured or hurts, that is, when we suffer physically?

> We get sad and cry when our friends don't include us in the game. (C17 who changed his initial thought)
> If they leave us alone at night, we get scared and sad. (C16)
> We also get sad when the electricity is cut off and we stay in the dark at night. (C19)
> When we get scared, we get sad and cry a lot. (C7)

Then, the facilitator asked another transition question which was what can their friends do for the deer?

> If he has a wound, they can take him to the veterinarian and bandage his wounds (C3).
> They can share happiness with him. They can take him to the park (C21).
> They can understand why he is sad and help him (C13).
> They can help him, if he is hurting, they can take him to the veterinarian for treatment and they will be doing him a favour (C6).

When the targeted concept of favour was expressed by the investigating community, the facilitator moved on to the philosophical question that was: What is goodness?

> It means not getting angry or punishing (C7).
> Feeling love for everyone and sharing something they need with them (C8).
> Helping those in difficult situations (C3).
> Doing things for each other, loving each other and to make happy (C4).
> Taking those in need into our homes and helping them (C6).
> Not breaking hearts. Hugging each other (C19).
> Sharing our Barbie house and toys we love, not dislikes (C20).
> Being sensitive and helping everyone (C1).

While the majority of the children expressed sadness as physical injury, hurting and suffering, they stated that being alone and being in the dark (frightening to them) was also a sad thing. According to children, showing kindness, being good heartedness, helping people who need help, sharing their favourite toys, were seen as favours.

When the answers received from the interview questions with the children after the last activity were examined, they stated that they thought a lot about the activities, sometimes changed their ideas and enjoyed them very much.

> We thought about very different things, it was very enjoyable to think with my friends. (C3)
> I agree with my friends, it was different from the stories we normally read, we thought more and got new ideas (C17).

## Discussion

The results of the research show that there is no significant difference in the perceptions of both moral rules and social rules of the participating children in both the experimental group and the control group, that is, the children are close in structure. When the answers given by the children to the scale questions are examined; it was concluded that social rules are perceived as more flexible than moral rules and that moral rule violations are defined as more serious and more punishable situations than social rules violations. In his research, Smetana (2006) stated that children evaluate moral rule violations as more serious, requiring more punishment, and wrong even if there are no rules. When the pre-test and post-test average scores of the experimental and control groups were compared, it was observed that while the post-test scores of the experimental group increased, there was no increase or even a decrease in the post-test scores of the control group.This decrease was due to the fact that the children became more integrated with each other in the 10-week period between the pre-test and the post-test and, accordingly, they were influenced by each other. Children's peer relationships are shaped by children's individual characteristics and their interactions with each other (Qashmer, 2023). In communicating with their peers, children become behaviourally similar to each other over time. For example, while children who spend time with aggressive peers exhibit aggressive behaviours over time (Liu et al., 2013) children who spend time with sharing and cooperative peers learn these behaviours and these behaviours are reinforced (Laursen &

Veenstra, 2021). There are studies supporting the results obtained in the current study that P4C sessions significantly and positively affect in strengthening children's social cohesion, social rule and moral development levels. In one of these studies, García-Moriyón et al. (2020) stated that the P4C educational concept supplies for creating areas where students can reflect on the kind of person and society they wish to become. Moreover, the formation of community feelings, according to Sharp (1995) is essential for the development of the pro-social virtues (such as sincerity, courage, care, honesty, considerateness, compassion, sensitivity, integrity, etc.) and character structures of the students in the class. This is in addition to developing a set of tools and procedures specific to ethical reflection. It has been reported that the philosophy with children curriculum, which was prepared by the Institute for the Advancement of Philosophy with Children (n.d) (IAPC, establishment in 1974), benefits from Royce and Powell's (1983) multifactorial personality systems theory, contributes positively to the development of some cognitive and emotional dimensions regarding the moral development of children. Developmental examples in cognitive; deduction and induction, impulsiveness, sensitivity to issues, idea flow, originality, cognitive complexity, abstract and concrete thought, etc. are all examples of cognitive skills. It has been observed that not only abstract concept development, but also children's listening to each other skills during the practices, teacher-child interaction and children's tendency to ask more questions have improved. These results also coincide with the findings of the Evaluation report and Executive summary Report about Philosophy for Children. In summary, the report emphasizes that P4C appears to have a positive effect on broader outcomes like students' speaking confidence, patience when listening to others, and self-esteem, according to teachers and students' feedback. Certain instructors thought that P4C had a beneficial effect on overall student involvement in the classroom and may have led to certain students asking more questions throughout all classes (Gorard et al., 2015). Based on this, it can be said that P4C implementations develop not only abstract definitions such as authority, sharing and kindness which are good reflections of social and moral rules but also develop curial social skills such as listening to each other, asking questions, self-expression. Self-awareness, sincerity, realism, cooperation, assertiveness (self-possession), tolerance for the strange, reflexivity, accomplishment motivation, and other characteristics are included in the affective domain. The P4C program, which was implemented, reinforced the students' moral habits and competences, according to the experimental study that looked at how the program affected the development of social, cultural, and ethical values in sixth-grade pupils (García-Moriyón et al., 2020). It appears that the results of the current investigation, which was conducted with a five year-old age group, are consistent with the findings obtained in older age groups.

According to the findings obtained from the three implementation examples presented above, in which abstract concepts such as authority, sharing and kindness were investigated, five-year-old children can develop conceptual explanations for the definition of abstract concepts. In fact, although Piaget (1964) stated in cognitive development theory, the development of abstract concepts could occur at formal operational stage (11 years old and up), recent studies (Hu et al., 2021; Gunes & Sahin, 2020; Lin et al., 2020; Woolley & McInnis, 2015) have reported some remarkable results which support the findings of current study that the development of abstract thoughts and ability to define abstract concepts can be observed at earlier ages. In addition to the studies emphasizing that abstract, thoughts and definitions for abstract science concepts can be developed around the age of five (Hu et al., 2021; Gunes & Sahin, 2020; Woolley & McInnis, 2015), it is reported that game-based implementations (Lin et al., 2020) and computational implementations (Bati, 2022) support abstract thinking in early childhood. It can be concluded that not only the subject/theme dimension but also the implementation dimensions improve abstract thinking.

In current study, it was observed that children expressed positive opinions about social rules such as sharing; doing favours or obeying the rules, and either questioned the concepts of authority or gave answers indicating emotional understanding and social competence. Similar results were reported in previous study (Giménez-Dasí et al., 2013), the P4C program was applied to the four and five age group, it was reported that there was a significant improvement in children's social interactions, social competences and emotion comprehension, consistent with the findings of current study. It is seen that P4C sessions contribute not only to children's abstract thinking or ability to think with abstract concepts (such as;

concepts of power, authority etc.) which is an important indicator in their cognitive development, but also to the positive development of their moral and social (punishment, love, rules, sharing, bad, good, justice etc.) perceptions. It is seen that the progress made by the children in the context of moral and social perception during the P4C implementation process of the current research is compatible with Lipman's (2008) thoughts about that P4C could be useful not only for developing thinking skills but also for moral education. Lastly, it may be claimed that the findings of this study support claims of Ann Sharp (2009), who is one of the P4C pioneers, P4C research can contribute to communities via a strong pedagogy in terms of moral development.

## Conclusion

It was determined that there was an increase in the perception of moral and social rules of the experimental group after implementation process. In the research, when the experimental group's moral rule and social rule perception scale scores were examined before and after the implementation, a significant difference was found between the children's moral rule and social rule perceptions after the P4C sessions. Moreover, a visible progress was observed in the areas of cognitive development and social-emotional development, it was concluded that positive behaviours increased, especially in moral situations requiring tolerance in experimental group. The significant differences obtained on behalf of the experimental group in the post-tests applied at the end of the research are due to the P4C sessions applied. This idea is based on the fact that the behavioral changes in the control groups were not at a level that could cause a significant difference during the process, and that the children reflected the thoughts and inferences that would form the basis for positive behaviors, together with the practices in the anecdotal records and observations in the sessions of the experimental group. The study concluded that philosophy activities for children contribute to the development of critical thinking standards. At the end of the 10 P4C sessions implemented within the scope of this research, it was observed that children from experimental group have not only improved their thinking skills, but also have been able to develop conceptual explanations for important and abstract concepts such as justice, honesty, sharing, human rights, empathy and sharing. Moreover, children, in experimental group, have demonstrated collaborative and attentive approaches to problem solving.

## Limitations and Implications for Future Research

This study has some potential limitations. The primary limitation to the generalization of these results is sample size, the second limitation concerns the access and the last one is longitudinal effects. Although the fact that the research is limited to 23 experimental groups and 25 control groups is considered sufficient in terms of qualitative research methods, it points to limitations in the quantitative dimension of the research. In an ideal P4C session, it is recommended that the number of the participants in inquiry community being twelve to sixteen participants the optimal number, since they provide a good variety of perspectives and chances for contributions (Fisher, 2008). In this context, one of the limitations of the research is that the experimental group itself cannot be divided into smaller parts and increasing the number of groups which involved ideal number of participants. Other potential participants could not be reached due to the limited number of classes in the schools, where chosen by purposeful sampling method, the research was carried out. Due to time problem; the inability to test the permanence or long-term effects of the implementations is considered to be another limitation of the research.

Implementing similar studies by increasing the number of samples, examining the relationships between P4C implementations and emotion regulation and personality development, and discussing the differences in depth with research groups that include different age groups and socio-economic status can be offered as suggestions for researchers. It may be recommended for early childhood educators to use P4C activities as a tool to recognize and evaluate the child, and to enrich the activities by changing the themes or stimuli in P4C activities.

# Declarations

*Publisher's Declarations*

**Editorial Acknowledgement:** The editorial process of this article was completed under the editorship of Dr. Carmen Huser through a double-blind peer review with external reviewers.

**Publisher's Note:** Journal of Childhood, Education & Society remains neutral with regard to jurisdictional claims in published maps and institutional affiliation.

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# Caregiver involvement in support services for a child with hearing loss?

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**Abstract**: Family-centered practices are considered one of the crucial components of services offered to children with hearing loss in early intervention. These practices aim to empower caregivers to support the language development in children with hearing loss through family-centered early intervention. In Turkey, early intervention practices are commonly provided under the supporting services provided by Private Special Education and Rehabilitation Centers (PSERCs). However, there is limited information regarding the ways of involving caregivers in the support service process and about the content shared to empower them. This research was designed as a holistic single case study based on a qualitative approach to examine how caregiver involvement is achieved in support services in PSERC for pre-school children with hearing loss in Turkey. Data obtained through observations, semi-structured interviews, documents (Audiogram, activity items, etc.), and researcher diaries were analyzed inductively. Results demonstrate that a range of practices, such as informational notes, quarterly meetings, and debriefings are implemented at the focal PSERC. However, it found that the only practice that was consistently followed is debriefings. Although the content shared in the debriefings were seemingly supportive for the language skills of children with hearing loss, the information caregivers needed was diverse. The results clearly demonstrate that current attempts to involve caregivers at PSERCs lack family-centered practices. A more comprehensive approach is required to improve services at PSERCs and male them truly family-centered. Further research is crucial to this end.

## Introduction

Based on the studies conducted over many years, early diagnosis and intervention are generally effective for the developmental needs of children with special needs (Bricker et al., 2018; Guralnick, 1998), specifically for language, communication, and social-emotional development of children with hearing loss (Yoshinaga-Itano, 2003). Moreover, active caregiver involvement in the early intervention process has significant positive consequences for the development of children with hearing loss (Holzinger et al., 2022; Yoshinaga-Itano et al., 2020). In this sense, family-centered practice based on strengthening the family and activating the intervention process is adopted as the basic principle in the early intervention of children with hearing loss (Joint Committee on Infant Hearing, 2019).

Family-centered approaches involve systematic practices that include respecting the capabilities and competencies of families, providing objective (de)briefings to make conscious decisions, supporting their choices, and offering opportunities for active involvement while acquiring new skills (Dunst & Espe-Sherwindt, 2016). Considering the needs of children with hearing loss in terms of spoken language development, the main purpose of family-centered practices offered in the early period is to support children's knowledge and abilities in improving their language skills based on the structure and characteristics of the family (Brown & Nott, 2005; Holzinger et al., 2022; Moeller et al., 2013). Routines in daily life (e.g., reading books, playing games, care routines) not only provide a meaningful learning context

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for children but also facilitate learning processes by exposing them to similar contexts repeatedly in all areas of their lives and by creating opportunities to transfer what they have learned (Cole & Flexer, 2020). Therefore, the experts providing early intervention services should inform caregivers about the strategies for language development of children in accordance with their age, and should guide them about generalizing these strategies across their daily routines and activities (Curtin et al., 2021; Moeller et al., 2013; Noll et al., 2021).

Literature suggests that family-centered approaches positively impact children's development by enabling caregivers to develop confidence in their interactions and in using strategies that facilitate language skills (Costa et al., 2019; Dunst & Espe-Sherwindt, 2016; Holzinger et al., 2022; Yoshinaga-Itano et al., 2020). On the other hand, the quality of family-centered practices is still questionable and therefore it needs to be investigated (Alliston, 2007; Bailey et al., 2012). Researchers focusing on young children with special needs, including those with hearing loss (Ingber & Dromi, 2009; Decker & Vallotton 2016), emphasize that family-centered approach has not yet been fully implemented in many countries (Crais et al., 2006; Vilaseca et al., 2019). For instance, Ingber and Dromi (2009) reported that caregivers of children with hearing loss seek more active involvement in the evaluation and decision-making processes. Yet, the authors conclude that experts do not sufficiently consider caregiver needs in the service processes. Decker and Vallotton (2016), similarly, note that caregivers need more detailed information to provide rich language input to their children. It is evident that experts in practice face significant challenges, such as difficulty comprehending family perspectives, a lack of knowledge to empower families, and insufficient time or interest to read relevant resources (Bailey et al., 2012; Espe-Sherwindt, 2008). Likewise, these international findings concerning family-centered early intervention are also valid for the practices in Turkey (Antmen, 2010; Atmaca & Uzuner, 2020; Bekar et al., 2021; Sarı et al., 2017).

Early intervention practices in Turkey are provided within the scope of "support services" by the Private Special Education and Rehabilitation Centers (PSERC) affiliated with the Ministry of National Education (MoNE) together with the education and research centers affiliated with universities (MoNE Special Education Services Regulation [SESR], 2018; MoNE Special Education Institutions Regulation [SEIR], 2012). Therefore, PSERCs are instrumental in supporting children with hearing loss to develop their language skills as an important part of early intervention. Moreover, the involvement of caregivers and the provision of consultancy in the service process offered at PSERCs are protected by law. However, the ways to implement these services have not been defined (MoNE, SESR, 2018). The researchers cited in the national literature revealed that there were problems in cooperation with caregivers mostly based on the opinions of teachers and caregivers (Gürgür et al., 2016) and that caregiver involvement was limited to session observations and caregiver debriefings (Atmaca & Uzuner, 2020; Bekar et al., 2021).

Current research indicates that there are significant problems in ensuring caregiver involvement in the support service process for children with hearing loss in PSERCs (Atmaca & Uzuner, 2020; Bekar et al., 2021; Sarı et al., 2017). PSERCs play a crucial role in providing support services, but not all children and caregivers have access to quality family-centered early intervention in these settings. While there have been limited studies on PSERCs, they do not directly examine caregiver involvement. Furthermore, research has provided information on how caregivers are involved in supporting children with hearing loss, but these information is lacking in detail and does not cover the specifics of the information given to caregivers to support their child's language development. Therefore, there is a need to investigate how to ensure the involvement of caregivers of children with hearing loss in the support service process in PSERCs, and what information is shared with them to support their children's language development. This research as a case study, will provide a detailed description of how caregiver involvement is a achieved, as well as exploring the content of the information provided to caregivers in this context. Given the research results that reflect the negative opinions of educators on the involvement of caregivers (e.g., Atmaca & Uzuner, 2020; Bekar et al., 2021), it is crucial to understand the perspectives of educators and caregivers on practice holistically. Such an understanding will help identify how the perspectives of caregivers and educators shape caregiver involvement. In addition, the results of the present research will guide institutions and researchers in evaluating and improving the education in PSERCs in terms of family-centered practices. Based on these,

the aim of this study is to examine how caregiver involvement is achieved in the support services offered to a pre-school child with hearing loss in a PSERC affiliated with MoNE. Accordingly, the following questions were formulated; a) What kind of practices are carried out to improve caregiver involvement in support services? b) What kind of information is provided to the caregiver on how to support the language development of the child? c) What are the views about caregiver involvement in support services?

## Method

### Research Design

In order to gain a holistic and in-depth insight into the involvement of caregivers in support services for pre-school children with hearing loss, a single case study methodology was used (Yin, 2009; Bogdan & Biklen, 2007). Given the exploratory nature of the study (Yin, 2009), various qualitative data collection methods were employed, including observation, interviews, document reviews, and researcher diaries.

### Participants

The participants of the study consist of the education coordinator of the focal PSERC, a child with hearing loss receiving services from the focal institution, the child's caregivers (grandparents), and an individual support service teacher. After obtaining research permission and ethics approval from Anadolu University Ethics Committee through correspondence between the rectorate of Anadolu University and the focal institution, written consents were obtained from each participant. In accordance with the ethical principles, the child was assigned a code name while the other participants were referred with their titles. Information regarding the participants was collected via a demographic information form. Information about the child was obtained from the child's audiogram, the report from the Guidance and Research Center (GRC), and the form prepared for his caregivers.

The focal child Dağhan, who was three years and two months old at the time, was born on the 28th of July, 2014. Dağhan was diagnosed with profound bilateral hearing loss (a mean of 120 dB in the right ear/ a mean of 110 dB in the left one) when he was six months and 15 days old. He did not have any additional impairment other than hearing loss. Cochlear Implant (CI) was recommended to Dağhan, who was using a bilateral hearing aid, but the surgery was not approved by his mother and father. As a result of GRC evaluation, Dağhan was recommended to receive support services for hearing, language, and social communication within the support education program conducted by the PSERC for individuals with hearing loss. At the time, Dağhan received individual support services two sessions a week (Tuesday & Friday/45 minutes for each session) from a classroom teacher for the hearing-impaired at the PSERC.

Dağhan's mother and father have hearing loss and use sign language to communicate. Therefore, his education on spoken language was monitored by his caregivers – a 58-year-old grandfather who was a retired worker and a 50-year-old grandmother who was a housewife. His individual support service teacher was a 27-year-old woman. The teacher with a six-year experience in teaching children with hearing impairment at the PSERC had been conducting Dağhan's individual service sessions for three years. As part of her professional development, she had participated in seminars on sign language interpretation, Small Steps Early Intervention Program, and training children with language and speech disorders. The education coordinator of the focal institution was a 29-year-old man. He had a bachelor's degree from the psychology department of a university and a master's degree in family psychology. He had been working as the education coordinator for three years within his five-year PSERC experience.

### Setting: Focal PSERC and Dağhan's Home

In all PSERCs across Turkey, support service programs – approved by MoNE in accordance with the provisions of MoNE, SEIR (2012) – are implemented through individual and group sessions to individuals of all ages and all types of disabilities in line with the special education evaluation board report prepared by GRC. Compulsory education teachers appointed by the Ministry conduct individual sessions for a total of 8 hours and group sessions for 4 hours per month. Besides, teachers with a bachelor's degree from the

Department of Teaching for the Hearing Impaired are actively involved in support services for the children with hearing loss.

The focal PSERC was determined based on the following criteria; a) accessibility of the institution, b) the presence of a teacher for children with hearing impairment and a pre-school child with hearing loss in the institution, and c) the absence of any concomitant impairments. In line with these criteria, the research was carried out in a PSERC located in the central district of Eskişehir, Odunpazarı and at Dağhan's home located in the central district of Tepebaşı. The focal PSERC is a four-storey building, and Dağhan's individual education class (IEC) is on the first floor (1. Field note, 12.09.2017). Data were collected in Dağhan's grandparents' home where he was spending the weekdays. Since interaction took place in the living room and kitchen during the observations in the home environment, the data were collected within these environments (23rd Field note, 13.12.2017; Research diaries, 13.12.2017, p. 50; 25.12.2017 p. 57; 26.12.2017, p. 59).

**Data Collection Techniques**

Multiple techniques were employed to each addressing multiple inquiries, to study the case in its context thoroughly. The opinions on caregiver involvement were collected through semi-structured interviews and a researcher's diary. The practices to support caregiver involvement and how they were carried out were collected through field notes, observations with audio and video recordings, semi-structured and unstructured interviews, document collection, and reflective research diary techniques (Bogdan & Biklen, 2007; Yin, 2009). Data were collected over a 5-month period in 2017/2018. Audio and video recordings were recorded via a voice recorder, a telephone, and a portable camera. Information regarding the data collected during the research process is presented in Table 1.

**Table 1.** The amount and duration of data collected during the research process

| Research Data | | Environment | Amount | Time |
|---|---|---|---|---|
| Observation | Individual Education Session (IES) (Field Notes/Audio Recordings) | PSERC's Individual Education Class (IEC) | 22 | 980′ |
| | Caregiver Debriefing (Audio Recording) | The Corridor of PSERC's Entrance Floor | 18 | 45′52″ |
| | Interaction within the Home Environment (Video Recording) | Living Room/Kitchen | 3 | 139′ |
| Interview | Education Coordinator | PSERC's Coordinator Office | 2 | 40′12″ |
| | Individual Support Service | PSERC's Individual Education Class (IEC) | 2 | 59′49″ |
| | Grandfather | PSERC's Psychologist Office | 1 | 33′44″ |
| | Grandmother | House (Living room) | 1 | 23′58″ |
| Document | *Official* | | | At the Beginning of the Research |
| | Audiogram, GRC Report | | 2 | |
| | *Personal* | | | |
| | Performance Tracking Chart | | 4 | During the Research |
| | Caregiver-debriefing Notes | | 13 | |
| | Activity Items/Material Copies | | 5 | |
| | Photographs (Educational Materials) | | 123 | |
| Researcher Diary | | | 81 pages | During the Research |

*Note.* Performance Tracking Chart (PTC): Documents prepared as a plan for the student at the end of each month at the focal PSERC

The first researcher observed how caregiver involvement in support services at the PSERC was achieved and whether the information presented to the caregiver was transferred into the home environment. Semi-structured interview and document collection techniques were employed both to verify the data obtained through observations and to obtain more in-depth information. Semi-structured interview questions were prepared separately for each participant, and interview forms were developed after collaborating with the second researcher about the interview questions. This process was repeated

when there was a need to obtain more detailed information about the goals of the observations. Besides, the researcher conducted unstructured short interviews with the teacher to verify the data obtained from the IES observations, and these interviews were audio-recorded and/or noted in the researcher diary. Observations made in the PSERC were carried out on the training days of the focal student (Tuesday-Friday, 14.00-14.45) while semi-structured interviews and observations in the home environment were carried out at the time and in the environment determined by the participants (Researcher diaries, 20.10.2017-31.02.2018, p. 31-67).

**Data Analysis and Credibility**

Research data from various sources were simultaneously analyzed and handled holistically at the end of the process in accordance with inductive analysis approach (Bogdan & Biklen, 2007). After each observation made by the first researcher during the entire research process, observation records were described in detail. After each semi-structured interview, the interviews were transcribed, and the transcripts were coded by transferring them to the interview analysis form consisting of contextual information, descriptive index, line number, descriptive data, and researcher comments. Following the observations and interviews, the forms and the researcher's diary were regularly shared with the second researcher, and the data were verified through face-to-face interviews at regular intervals. The documents collected in the process were handled together with observations, interviews, and research diary. At the end of the process, the codes obtained from the observation form were listed, and the observation analysis form, which was in the same format with the interview analysis form, was filled in line with these codes. Reliability check was completed by the first and second researcher through consensus building (Miles et al., 2014). In addition, after all data sets were evaluated, the coded data sets were given to two field experts to support consistency, and the experts came together to reach a consensus. Then, the first researcher analyzed each coded data set independently to generate themes and sub-themes. After the second researcher reviewed the themes, both researchers evaluated the formulated themes and sub-themes separately for each data set through a holistic perspective and combined those that support each other (Bogdan & Biklen, 2007; Miles et al., 2014).

## Findings

This part presents findings obtained at the end of data analysis. Table 2 displays the findings.

**Table 2.** Theme and sub-themes

| Main Themes | Sub-themes |
|---|---|
| Efforts to Achieve Caregiver Involvement | |
| Caregiver Debriefings | |
| Monitoring Interaction in the Home Environment | The Content of the Debriefings |
| Views on the Adequacy of the Debriefings | |
| Views on Caregiver Involvement | |

**Efforts to Achieve Caregiver Involvement**

To achieve caregiver involvement in support services at the focal PSERC, the caregivers were included in the sessions for a while, caregiver debriefing meetings were held at the end of the sessions, informational notes were shared with the caregivers, and the education coordinator held quarterly meetings. Accordingly, caregivers continued to join the sessions until the child was ready to work individually, and then onwards caregiver involvement was maintained through caregiver debriefings. This process was explained by the teacher as "When I feel like it's better to work individually, alone, I stop it [caregiver involvement]. Afterwards, I, for sure, keep debriefing the caregivers." (15/594-596). Similarly, Dağhan's caregiver (grandmother) explained that they received caregiver service until he was one and a half years old by the following remark; "We used to attend the sessions together until he was one and a half years old… She [teacher] told us 'You can do the same at home'. Later on, when the child became more conscious, he began to receive the service alone." (6/237-243).

As another caregiver involvement practice, the education coordinator held quarterly meetings

during which information was reciprocally shared about the performance of the students both at the institution and at home. He explained this process by saying; "I hold quarterly standard meetings… What kind of a plan we had, and how far we've come? Or is there anything that caught the family's attention? We negotiate them together" (7/224-226). On the other hand, while the teacher highlighted that not every caregiver was attending the meetings by saying "Some families do not attend… The socioeconomic status and lifestyle of the family is so critical…" (16/674-676), the caregiver (grandpa) emphasized that they were only informed at the end of sessions; "The teacher summarizes the daily lessons. It is provided orally and/or in writing… There is no extra information" (1-2/34-50). During the observations, caregiver debriefings were held regularly at the end of the sessions to achieve caregiver involvement (1st-18th Audio recording, 26.09.2017-18.12.2017; Researcher's diary, 12.09.2017-26.09.2017).

**Caregiver Debriefing**

Post-session caregiver debriefings were mostly held on the ground floor of the institution for about two and four minutes on average (Researcher's diary, 15.09.2017, p. 5, 26.09.2017, p. 12-14; 1-18. Audio recording, 26.09.2017-08.12.2017). The aim of caregiver debriefings was to help Dağhan's language development by ensuring that the exercises studied at the institution were also practiced at home, and the reason behind keeping debriefing notes was to facilitate the retention of the information shared during these meetings. Accordingly, the teacher said "The aim is to expose him to spoken language…The caregivers can literally see what we are trying to do" (10-12/376-470). In line with this, the findings obtained from the debriefing meetings and the debriefing notes were gathered under the sub-theme "Content of the Debriefings".

*The content of the debriefings*

The content of the debriefings was information regarding the sessions, the plans for the following sessions, and the suggestions offered to support interaction in the home environment (1-18. Audio recording, 26.09.2017-08.12.2017).

**Information regarding the sessions.** In all of the debriefings, consistent with the observed sessions, the activities carried out in the session, the objectives, and the developmental progress of Dağhan were shared with the caregivers (5th-22nd Field note; 1st-18th Audio recording, 26.09.2017-08.12.2017; PTC, 1, 2, 3, 4). For instance, in an observed session, the teacher noted the objectives as "Distinguishing similarities and differences of sounds, expanding vocabulary, repeating three-word sentences", and accordingly the activities carried out in the session were "Looking for a single card about vehicles", "Vehicle repair game", and "Listen&show with vehicle cards" (20th Field note, 01.12.2017). In the follow-up caregiver debriefing, the teacher noted the words that had educational purposes in the vocabulary set "Today's vocabulary includes a police car, a tow truck, and a shopping trolley", and wrote down the activities; "Today, we did a single card look-up exercise about vehicles. Again, we created a game with them… Then, we did a listen&show activity like 'show the police car'." Besides, the teacher also commented about Dağhan's performance "Participation is very good, joint interest is high. I just want him to take turns a little more while talking because he doesn't wait. But overall it was very nice." (16th Audio recording, 01.12.2017). Consistent with the debriefings, all the notes shared with the caregivers included the names of the activities performed in the session, the developmental progress of Dağhan, and the intended vocabulary set of the session (5th-22nd Debriefing notes, 26.09.2017-08.12.2017).

**Plans for the following sessions.** The teacher shared the objectives to be focused on and the activities to be included in the following sessions (4th, 5th, 11th, 16th Audio recording), 6.10.2017, 10.10.2017, 10.11.2017, 1.12.2017). For instance, in one of the debriefings, the teacher stated that Dağhan's repetitions increased and therefore she would focus on clarity a little more to increase his intelligibility by this remark; "It will be better if we increase his intelligibility a little bit." (11th Audio recording, 10.11.2017; PTC, 1, 2, 3, 4). In another debriefing, the teacher arrayed the activities to be conducted in the following sessions as

"From now on, I will support him more with stories, single card activities, and sequencing drills." (9th Audio recording, 31.10.2017).

**Recommendations to support interaction in the home environment.** During the debriefings, the teacher shared information about the activities to be done at home to support Dağhan's language ability and about how to form interaction during those activities. Similar to the activities held during the observed sessions, the teacher suggested reading activities from a storybook, playing imaginary games (vehicle repair, doctor-patient, building a farm) and games related to daily life in the home environment (food-beverage preparation, dishwashing, baby feeding-sleeping) (5th-22nd Field note; 1st-18th Audio recording, 26.09.2017-08.12.2017). Besides, caregiver and student items (6th, 13th Audio recording, 17.10.2017, 17.11.2017) and material copies (4th, 5th, 9th Audio recording, 06.10.2017, 10.10.2017, 31.10.2017) were shared to continue what was practiced at the institution also in the home environment.

Considering Dağhan's developmental level, the teacher's suggestions for caregivers to help speaking and listening skills at home were as follows; using words in sentences, forming two/three-word sentences, drawing attention to sounds and imitating sounds, making activities tangible by using three-dimensional materials during activities, saying words and sentences that Dağhan pointed out or tried to express, speaking within his focus of interest, giving enough time to express himself during interaction, accepting interaction that are not suitable for the context for a short time and returning to the activity (1st-18th Audio recording, 26.09.2017-08.12.2017).

For example, in one of the debriefings, the teacher suggested looking at a storybook at home in line with the activities done in the session and explained how these activities should be carried out; "When looking at a storybook about any subject like vehicles, animals… If you see a horse, let him have a three-dimensional horse, too... That will allow him to portray it." (8th Audio recording, 27.10. 2017). In another debriefing, the teacher requested the caregiver to use the words "Doctor, bandage, ambulance" at home for language repetition, and accordingly she suggested the caregiver to play doctor-patient game and use the target words in sentences; "While playing doctor-patient game, it will be more useful if you use sentences such as 'let's put a bandage', 'Look! The ambulance is here'… Let's try to focus on three-word sentence repetition as much as possible." (14th Audio recording, 21.11.2017). In another debriefing, she recommended them to be a model by using the words that Dağhan could not express in sentences; "Let's say, he says dough and then points to a roller. When you see something like that, it will be useful if you use it in a natural way like 'Do you want the roller?'" (18th Audio recording, 08.12.2017). When we look at the content of the debriefing notes, we see that though some notes include suggestions for the activities to be carried out at home, explanations about how to carry them out are not reflected in the notes (Field notes, 17.10.2017; 20.10.2017; 27.10.2017; 31.10.2017).

**Monitoring Interaction in the Home Environment**

During the observations conducted at home, the caregiver (grandmother) carried out activities with Dağhan such as preparing food and repairing vehicles, playing doctor-patient game, and building a farm – consistent with the content shared during caregiver debriefing. As for the activities, the caregiver (grandmother) followed Dağhan's interests and provided language input by speaking in line with his interests, and became a model by making sound imitations and forming two/three-word sentences (1st & 3rd Video observation; 13.12.2017; 25.12.2017). For example, during the vehicle repair game, Dağhan said "Look, it crashed!" by pointing at the plane. The caregiver offered meaningful language input by saying "The plane crashed", then imitated the ambulance sound and said "Shall we take the ambulance there to help?" to draw Dağhan's attention to the sound and to continue the game in line with his interest (1st Video observation, 13.12.2017).

The teacher checked homework activities with the caregivers by personally asking them during the debriefings, and sometimes the caregivers gave information even before they were asked; "I'm asking the family one on one. Sometimes they share it directly with me before I even ask them." (10/393). Despite the statement of the teacher, no questions were asked to the caregivers regarding the activities carried out in the home environment (1st-18th Audio recording, 26.09.2017-08.12.2017). In this regard, the caregiver

(grandfather) said "The teacher does not ask us what is done at home, she does not ask for information. She just says 'You should continue the activities at home.'" (5/199-200). In addition, the caregiver gave information about the activities carried out at home without being asked by the teacher, supporting the teacher's statement (For instance, 4th,16th, 18th Audio recording, 06.10.2017, 01.12.2017, 08.12.2017). For example, the teacher suggested the activity "rolling the dough" as a home exercise, and the caregiver (grandfather) said that the activity was already done at home; "They made it with together with his grandmother, they already rolled the dough". Besides, in a home observation, the caregiver (grandmother) did "pastry making" activity with Dağhan (2nd Video observation, 25.12.2017).

**Views on the Adequacy of the Debriefings**

The caregivers stated that the debriefings were sufficient both to understand what was done in the sessions and to get information on the desired topics. For instance, the caregiver (grandfather) noted that the debriefings were adequate to understand what the teacher wanted to do; "You understand the activity, you understand what she [the teacher] wants to do." (3/98). The caregiver (grandmother), similarly, noted that she wanted to get information about Dağhan's performance and his level of adjustment in the session, and the teacher shared relevant information; "Is he adjusted? Can he repeat what you say? These are very important to me, and when I ask about them, I get an answer." (3/99-103).

Apart from the positive aspects mentioned above, various informational needs of the caregivers were noted during the interviews. In this regard, the caregiver (grandmother) highlighted that she needed information about behavior management and maintaining Dağhan's interest to promote interaction at home; "He is over-aggressive at home, we can't do anything. I don't know what to do…" (3-4/113-125). In the observations conducted at home, the caregiver (grandmother) had difficulty maintaining Dağhan's interest, he was not interested in the games or activities or he quickly got bored, and he took offense at his grandmother to make her do want he wanted (1st and 3rd Video observation; 13.12.2017; 25.12.2017). Additionally, the caregiver shared her needs for further information with the teacher. For example, in one of the debriefings, the caregiver said "But he doesn't listen to us at home as much as he listens to you.". Based on this, the teacher stated that there may be a difference in the home environment; "The boy sees me as the authority figure here. At home, the situation is definitely different…", and explained what it means to have a conversation compatible with the context; "If you are playing doctor-patient game, the fact that he is giving injections and/or medicine at that moment shows that the child is acting in accordance with the context…" (17th Audio recording, 05.12.2017).

In addition, the main problem about the debriefings was the time limit, and therefore the debriefings were not sufficient. Accordingly, the teacher said "We have a 15-minute break. We give information, we share the activities, and when I check the time, there is only 5 minutes left. We need some time… We enter the next class without any rest." (11/433-447). Moreover, she explained that the debriefings could be insufficient due to the rush, which caused her to forget to share some of the information; "…We are preparing for the session, we are bustling around. I realize afterwards that I forgot to mention something." (11/398-399). Similarly, the education coordinator stated that 15-minute session breaks were not enough and that the teachers should use breaks for the preparation of the following session, meeting their personal needs, and also resting, apart from the debriefings; "I wish teachers could give more detailed information, but in reality, that is impossible... At some point, I want the teachers to have their own time…" (11/428-437).

**Views on Caregiver Involvement**

The education coordinator and the teacher underlined that caregiver involvement in support services is necessary, but also made explanations about the stages at which involvement should be provided. Accordingly, they highlighted that caregivers should not be involved in the planning process of the service, but they should be involved during the implementation process and the evaluation of development. For instance, the teacher noted that caregivers should not be involved in the planning process; "Planning should be left entirely to the teacher... The one providing the service should decide on the goals." (15-16/628-631), and she justified this by the following remark; "Sometimes, we don't have a

common view with the families. They can come with different requests, or rather, requests that do not make sense… If we include them, then it will be very difficult to maintain proper language use.". Besides, the teacher said that it would be appropriate for caregivers to involvement in the training process by practicing the training conducted at the institution in the home environment, and to involvement in the evaluation process by giving information about the developmental progress of the student; "The family becomes a part of the training process if they do the activities I have mentioned at home. We also talk in the evaluation process, I get feedback from the family… I think this is the healthiest way." (16/646-652). Similar to the teacher, the education coordinator also exemplified involvement in the training and evaluation process; "Let's say the concept of 'red' is practiced in the classroom. If he doesn't bring the red ball at home when he is asked to, it doesn't make any sense. That's when we see his real performance" (9/346-347).

Among his views on caregiver involvement, the education coordinator said that caregiver involvement was achieved in the focal PSERC as much as possible; "We work with a system enabling caregiver involvement as much as possible. This is one of the goals in the establishment of this institution…", and he suggested that the caregivers be provided with psychological support and training after their child is diagnosed with hearing loss to promote active caregiver involvement: "First, the families can be psychologically supported to reduce the stress they experience regarding the process. Secondly, they can be trained about active involvement." (10/359-361). The teacher, on the other hand, noted that the institution could hold meetings to achieve active involvement of caregivers, and that it was not a field they can intervene much; "The institution may organize family meetings, which is what they already do anyway. Not every family attends the meetings… This is the best they can do. Apart from that, it is not an area we can intervene much." (16/671-673).

## Conclusion and Discussion

In this study, the aim is to examine how caregiver involvement is achieved in support services for a pre-school child with hearing loss. Accordingly, the summary of the findings distilled from the analysis of the data during the research process is given in Figure 1.
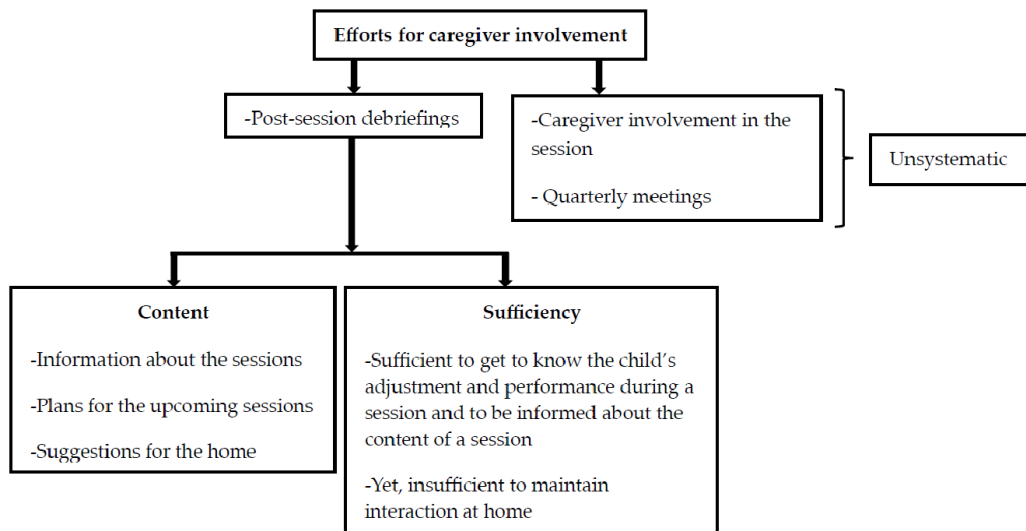


**Figure 1.** Efforts for caregiver involvement

Figure 1 shows that the practices for caregiver involvement in the focal PSERC consist of involving the caregivers in the sessions, holding quarterly caregiver meetings, and debriefing the caregivers. It has been found that caregivers usually stop attending sessions when the child reaches around 18 months, and families do not consistently participate in the quarterly family meetings. Accordingly, the consistently implemented practice in the focal PSERC is the caregiver debriefings provided at the end of the sessions. This practice is consistent with previous research in the national literature (Antmen, 2010; Sarı et al., 2017;

Bekar et al., 2021). Based on these findings, the teacher and the education coordinator are aware of the importantance that caregiver involvement has for the development of a child with hearing loss, and they work towards caregiver involvement in this context, but despite these efforts it is limited to post-session debriefings.

Caregiver debriefings aim to help caregivers continue what is practiced at the institution at home in order to support language development, and hence, the content of these debriefings include what happens in a session, plans for the following sessions, and suggestions to enhance interaction in the home environment. One of the participating caregivers states that he needs to know about Dağhan's performance and adjustability in the session. In this sense, the debriefings serve to meet this need of caregivers.

Considering the suggestions made for the home environment during debriefings, various activities and strategies are offered to the caregivers to improve Dağhan's spoken language at home. Suggested activities are incorporating activities into Dağhan's daily routines and using similar imaginary games and daily tasks as the context of interaction in the home environment. This finding seems to be compatible with the principle of family-centered practices to provide learning opportunities based on the daily routines of the child and the caregiver (Brown & Nott, 2005; Moeller et al., 2013). In addition to recognizing and using daily routines and activities as the context of interaction, caregivers are expected to be informed about language strategies necessary to provide rich language input to their children during interaction (Cole & Flexer, 2020; Esterbrooks, 2006). Throughout the debriefings, the teacher informs the caregivers about strategies to increase the quantity of language by including various lexical items appropriate with Dağhan's linguistic level or by forming two/three-word sentences and to improve the quality of language by steering the conversations towards Dağhan's interests or by verbally interpreting what Dağhan wants to express. Additionally, the teacher makes suggestions about drawing attention to sounds and making sound imitations while playing games, looking at a storybook, or during other daily tasks. This finding regarding the shared content is compatible with the literature emphasizing strategies that facilitate language for children with hearing loss (Clark, 2007; Cole & Flexer, 2020). In fact, it is widely accepted that a series of interaction behaviors, such as following the child's interest, providing language appropriate to the child's interest, and interpreting and expanding the child's communication attempts, contribute to the language development of children with hearing loss (Curtin et al., 2021).

Though the shared content seems to support caregivers' communication skills, sharing it in a short period of time like 2-4 minutes and the way information is presented lead to questioning how much caregivers can benefit from the debriefings. As a matter of fact, the debriefings are insufficient to meet more specific informational needs necessary to maintain interaction in the home environment. In the literature, family-centered practices mean performing flexible and individualized practices to strengthen adult-child interaction in daily life by considering the unique needs, priorities and learning styles of each caregiver (Clark, 2007; Moeller et al., 2013). It is highlighted that approaches that assign caregivers a passive receiver role (homework, standard recommendations, etc.) may not provide the generalization of these skills into daily life environments, and furthermore, they may hinder the recognition of caregivers' existing knowledge and skills to improve their communication skills (Bricker et al., 2018; Clark, 2007; Ertmer et al., 2002; McWilliam, 2015). Findings compatible with the literature pinpoint that the caregiver (grandmother) needs support to maintain Dağhan's interest in the activity and manage his behaviors during the activity, which are beyond the suggestions offered by the teacher. Moreover, monitoring interaction at home is limited to the activities expressed by the caregivers, and they do not receive sufficient information regarding the needs they mention. These findings seem to be compatible with the research findings underlying that caregivers need more detailed information to support their children's language development (Decker & Vallotton 2016) and that experts do not consider caregiver needs in the presentation of interventions (Ingber & Dromi, 2009).

In the literature, busy working schedules of PSERCs stand out as one of the main problems expressed by teachers (Atmaca & Uzuner, 2020). Consistent with the literature, the finding that teachers have only a 15-minute break to meet their personal needs and to prepare for the next session can explain why time

limitation is generally noted as the main reason behind being unable to provide detailed information to caregivers. On the other hand, the main reason for the information content to be inadequate within this context might be the educator's own perspective regarding her own role. Thus, service providers should offer counseling/guidance to caregivers by using adult learning strategies to support their daily life capabilities (Clark, 2007; Espe-Sherwindt, 2008; Moeller et al., 2013). In this sense, service providers working with caregivers of children with hearing loss are expected to coach them by modeling them, observing caregiver-child interaction, and providing supportive feedback so that they can improve their existing competencies and acquire new skills (Clark, 2007; Estabrooks, 2006; Holzinger et al., 2022; Noll et al., 2021).

At this point, it seems plausible to discuss the reasons in line with the literature as to why the current services in the focal PSERC do not meet the recommended family-centered practices. Inability to implement family-centered practices may be due to various reasons such as attitudes, values, and lack of education (Bruder, 2000). One of the important steps to be taken in implementing family-centered practices is to adopt the role of a counselor/guide (Espe-Sherwindt, 2008; Moeller et al., 2013). Based on the findings of the current study, the role attributed to caregivers in support services is to apply the practices – planned and carried out under the control of teachers – in the home environment and to share information about their children's developmental progress with the teacher. Moreover, it is a noteworthy finding of the current research that the participating teacher does not consider caregiver involvement as an area they can influence. Based on these findings, it may be concluded that the educator's attitude towards the expert role is maintained in the focal PSERC (Dunst & Espe-Sherwindt, 2016). Additionally, while family-centered practices mandate service providers have some new competencies to train children with hearing loss and their caregivers (Moeller et al., 2013; Yoshinaga-Itano, 2014), some experts who are knowledgeable about the education of children with hearing loss do not receive adequate vocational training on these competencies (Anderson, 2011; Rice & Lenihan, 2005). In order for service providers addressing caregivers of children with hearing impairment to adopt and employ family-centered practices, teacher training programs should re-evaluate their curricula in line with the trends in the education of children with hearing loss (Proctor et al., 2005; Lenihan, 2010), and in-service training opportunities should be offered at the level of coaching and mentoring (Yoshinaga-Itano, 2014).

In Turkey, early education of children with hearing loss is conducted by teachers specialized as classroom teachers for children with hearing impairment. On the other hand, the philosophy of early intervention is a unique field different from school age with its aims and practices (Odom & Wolery, 2003). As a matter of fact, the national literature draws attention to the need for professional support for teachers of young children with hearing loss and to the need for educators specialized in early intervention (Kılıç, 2020; Turan, 2019). Therefore, considering pre-service training of the participating teacher, who is directly involved in the provision of support services, one can conclude that the problems in practice may arise from the lack of education regarding family-centered practices, together with the attitudes towards the changing role of the educator.

As a result, in the context of this research, the structure carried out to support caregiver involvement and interaction in the home environment does not reflect the philosophy of family centeredness. Although family-centered practices are accepted as the best practices in the early intervention process of children with hearing loss, this research presents an example of the inconsistency experienced across practices in Turkey, as in many countries (Alliston, 2007; Espe-Sherwindt, 2008; Ingber & Dromi, 2009). Desired implementation of family-centered practices is closely related to the countries' perspectives on early intervention and the steps they have taken to train and employ competent personnel in this field (Bruder, 2000).

**Suggestions Regarding Implementation**

As for developing active caregiver involvement, it is important to systematize the trainings that take place with the involvement of caregivers in classroom practices and to organize the content of these trainings according to caregiver needs. In this context, the educational practices presented in the focal

PSERC need to be organized in line with the recommended practices so that caregivers can internalize the information to support their children's language development and generalize these skills to their daily life environments. To meet this need, teachers working at PSERCs can be given in-service trainings on caregiver involvement to expand their level of knowledge and perspectives on caregiver involvement. Besides, in undergraduate education programs, arrangements can be made to provide pre-service teachers with practical competence along with theoretical knowledge about the importance of caregiver involvement and how it can be achieved, especially in early childhood.

**Suggestions for Further Research and Limitations**

In this study, limited number of observations were made in the home environment due to the health concerns of the caregivers. Thus, to examine the reflections of the information presented at the institution to the home environment more holistically, studies in which long-term observations are carried out in the home context can be conducted. In the current research, caregiver involvement in support services is explored in depth based on the qualitative paradigm. Therefore, studies with higher ecological value can be conducted to reveal caregiver involvement practices and the variables that affect involvement throughout Turkey. The researchers of the current study conclude that the expert-centered attitude is maintained in the early intervention process of the child with hearing loss. Prospectively, examining how teachers working in PSERCs conceptualize family-centered practices and their perceptions of their own roles may help unravel the needs for developing family-centered practices in detail. Moreover, action research studies to be designed on the suggested topics may navigate the creation of functional guides to support the knowledge and skills of teachers in PSERCs in terms of performing family-centered practices. Finally, international collaborative research can be carried out for policy development regarding the dissemination of practical standards in family-centered early intervention.

## Declarations

### Authors' Declarations

### Publisher's Declarations

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# Child citizenship and participation: Bottom-up level change from professional conversations with children

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**Abstract**: Hart's (1992) 'Innocenti Essay on Child Participation' advocated for increased involvement of young people as active participants in societal decision-making. This paper provides a historical overview of active child citizenship initiatives, using applied research insights from 'bottom-up' approaches and conversations with children and professionals. It explores how current practices exemplified through three case studies can enhance genuine child participation and citizenship. The case study analysis examines the conversational processes involving children in problem-solving and decision-making within their communities. Through these examples, the paper highlights practical strategies for meaningfully engaging children as stakeholders and empowering them as active citizens whose voices substantially influence matters impacting their lives.

## Introduction

It has been over 30 years since Hart's (1992) 'Innocenti Essay on Child Participation' called for a more robust and prioritised focus to involve young people as active participants in decision-making processes within civil society. This highly cited article appeals for a more concerted action to enable children to express their views freely and for them to be heard and enacted. Hart (1992) identified the paradox inherent in safeguarding children whilst also promoting their agency within settings such as the family and school; as these very institutions simultaneously serve as significant mechanisms to contain their voice. This led to the assertion that child participation was often patronising and tokenistic and as such a child's pathway to citizenship was seen as compromised. When reviewing early work on child participation and citizenship, examples of tokenism and patronage of children still resonate today. Hart's (1992) example of children being used as 'decoration' in the form of performances or recitals of adult-inspired productions for the distinct purpose of entertaining adult audiences is not uncommon in Australian society today. The rise of kid influencers on social media exemplifies this, where children's daily lives are commercialized and sensationalized as content to engage adult online viewers. This commodification of children's experiences and developmental milestones for entertainment raises exploitation and privacy concerns. Even worse participation of children through manipulating their opinions for adult-initiated socio-political purposes such as children speaking at events or holding placards is evident in socio-political movements (Hart, 2008). While 'tokenism' has seen children invited to speak or appear in panels it has not provided the adequate and developmentally appr[1]opriate information for children to actively participate in conveying their opinions and bring about change (Warming, 2011). These contemporary examples highlight that despite approaches towards active child citizenship, children at best still have partial citizenship.

Within the literature, the recognition and work towards active child citizenship has been documented as a catalyst for transitioning traditional top-down and structural level approaches to more bottom-up approaches (Lúcio & I'Anson, 2015; Theobald et al., 2011; Wessells, 2015). In this paradigm,

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children are actively engaged in shaping policies and practices which directly influence their lives. Bottom-up approaches are grounded by values of empowerment and inclusivity, whereby the involvement of children in decision-making processes results in strategies to amplify their voices, perspectives and experiences (Wessells, 2015). Whilst in theory, bottom-up approaches recognise children as stakeholders and ensure policies and practice are relevant and reflective of children's needs, their level of success and impact remains in question and warrants further research and exploration (Wessells, 2015). Including, what has changed since this time in enabling participation towards active child citizenship?

Have certain global events such as the COVID-19 pandemic or the global refugee crisis created an unequal burden on children and sacrificed any small achievements that were made in between? Using applied research focusing on both 'bottom-up' approaches to child participation and citizenship and insights gained from conversations with adults in professional roles and children, this paper will give a historical overview of active child citizenship, focusing on stubborn areas of change and how current practices demonstrated through examples can pave the way in improving and increasing genuine child participation and citizenship.

**Child Participation**

Over the last three decades since Hart's paper important achievements in child participation have occurred and can be closely linked to the United Nations Convention on the Rights of the Child (UNCRC) which essentially encapsulates and affords individual human rights into child contexts (United Nations, 1989). It is important to note that many of these complex and critical decisions have predominately taken place within high-to-middle-income countries and at the structural level in legal and policy situations (Lätsch et al., 2023; United Nations Children's Fund [UNICEF], 2019). Such as in family court and child protection matters through to the children's role in matters of school governance and their presence in social media activities. However, despite these advances, there are still areas where child participation remains limited or overlooked. For example, Western conceptualisation of childhood dominates international legislation and policy, particularly the UNCRC. Whereby, any individual under the age of 18 years is considered a child (United Nations, 1989). This is, however, a contested notion given that there are many cultures whereby adulthood is conferred upon an individual through a process of initiation rather than being age-based (Lansdown, 2005). Tensions also exist in terms of cultural variations in the perception of what constitutes child protection. For example, in Pakistan, corporal punishment is viewed as a teaching mechanism rather than abuse of a child.

Despite these tensions being a child does matter. The assumptions about what it means to be a child and the values attached often overlook everyday practices and processes related to children's capacities to participate as active citizens with rights (Morrow, 2013). If we only use age as a determinant of capacity, we run the risk of never critically examining the power relationships that exist between adults and children. Nor do we examine the social, economic, and political structures that see children as passive rather than active citizens. To do so would help to illuminate the power relations that produce discrimination and exclusion of children (Warming, 2011). Using the lens of ecological system theory (Bronfenbrenner & Evans, 2000), one can view how the interactions of a child and their environment exist within and between different systems. For example, immediate microsystems, such as within family or school to larger macrosystems which include larger cultural and ideological contexts such as laws or policies (Bronfenbrenner & Evans, 2000).

A key example of a microsystem that can positively influence how active child participation and citizenship can be experienced are everyday situations such as conversations between child professionals and children (Novella Cámara et al., 2022). Viewing this interaction within this microsystem, however, does not exist in a vacuum. For instance, while a teacher having an open dialogue with students about rules in the classroom represents a micro-level participatory practice, it also highlights the more stubborn or complex areas of fundamental structural change needed in the broader education system. Despite such localized efforts, structural barriers like rigid curricula, standardized testing, and top-down administrative policies often hinder the substantive integration of children's voices in key decisions impacting their

learning environments (Wessells, 2015). Thus, the action of bottom-up or micro changes makes the necessary challenges to existing systemic obstacles to genuine child participation visible. Structurally, the role of child participation is often perceived as a mere procedural step without clear evidence of its substantive impacts on socio-political decision-making (Wessells, 2015). Thus, raising questions about the level of authenticity of participation in everyday relationships and interactions between children and professionals. In this way, child participation is seen as something that occurs without adequate evidence and results in scepticism surrounding the exploration of children's knowledge and how it can affect and change the adult-child relationship. For example, many professionals who work with children will espouse the virtue and value of child participation but view the main block to be structural rather than recognise how it may occur in their everyday child-adult conversations (Casley, 2017; Mayall, 2000). This discrepancy between the recognition of the importance of child participation and its practical integration within adult-child interactions requires deeper understanding. Through processes that aim to foster genuine dialogue and cooperation between these two groups a shift from a procedural approach to a more authentic and inclusive engagement with child perspective can pave the way for meaningful changes which contribute to the empowerment, experience and application of child participation and citizenship.

**Understanding Child Citizenship**

To understand child citizenship, one must first engage with citizenship itself. Citizenship is distinct from human rights in that concepts of citizenship are linked to membership of a nation-state, whereas human rights are rooted in the individual by virtue of one's humanity and are therefore not bound by membership to a nation-state (Basok et al., 2006; Isin & Turner, 2007; Shafir & Brysk, 2006). The conceptualisations of human rights and citizenship are therefore paradoxical in that whilst human rights are regarded as innate, citizenship rights are exclusive to those individuals deemed to be citizens and are created and granted by courts and upheld in the framework of a sovereign state (Isin & Turner, 2007). At a basic level, citizenship refers to primary legal rights that all people are entitled to as members of a nation-state (Linklater, 1992). Citizenship also refers to the right to participate in the political life of a community, and the fundamental duties that occur simultaneously with these rights (Linklater, 1992). It is important to note that the concept of citizenship at a global level is increasingly under threat due to more than 108 million people being forcibly displaced as of the end of 2022 (United Nations High Commissioner for Refugees [UNHCR], 2022). These individuals, made up of refugees, internally displaced people and asylum seekers, are often faced with rendering their citizenship status and thus their political power and voice (UNHCR, 2022). Children make up 40% of this population and are further vulnerable due to the removal of essential socio-economic safeguards, interruption of public services and humanitarian assistance and exposure to serious human rights violations (UNHCR, 2022). These citizenships are important at all times and all places, however, they become particularly imperative in settings in which children are at increased risk of harm and thus their protection and welfare are compromised (Lätsch et al., 2023).

Historically notions of human rights have been linked to citizenship; a concept that has traditionally excluded women and continues to some extent to exclude children, particularly given that traditionally children's welfare has been indivisibly linked to women's welfare and social conditions (Mayall, 2000). For example, prior to the twentieth century, children were considered small adults and were involved in labour. However, following the initiation of compulsory education in the early twentieth century a separation between the environment of adults and the conceptualisation of childhood occurred (Jans, 2004). Citizenship therefore became the exclusive territory of adults, with children being considered a separate social group (Jans, 2004). While theorists have recognised issues surrounding children and citizenship in liberal democracies, very few have further explored these issues beyond highlighting that children do not hold full citizenship (Cohen, 2005). Similarly, little attention has been paid to the multifaceted nature of child citizenship and its implications for their well-being (Ben-Arieh et al., 2014).

It is understood that whilst citizenship provides individuals with rights, protection and benefits, including access to important services, the dependence of children on adults necessitates the granting of special rights to children (Ben-Arieh et al., 2014). The marginalisation of children can be enacted for reasons

of protection, however can also be paternalistic (Qvortrup, 2011). The extent to which children have direct and independent relationships with the state is thus questionable given their dependence on adults and the way in which adults must act as proxies in the relationship between the child and the state (Leiter et al., 2006). If children are however understood as members of a social group not just as individuals it is therefore fundamental to reflect on that group's right to actively participate in society (Mayall, 2000). Here the critical importance of adult-child relationships is highlighted especially in professional contexts where children's rights to participate freely in conversations is directly linked to their rights as citizens and more fundamentally as humans.

## Conversations with Children

Conversational engagement with professionals offers children a critical site in their relationship between the 'state' and themselves as active rather than passive citizens. The value of the 'conversation' in the conduct of professional practice is important for children to express opinions, wishes, needs, and to be understood. Much of the literature on child participation and citizenship focuses on the structural approaches often neglecting how the values of these concepts can be applied to everyday practice for professionals. In an everyday practice model professionals work collaboratively with children, using conversational processes to understand how children view their own lives (Cartmel et al., 2024).

Children's view of their own lives happens through dialogical and transactional processes they have encountered through their everyday lived experiences. As children develop, they learn to use communication to represent their identity, and to make sense of their social world (Theobald et al., 2011; Ulvik & Gulbrandsen, 2015; van Nijnatten, 2013). It is through communication that children's feelings are verbalised, and identities revealed. Therefore, having conversations with children is a way of making meaning out of their everyday lived experiences. The knowledge gained about children in this way can work to disrupt the Western view that age is the only determinant of competence and move to a place where children can be collaboratively supported to express their views, to be understood and in turn be given opportunities for participation.

For meaning-making to take place in everyday conversations between professionals and children it needs to be a cooperative process. According to van Nijnatten (2013) make meaning of others only happens if one is seen as a social actor and having a sense of agency, whereby their view of the world is constructed through their daily interactions and relationships. Despite the observable sense of agency children have, professionals often work towards understanding children's needs through processes of surveillance. Meaning that concepts of what it means to be a child are controlled by the professionals' perspective (Bae, 2009). As we know interactions and relationships between professionals and children have been produced over time and context, which calls for professionals to be attuned to what is happening for them in the present and how they are influenced by the dominating discourses around child participation and agency. Presence in this sense can be defined as "... deep listening, of being open beyond one's preconceptions and historical way of making sense" (Senge, et al. 2005, p.13). This leads to professionals gaining a better understanding of how their conversational and relational skills with children can function in oppressive ways (Bae, 2009).

Furthermore, to co-construct meaning with children, professionals must have the knowledge and skills to critically reflect and listen as a simultaneous process. This active process is an exchange of meanings that requires a deep 'suspension of judgement' on the part of the professional and the ability to listen to what children say from a contextual perspective, which involves hearing, interpreting, and co-constructing meaning in a shared dialogue (Rinaldi, 2001; Scharmer, 2018; Senge et al., 2005). This is not always limited to the spoken word, as children can express their views in different ways, therefore the professional must take the time to notice and observe what is going on for a child to help with the contextual interpretation in this meaning-making process. Critical examination of everyday professional practice is imperative if children are to have equity in their everyday conversations and relationships with professionals such as educators, teachers and youth workers.

In this paper so far, the authors have examined child citizenship and participation, whilst also

critically exploring the progress in these domains at a global and local level. It is argued that change from a top-down and structural level has had varying success and impact, and rather that in everyday situations such as conversations between professionals and children that the interchange between active citizenship and participation can take place. By using a case study approach to child conversations, the following section will illustrate through research evidence how theoretical and structural approaches to child citizenship and participation can be employed in conversations with children. The results offer guidance for creating environments of participation and active citizenship in everyday practice with children and thus take an unambiguous approach to creating an environment for further fundamental change in the rights of children in society.

## Research Design

Whilst literature surrounding child participation exists, there is limited evidence about the actual circumstances in which children have been afforded opportunities for participation and lived citizenship. Furthermore, despite Articles 12 and 13 of the UN Convention on the Rights of the Child forecasting an external framework for the outcomes of conversational encounters, little is known about the nuances of the conversations that ensure that there is authentic participation from the perspective of children. Thus, highlighting the need for deeper level analysis at the micro level.

This research addresses these gaps in the literature by employing a case study methodology to support a comprehensive and in-depth investigation of conversations between professionals and children aged between five and 12 years. Using grounded theory analysis, the phenomenon of the conversational encounters between children and adults is examined to explore the effectiveness of employing a bottom-up approach to foster and promote child participation and active citizenship was conducted. Grounded theory was used as it is recognised as particularly useful in 'natural' settings such as the everyday conversations between children and adults. Using an inductive process, a deeper explanation of the elements of conversations is offered, with the enquiry moving away from more descriptive accounts of 'what happens' when children and professionals have conversations, to addressing questions pertaining to both the 'how' and 'why' children contributed to the conversations.

Presented below are three case studies. with the common characteristic of demonstrating the intention of the professional to provide opportunities for children to have their views heard on matters that affect them and the right to obtain and share information (Article 12 and 13). In each of the case studies, professionals commented on the conversational process and how it linked to children's participation and sense of citizenship. Quotes from children participants are also included to demonstrate the child's voice. The patterns of behaviour and actions as described in the data were coded and reviewed with the intent to explicate "What influenced child participation in conversations between children and adults." The authors of this paper engaged in multiple encounters with the data associated with each of the cases. In revisiting the data, reflection and coding of the patterns of relationship that were happening in each of the conversations occurred. The coded observations of the children and professionals engaged in conversations were linked to the coding of the in-depth interviews with these children and professionals. In addition, reflective dialogues occurred between the researchers as they reported their encounters with each of the case sites. The process reached saturation as the generated data was analysed from the ground up.

An important strength of the case study approach was the ability to undertake an investigation of the process of Talking Circles as a tool to consult with children as a phenomenon in the context of children's services. As Yin (1994) states, case study research is useful to examine a contemporary set of events that cannot be manipulated or controlled; such as the conversations between children and professionals. Hence the data provided through the multiple data sources provides the researchers and readers of this paper with information on how and why the value of conversations in the conduct of professional practice is important for children's participation and active citizenship

### Case Studies

Case studies used in this research are summarised in Table 1 and expanded in detail below. Each

case study used multiple data sources including two or more of direct detailed observations, focus groups, interviews, and/or documents. All case studies were conducted in settings outside of school classrooms, however, the dynamics of conversations between children and adults had similar qualities to school and other child services. The focus of the research related to identifying the exchange in child participation and the concept of active citizenship.

The research for each case study was approved by Griffith University Ethics. Parents gave permission for their children to participate, and children were asked for their assent. University students and educators also gave permission for their reflective journals to be shared in interviews and focus groups. The data and findings across the three projects were examined using grounded theory to analyse the findings (Walker & Myrick, 2006). This analysis has provided the discussion about active child citizenship.

**Table 1.** Summary of collective case studies

|  | Participants | Age Range | Service Type | Data Collection Tools |
|---|---|---|---|---|
| Case 1 | n=200 | 5-12 | School Age Care | Interviews |
|  |  |  |  | Drawings |
|  | n=20 |  | Pre-service | Informal Conversations |
|  |  |  | Educators | Field notes |
| Case 2 | n=3 | 5-11 | Children | Interviews |
|  |  |  |  | Lifeline drawings |
|  | n=4 |  | Child and Family | Informal Conversations |
|  |  |  | Professionals |  |
| Case 3 | n=13 | 5-11 | Children | Interviews |
|  |  |  |  | Focus group |
|  | n=2 |  | Educators |  |

*Case One – Talking Circles: Action Research Project*

**The talking circles:** Action Research Project was a community-funded initiative based on finding ways to engage with children aged five to -12 years. Its aims related to encouraging the development of a sense of identity, belonging and connectedness to their community. It included creating opportunities to enhance their capacity to express their views, and thus influence matters that affected them. This action research project was conducted over two years and involved 20 School Age Care (SAC) services in southeast Queensland and 20 university students (Cartmel et al., 2024; Cartmel & Casley, 2014a, 2014b; Cartmel & Casley, 2010). As part of their university program, each student was assigned to a SAC service during their field education program. A university study led and facilitated a conversational process, known as a Talking Circle (Cartmel & Casley, 2014a) with a group of 8 to ten children. The Talking Circle format, developed by two of the authors of this study, is based on listening. Listening to oneself, listening to others and listening to what emerges from the group (Scharmer, 2018). After a pilot in one site, the action research was expanded. The university students were educated in facilitating the conversational process with children. To recruit for the study, service attended by the university students for their fieldwork, provided children and their parents with information about an opportunity to participate in "Talking Circles" one-hour activity conducted over a period of eight weeks. The first eight children who returned permission forms were selected. The students Further briefed children on what to do if they felt unfortable in expressing sentive matter and informed them that they could decline participation at any time during the study.

Each week sessions were developed based on what the children wanted to talk about. Sessions were facilitated by the students and with the children; then critically reflected upon in the university class with the facilitator (one of the authors). As sessions progressed, students were encouraged to adapt the process to ensure that there was active participation in the conversations they were facilitating with their group of children.

The findings from this action research project reported that Talking Circles built relational capacity of both the children and the university students. Each became more self-aware, gained confidence in their capacity to problem-solve and subsequently built leadership and resilience skills. Children's capacity to

listen, take notice of others, respect others and be supportive of their peers increased during the Talking Circle process. The children were able to describe the changes they were experiencing. For some children, the Talking Circles gave them a safe place where they could express themselves.

For example:

It's calm, it's peaceful and I feel less stressed (Chani. age 11).

We can talk about things that we can't at the oval. We talk about ourselves (Mitch, age 9).

For other children, the Talking Circle was a place where they felt a sense of belonging. For example:

People like me here. I have made more friends. I can trust people here (Tiani, age 9).

I don't get into trouble anymore at school. We can get tips when we are having hard times. We get to share our life (Zac, age 10).

We can talk about our problems, and we can share our feelings and share about our families (Manni, age 8).

I don't get bullied anymore (Reece, age 9).

The university students indicated there was a transformational change for them during the 'Talking Circle' process. They reported changes in their ability to self-reflect, skills to have open and inquiring conversations with children and enhanced confidence in problem-solving with children. In the weekly feedback sessions, students described how the power differential between themselves and the children started to diminish and noted how both groups were gaining skills and confidence in the ability to communicate with each other. Furthermore, the children were able to open up to the group and talk about things that really mattered to them. For example:

The children actually listened to each other's stories. The children are very open and they are interested in each other's stories. They have an idea about what is fair and an understanding about what is serious in someone's life. Some faces were shocked when they heard some of the other children's stories (Ella, university student).

I was surprised that I could build such a close relationship with a child. In my country this would not be possible. I will take these communication skills with me to use with my own children and those I will be working with (Wyena, international university student).

The opportunity for the university students to meet each week while participating in the action research meant that any negative challenges such as understanding how to manage the power differtial or how to ask questions were discussed and resolved.

### Case 2 - Doctoral Project: Conversation between Children and Adults

This doctoral project involved a narrative inquiry into what shapes an adult's ability to understand a child's perspective. It was conducted with child, youth and family professionals and children based on their lived experience about having conversations with children and professionals respectively (Casley, 2017). Professionals worked in a variety of children's services including early education and care, schools, family support, out-of-home care and child protection services. The child participants were aged between 5 and eleven years. The participants were recruited using a snowballing process from the alumni of a university program that prepared children's services professionals.

This inquiry uncovered how time, relationships and the spaces professionals and children occupy shape the professional's ability to understand children's perspectives. It also revealed the metanarratives embedded within each of the participant's stories and how they spoke to the marginalisation of children. Demonstrated through historical and generational views held by professionals regarding the capacity of children to have their views heard and to participate in decision-making. It exposed the impact of trust as a concept, belief and action needed by professionals to enable/ encourage meaningful conversations with children that support their participation in civic society. It examined the notion that power and agency is strongly related to how adulthood and childhood have been constructed and reconstructed over time. Finally, it found that for child-adult relationships to be reciprocal there needs to be a shift in how child-adult relationships are viewed by professionals, children, and the wider society.

The professionals in this inquiry revealed that when trust was established between a child and the

professional it promoted deeper conversations, as the children were more willing to open up to them. This helped to hear and understand who the child is and what the child knows. For example;

> I work with many children that have experienced trauma and going through a tough time. I think trust is a big thing, because there are not a lot of people they trust anymore and sometimes it is hard to gain their trust. I always try to be open and honest with them. I don't promise things I don't think I can keep, and I say that to them. I think they respect that. If they don't trust me, they are not going to build a relationship with me (Natasha, children's services practitioner).

However, there were other conditions mentioned by the adult participants, which needed to be in place for conversation between them to take place and trust to be established. These conditions included: being available to get to know each child, creating safe spaces for conversations to take place, and developing opportunities for the professional to enter into the child's world. Lastly, the professionals said they needed specific skills for having open and honest dialogue with children.

The child participants spoke about trust in terms of whom they would trust to tell things to and what they liked or disliked about the way adults interacted with them. Trust, for them, was displayed by an adult being kind and supportive. The children liked to be acknowledged for doing the 'right thing' and felt empowered when given 'important' things to do, as this indicated the professional trusted them. The children spoke highly of adults who displayed playful behaviours and played with them, indicating to the children the adults liked being with them. For example, John, age 5 liked it when he had a conversation with an adult friend about fishing as that is what he likes to do. He also indicated that his favourite teacher was the one who played with them in the classroom. (Olivia, age 8) suggested teachers could show respect to the children by, "a nice good morning welcome when you come into the classroom".

Awareness of and changing the power imbalance between professionals and children was another key indicator for shaping an adult's ability to understanding children's perspectives. The adult participants in the study attempted to achieve this by seeing children as equal partners in the conversations they had with them and by including children in decision-making. One of the adult participants spoke about changing the power differential by her ability to suspend judgment and be in the present with children. She spoke about not being confronted by a child's behaviour and attempting to control the behaviour. She addressed the power imbalance by talking about what is happening in the present with the child or group of children.

Such as;

> I don't want to make my sessions about challenging behaviour. I want it to     come up naturally. Let's just talk about things. Explore rather than suggest (Sarah, children's services practitioner).

One of the other participants highlighted how his skills of listening helped to refocus power imbalance in conversations. For example;

> It's about adults learning that it's not about power and control, it's actually, about listening to them (Angus, teacher).

The children's stories about exercising their sense of agency with adults were different across landscapes and in different social contexts. The children indicated that they liked having conversations with adults that: (a) were interested in them, (b) respected them, (c) made them feel listened to, and (d) worked alongside them to be successful in the social contexts they shared. However, the children indicated they were not often influential in decision-making on the landscapes they occupied with adults. However, when they were given an opportunity to express their opinion it was a valuable experience for them. Such as;

> They [coaches] are always asking somebody, my opinion, or someone else's opinion. It's really good (Toby, age 9).

The children in this inquiry seemed to accept their childhood status. They said they liked adults who were kind and guided them in their endeavours. They did not like it if they felt they or other children were treated unfairly by adults. For example, the child participants liked the reward system they encountered in school, where you were rewarded for being "smart" and "good" and for "doing the right thing" (Olivia at age 8; Toby at age 10). With comments also identifying there was room for improvement. Such as:

> Maybe the teachers could do something for the good kids, the ones that are     good all of the time (Olivia, age 7).

They also accepted that the teachers set the rules.  However, what was not acceptable was teachers or other adults being "mean" or that they "shouted" at them (John, age 5; Olivia, age 7; Toby, age 9). Support for their endeavours was what they wanted from the adults in their lives.

In a later conversation Olivia, age 9 said that sometimes it was impossible to reach the goals set out for them by her teacher. The teacher gave out fake money for accumulated points to bid on stuff, with the first person that gets to 50 points gets the fake money. She said one girl was "smart" and "good so she always had more money to bid for stuff. Hence the other children including herself missed out. Olivia did not think that was fair. When asked about having conversations with her teachers Olivia, age 9 believed the teachers did not have time to talk to her as lunch time was too short and the teacher was not available after class as she was on bus duty. When asked the same question, Toby, age 10 responded with, "schools are more serious places and conversations with his teacher were normally about classroom work and stuff like that." He also felt that talking to teachers about what happened on the weekend or things like that as he said "not everyone is your friend in the classroom", and he wouldn't want to talk like that in front of his classmates. Hence, he felt his classroom was not a safe space for conversations with his teacher to take place.

By laying these stories beside each other, the concepts of power and agency were illuminated. To work from a bottom-up approach, there is a need to rethink the social position held by children. It is necessary to liberate both adults and children from the dominant discourses that see them as separate and unequal and identify the historical and generational structures from which children's social position has been derived (Alanen, 2001; Mayall, 2000 Skott-Myhre & Tarulli, 2008).  Hence to consider children as active citizens, professionals need to work alongside children where the key component of listening and actively including children in meaningful conversations takes place in everyday practice in environments where all children feel confident and safe to express themselves.

### Case 3 - Talking Circles: A strategy for listening to children's voices in School Age Services

This case study was part of an exploratory evaluation of the Talking Circle tool for listening to the voices of children in School Age Services (SAC) in Queensland, Australia (Smith, 2019).  The study was conducted at a SAC service that had 25 educators and 250 children from kindergarten to year six. Two educators and thirteen children opted to participate in the study over a three-month period. The researcher used a realist (evaluation) approach to understand 'what works, how, for whom, in what circumstances and to what extent' (Pawson & Tilley, 2004). According to Pawson (2006), interventions offer resources which trigger choice mechanisms (M), which are taken up selectively according to the characteristics and circumstances of subjects (C), resulting in a varied pattern of impact (O). These three key sources of evidence were used to understand how children and educators perceived the use of Talking Circles for listening to children's voices. The realist evaluation approach to the Talking Circle intervention allowed the mechanisms to be identified and how these mechanisms generated the outcomes and what features of the context affected whether those mechanisms operated. The analysis generated these findings and they contributed to the refined program theory that emerged about the Talking Circles.

The findings endorsed Talking Circles as a useful resource, assisting educators in using effective communication skills for listening to children's voices. It was also revealed the educator's ability to facilitate conversations was the strongest mechanism for creating and sustaining opportunities for listening to children. For example, the educators found the Talking Circles process was beneficial for engaging with small groups of children. The focus on conversations with children assisted the educators to learn more about each child by simply listening to them. The educators in this study had a perception of having a trusting relationship between themselves and the children and through participating in the Talking Circles process that they sensed a deeper level of relationship building.  Such as one educator expressing the excitement of a child (aged eight) and another describing active listening;

> He was excited because people had listened to him. He was so happy to think that he'd been asked his opinion. I
> thought that we were doing that, so it was that in itself for me. Sometimes because these are the quieter beautiful

children, maybe their voices aren't heard over, you know the 120 other children. I would like [to] think that we were listening, but in small groups I learnt so much about these kids (Jay, Educator 1).

I've begun to really listen to what the children are saying, especially about their families and how for a couple of the children they wished they could spend more time with their Mum and Dad. I've learnt to be silent and really listen deeply to what the kids say. I've been surprised about their deep feelings about the world (Taylor, Educator 2).

The Talking Circles configuration and explicit use of conversation mixed with the introduction of hands-on activities, led to the engagement of the children as a strong mechanism. The children described this engagement in many ways such as children's rights, fun, listening, and helpful. More than one-quarter of the children responded that their perspective of the Talking Circle was important to children's rights. For example;

I wouldn't normally share stuff like that with certain people. In the Talking Circle we weren't made to share stuff, but we shared something (Henry, 9yrs).

Because it [Talking Circle] lets the kids say what they want to say; it doesn't restrict them. You're open and you can say whatever you want (Harpreet, 12yrs).

Whilst another perspective expressed by several of the children was that the Talking Circles were "really fun" (Chloe, 12yrs) and that they were "really happy" when people are around (Sam, 10yrs).

The educators and the children included the notion that using the Talking Circles process was helpful for problem-solving and for making friends. For example;

One afternoon one of the boys started talking about not being included in a group that he would have liked to be friends with. The others in the group gave him some suggestions about what to do and I noticed over the next few afternoons he tried out what others had suggested, like actually telling the group he would like to play with them. The group accepted his friendship, and this boy seems a lot more settled (Jay, Educator 1).

[The Talking Circles] would help another child I know, someone who doesn't tell lots of people stuff, so I reckon that would help her a bit. It helps people learn about other people. I would not normally share stuff like my feelings with certain people but in the Talking Circles you can (Briony, 11 years).

Only one child expressed feelings of not liking the Talking Circle as it made the child feel scared and mad. The child did not want to talk about the reasons for those feelings at the time. Finally, this mechanism relies on the facilitator having the knowledge and skills on how to create a safe space, using generative listening and the ability to craft a genuine inquiry. The Talking Circles process enhanced child participation and created a new experience of belonging. The process is based on the knowledge that is created from the conversations where children's experiences are deepened by listening to others. This new knowledge is co-constructed between children and the educator and has a sense of embodiment revealed by the educators and children in this study as 'feeling different' at the end of the conversation(s).

## Discussion

The concept of child participation and citizenship where children of all ages and in all circumstances can participate in lived and active citizenship needs to be understood from a micro level. Following the examination of the literature surrounding this topic and using a case study approach, the authors postulate a new theoretical perspective. Child participation is an active process where children freely come together to listen, inquire, think and act in their everyday lives. This active process diminishes the power structures that interfere with the opportunity for children to participate in authentic ways and these relational and conversational interactions become the focal point for change. For example, if the social world is considered as a continuous activity of interactional and conversational exchanges, it is more likely that children's agency and the possibility for this taking priority over the macro-structural processes to occur (Rafanell, 2013; Wyness, 2018). The 'Talking Circles' can provide children's perspectives to aid policy makers and those managing programs for children and families (see Barblett et al., 2022; Cartmel et al., 2024). The approach can support meaning-making from a diverse representation of children to influence macro systems of policy decision-making and program planning.

It is crucial to keep in mind that there is a complexity to child participation and that the outcome of a conversation is not a linear process. Conversational structures that are imposed on children for

professional assessment or intervention with an intended outcome in mind do not constitute child participation. But rather is a process that has fluidity and is reliant on the skills of the professional's ability to facilitate or open up conversations that explore children's everyday lives. This approach creates a common ground for both children and professionals and is seen as the process for decision-making with children.

Moving on from Hart's proposition to a more contemporary context some successes of participation and citizenship have been uncovered, despite some impasses. Suggestions for an applied approach that employs bottom-up participation rather than top-down structural procedures are necessary for advancement in child participation. Dialogical and transactional processes through more authentic and inclusive engagement with child perspectives can pave the way for meaningful changes that contribute to the empowerment, experience, sense of agency and application of child participation and citizenship. These bases of meaning-making and lived experience constitute an interactionalist approach to this work.

From examining the case studies the authors have drawn ideas about what effective child participation and active citizenship look like. It was discovered the use of an interactionist approach to understanding micro-level interactions and conversations between children and adults will make a difference in the way we approach child participation from the bottom up. An interactionist approach that explores the social world on how children and adults communicate and listen to the perspectives of others is critical. This calls for a focus on how children understand their world and how these views are produced as a continuous process of interactions and conversations they have with adults. This approach illuminates the notion of how child agency can work to influence and change the social structures imposed upon them.

Implications for practice and future research would include preparing professionals with skills for facilitating open and inquiring conversations with children about their everyday life experiences. Using processes such as Talking Circles may also support a safe space for professionals and children to gain trust, self-reflect, problem-solve and engage in honest dialogue. Furthermore, the notion of structural power and agency cannot be underestimated and thus working from a bottom-up approach requires a rethinking of the social position held by children and actively including children in meaningful everyday conversations. There is also the possibility of rethinking how children can contribute to policy development and other aspects of their lives.

## Conclusion

In the 30 years since Hart's 1992 Innocenti Essay on Child Participation, there have been many positive changes in child participation. Such as professionals engaging with children to make decisions in matters of family law, child protection, education and public policy to name a few areas. Additionally, it is acknowledged that there has been much progress in understanding child citizenship and child participation from global and local levels (top-down). This research however has exposed a deeper understanding of the structural features and impact of the everyday conversations between children and adults. It has highlighted the complexity of the interchange between active citizenship and participation as an active process. Using a bottom-up approach to research it has further emphasised the importance of agency in diminishing the power differential between children and professionals. It has also illuminated the notion of understanding child agency using an interactionist approach as a means of changing structures that work to marginalise children's voices. The features of the conversations and interactions between children and adults are forms of active participation and citizenship together that are not linear, but rather a fluid dialogical process for children to engage with each other to listen, inquire, think and make decisions. This paper has provided the necessary tools for professionals working with children to use in practice and move towards true child participation and active citizenship.

## Declarations

*Authors' Declarations*

*Authors' contributions:* MC, JC, KS and POL contributed to the conception of the work. MC, JC, KS Data collection. MC, JC, KS Data analysis and interpretation. MC, JC, KS Drafting the article. MC, JC, KS and NRB critical revision of the article. MC, JC, KS, NRB and POL Final approval of the version to be published.

*Competing interests:* The authors declare that they have no competing interests.

*Funding:* No funding was used for this study.

*Ethics approval and consent to participate:* Griffith University  (!D5326; 2017/026; 2019/266).

### Publisher's Declarations

*Editorial Acknowledgement:* The editorial process of this article was completed under the editorship of Dr. Aileen S. Garcia through a double-blind peer review with external reviewers.

*Publisher's Note:* Journal of Childhood, Education & Society remains neutral with regard to jurisdictional claims in published maps and institutional affiliation.

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# Engagement of science process skills for teaching science concepts in early childhood

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**Abstract**: This study aimed to explore how early childhood teachers engage science process skills for teaching science concepts in early childhood settings. Social constructivist theory was employed as the guiding framework for this study. Four Grade R teachers were purposefully selected and engaged through qualitative research methods. Data generation was informed by semi-structured interviews, classroom observations, and document analysis. Thematic data analysis was used to unpack the aim of the study. Results reveal that the low engagement of science process skills by participants was strongly influenced by their limited knowledge of content and science process skills when teaching the concepts. This finding implies that the training of early childhood teachers needs to improve and be supported with continuous development programs. This finding may inform teacher training programs and curriculum development efforts geared toward improving science education in the crucial early years of a child's academic journey.

## Introduction

This research centers on the learning of science in Early Childhood Education (ECE), with a specific focus on the science process skills instilled by Grade R teachers to facilitate learners' understanding of floating and sinking concepts. Grade R is a crucial component of the Foundation Phase, commonly referred to as ECE (South Africa Department of Basic Education [South Africa DBE], 2011). Grade R is shortened from Reception Grade, and its primary objective is to prepare preschool learners for a seamless transition to Grade 1 in primary school (Lesotho Ministry of Education and Training [Lesotho MoET], 2021). During this phase, Grade R learners receive formal instruction in a classroom setting, adhering to structured learning plans aligned with the prescribed curriculum. They are expected to comply with classroom rules for easy facilitation of the implementation of structured lessons. These lessons encompass mathematics, languages, and life skills, incorporating science concepts through play-based activities (South Africa DBE, 2011).

The integration of science, technology, engineering, and mathematics (STEM) education has propelled science learning in ECE, emphasizing the consensus that science education should commence as early as preschool (Schmitt et al., 2023). This approach advocates for appropriately structured learning facilitation. In this regard, teachers play a crucial role in supporting children's learning through a combination of content knowledge and pedagogical content knowledge (Shulman, 1986). Nevertheless, Kazeni (2021) highlighted that early primary school teachers may be inadequately prepared to support young children, especially in STEM fields (Schmitt et al., 2023). This inadequacy poses a concern regarding the development of science concepts through the application of science process skills.

The term *science process skills* is defined as a collection of versatile abilities applicable across various

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science disciplines and reflective of scientists' conduct (Mulyeni et al., 2019). Early primary school teachers leverage these skills to guide learners in making observations; posing questions; utilizing tools for data collection, analysis, and interpretation; formulating tentative conclusions; and sharing and communicating scientific findings effectively (Naudé & Meier, 2020). This approach facilitates the development of learners' science process skills, encompassing basic skills such as communication, observation, classification, prediction, measurement, and inference during science instruction (Karademir et al., 2019; Mostert, 2018; Yildiz & Guler Yildiz, 2021). Young children, characterized by their inherent curiosity, naturally gravitate toward exploring the world around them (Roberts, 2021) using science process skills. When guided by teachers possessing ample science content knowledge and adept science process skills, these young learners emulate the behaviors of genuine scientists (Naudé & Meier, 2020), which is crucial in their education.

Early childhood teachers play a pivotal role in nurturing learners' comprehension of science concepts through science process skills, facilitating the integration of new knowledge, and encouraging the application of these skills when learning. In the observation phase, learners are encouraged to employ their senses to make informed decisions based on analytical thinking (Mulyeni et al., 2019). Additionally, teaching science concepts involves integrating other essential process skills such as estimating, counting, collaborating, recording, making generalizations, and problem-solving (Yildiz & Guler Yildiz, 2021). Stears et al. (2019) expressed concern by highlighting limitations in early primary school teachers' content delivery due to a lack of science process skills. As a result, Yildiz and Guler Yildiz (2021) suggested that many learners appear to rely on their naïve explanation of science concepts, attributed to challenges with teacher preparation or curriculum instruction.

Developing science process skills is essential for societal progress, highlighting the necessity of introducing these skills early in learners' education (Limatahu et al., 2018). The acquisition of these skills through learning experiences empowers learners to master science processes (Kazeni, 2021), equipping them to address everyday challenges (Schmitt et al., 2023). Furthermore, these skills cultivate creativity and instill positive attitudes toward science learning among learners (Limatahu et al., 2018). Engaging in science process skills during the early years emerges as a strong predictor of subsequent academic success in science for learners (Saçkes, 2014). As such, they need to be capacitated with the necessary guidance when embarking on the learning of concepts (Trundle & Saçkes, 2021).

Despite the widespread acknowledgement of the importance of teaching science in the early years, there exists a noticeable gap in the discourse regarding Grade R teachers' employment of science process skills for effective teaching. The prevailing focus tends to concentrate on the science process skills of early primary school teachers (Kazeni, 2021; Stears et al., 2019), with limited attention given to how the teachers engage these skills to facilitate the grasping of content knowledge by the learners. Consequently, it becomes crucial to delve into the experiences of Grade R teachers in developing science process skills in their teaching of science concepts, especially in Lesotho where such a phenomenon has not been explored. The accompanying aim is to contribute valuable insights to the existing body of literature. To guide this study, the following research questions have been expressed:

a) What is the understanding of science process skills by Grade R teachers?

b) How do Grade R teachers engage in science process skills when teaching science concepts?

**Theoretical Framework**

This study engaged social constructive theory developed by Vygotsky (1978) as a lens to explore the experiences of Grade R teachers when engaging science process skills in the teaching of science concepts. Vygotsky (1978) argued that "[e]very function in the child's cultural development appears twice: first, on the social level and, later on, on the individual level" (p. 57). This means that learners construct interpersonal knowledge of concepts through meanings and structures promoted by their peers or teachers. In that way, they are motivated to complete tasks in a meaningful and constructive way. During teaching and learning, teachers' knowledge is transferred to learners when learners first conceptualize what should

be known. They relate new knowledge to the previously acquired knowledge, and then internalize, store, and socially mediate it. They do that through the teacher posing questions or helping them to construct meaning and solve problems. This theory guided us to observe and ask questions that elicited data on the experiences of teachers when engaging science process skills for their learners to understand the concepts of floating and sinking.

**Literature**

The literature review in this study is organized based on the teaching of science and science process skills taught in ECE.

*Development of Science process Skills in Early Childhood*

The development of science process skills is essential for understanding science concepts in ECE (Mulyeni et al., 2019). The skills have been demonstrated to be effective in enhancing learners' learning of scientific approaches (Dilek et al., 2020). This suggests that active engagement of learners in science process skills such as observation, classification, and inference contributes significantly to their science understanding. Sutiani (2021) emphasized that when science process skills are effectively taught in a well-prepared science environment, that establishes the groundwork for young learners to acquire scientific knowledge, content, and skills.

Engagement of these science process skills in different contexts of the world has yielded positive results, while some limitations have also been observed in certain areas. For illustration, in Zimbabwe, Pakombwele and Tsakeni (2022) found that Early Childhood Development (ECD) teachers were familiar with science process skills, including observation, classification, communication, measurement, prediction, comparing, and inference. They also concluded that the most effective way to teach science process skills is through child-centered methods, including explorations, play, experiments, and guided discovery. These approaches foster active participation among learners.

In the context of preschool education in Türkiye, Kuru and Akman (2017) indicated that the teaching of science plays a crucial role in imparting to learners science skills that are pertinent for advancing the economic growth of the country. Accordingly, students undergo instruction in science process skills to enable them to proficiently predict, discuss, describe, explain, and evaluate information embedded within science content. Likewise, in Nigeria, science holds a pivotal position as a subject integral to industrial development, and the instruction of science skills serves as a means of providing young learners with pertinent science knowledge, content, and skills essential for the demands of the twenty-first century (Leedy & Ormrod, 2013). In addition, in Indonesia, Mulyeni et al. (2019) observed a positive outcome following the implementation of an inquiry-based approach as an intervention to enhance fundamental science process skills among second graders when learning science concepts.

However, South African studies by Stears et al. (2019) and Kazeni (2021) scrutinized the comprehension of science concepts and science process skills among early primary school teachers. The findings indicate that the teachers under investigation demonstrated limited knowledge in these domains. The teaching of science in ECD classrooms is undeniably significant. Therefore, it becomes crucial to explore the engagement of science process skills in the teaching of science concepts in the Grade R classes of Lesotho with a focus on the concepts of floating and sinking, which have not been explored by previous studies.

*Science Process Skills in the Early Years of Schooling*

Science process skills encompass both physical and mental abilities that involve collecting and organizing information in various ways (Mulyeni et al., 2019). These skills are applied in predicting, explaining phenomena, and solving problems (Naudé & Meier, 2020). They play a crucial role in processing new information during concrete learning, facilitating the construction of new concepts and a deeper understanding of science (Pratamawati, 2022). They mirror the techniques employed by scientists in their research endeavors (Karademir et al., 2019; Naudé & Meier, 2020).

There are two distinct categories of science process skills: basic processes and integrated processes (Mulyeni et al., 2019). Basic science process skills include observation, classification, measurement, inference, prediction, and communication (Naudé & Meier, 2020). On the other hand, integrated science process skills involve tasks such as identifying and controlling variables, formulating and testing hypotheses, interpreting data, defining operationally, experimenting, and constructing models (Karademir et al., 2019). The focus of this study is on basic skills only because they form a base for the early learning of science concepts. The approach to teaching science using science process skills to actively involve young learners is important because retention of content and interest to learn will be achieved (Kazeni, 2021). However, it should be kept in mind that skills utilized in embarking on the activities should respond to inquiry-based learning and play-based activities to encourage exploration and discovery.

## Method

Based on the case study design, this study followed a qualitative approach to understand Grade R teachers' views and experiences in their engagement of science process skills in teaching the concepts of floating and sinking. This design is supported by the interpretive paradigm because data were generated from participating teachers in their respective schools (Creswell & Creswell, 2018). Each participant's explanation of science process skills, the application of the skills in teaching and learning, and the enhancement of learners' understanding helped to explain their understanding and knowledge of skills. Henceforth, the design was adopted.

To address issues of transparency, clarity, and reliability, several strategies were employed. Triangulation, which involves using multiple data collection sources, increased the rigor and trustworthiness of the research findings (Creswell & Creswell, 2018). This included interviews, observations, and lesson plan analysis to ensure consistency and reliability. Another strategy to build credibility was member checking, a powerful tool that validates the accuracy of the data and fosters a collaborative relationship between the researcher and the participants (Cohen et al., 2018). This process allowed participants to clarify or expand on their experiences, enhancing the richness and depth of the data. Peer debriefing was also used to enhance the credibility of this research (Creswell & Creswell, 2018). This study is derived from a larger project and was guided by experts who evaluated the research process and findings to ensure due diligence and rigor.

### Participants

The study population comprised early childhood teachers who had obtained a Certificate in Early Childhood Education. Four Grade R teachers from four different schools were purposefully chosen, guided by the notion that their attributes aligned with the desired data (Cohen et al., 2018). To illustrate, these participants actively engaged in teaching Grade R learners within schools situated in the Maseru district of Lesotho. Additionally, the selection criteria included teachers with more than five years of experience, as guided by Teffo (2020), who posited that experienced teachers possess a wealth of content knowledge. Moreover, Barenthien et al. (2020) asserted that a teaching certificate obtained from a teaching college equips educators with the necessary curriculum content for effective teaching. This reinforces the rationale for specifically focusing on Grade R teachers with this qualification, underlining their preparedness to handle the curriculum demands in the context of ECE. Participants' names were not used throughout this research; rather, pseudonyms were used to conceal their identities.

### Data Collection

Semi-structured interviews were employed to elicit comprehensive insights from participants. Conducted on a one-on-one basis, these interviews were designed to extract specific information from participants regarding their understanding of science process skills engaged when teaching the concepts of floating and sinking. Each interview had an approximate duration of 30 minutes. Planned interview schedules facilitated focused questioning, enabling the researcher to actively listen to responses and make appropriate field notes. Additionally, permission was obtained to audio record the interviews, aligning

with ethical considerations (Creswell & Creswell, 2018), thereby capturing participants' perspectives with fidelity.

Observation served as another valuable instrument for data generation. Participants were observed and their lessons were recorded in their respective classrooms while teaching learners the concepts of floating and sinking. Attention was on discerning how participants employed science process skills to convey content effectively. To achieve this, an observation grid was prepared, allowing systematic commentary on each process skill employed during instruction. The use of observation served a dual purpose. Not only did it provide a method for triangulating participants' views, but it also facilitated an examination of their classroom practices in terms of fostering the development of science process skills in teaching the concepts of floating and sinking.

Lesson plans as the third source of were used to enhance the reliability of the study. This was achieved by utilizing Creswell and Creswell's (2018) perspective on documents as a "stable" and manipulable source of information. In conjunction with observation and interviews, the analysis focused on participating Grade R teachers' lesson plans, particularly those covering the concepts of floating and sinking. The examination specifically assessed planned activities to determine the incorporation of science process skills. Permission was sought to photocopy participants' lesson plans for reference during home-based data analysis. This methodological approach enriched the study by offering a holistic perspective that combined participants' insight with their practical application in the teaching environment.

**Data Analysis**

The analysis of the data commenced with a comprehensive analysis of the audio-recorded interviews, observation grids, and lesson plans. Initially, we immersed ourselves in the data by actively listening to the audio recordings and thoroughly reviewing the written documents. This approach, aligned with Coolican's (2017) guidance, underscores the significance of gaining a profound understanding of participants' statements and actions. Subsequently, the data underwent transcription to facilitate thematic analysis, employing an inductive approach. Multiple readings were conducted to identify recurring themes across data from all participants. These emergent themes were then organized based on conceptual similarities, and each cluster received a distinct code. The manual coding process involved a meticulous review of written documents using highlighters and pens.

After the initial coding, these codes were structured into coherent themes that directly addressed the research questions. A rigorous review and refinement process ensured that these themes aligned seamlessly with the study objectives. This meticulous procedure resulted in a descriptive and narrative synthesis of the data, enabling the formulation of informed conclusions and interpretations.

**Ethical Considerations**

Ethical considerations were meticulously adhered to throughout the study. Initially, ethical clearance was obtained from the university of the Free State Ethics Committee overseeing the research. Subsequently, approvals were sought from both the Ministry of Education and Training (MoET), Lesotho and the respective school principals, securing the necessary permissions to carry out the study within their educational institutions. In the recruitment process, participants were invited to participate voluntarily, ensuring their informed consent. They were explicitly assured of their right to confidentiality, anonymity, and the freedom to withdraw from the study at any point if they chose to do so. To safeguard participants' identities, pseudonyms were employed, concealing their real names and enhancing the overall confidentiality of the research. This multifaceted approach underscores the commitment to ethical integrity, establishing a foundation of trust and respect for the participants involved in the study.

## Results

This section presents the findings on how participants explained and engaged science process skills in their teaching of floating and sinking concepts to their preschool learners. The following responses were gathered from the participants and are presented under the themes that were generated from the research

questions.

## Theme 1: Understanding of Science Process Skills

Participants were asked to explain their knowledge of skills involved in learning science. From their responses, it was gathered that they had little understanding of science skills. Two of the participants seemed to understand the word *skill*; however, their explanations were not relevant to science skills. Their explanations are captured as follows:

> Skills are things that you can do. In language, we talk about reading and writing. As for science process skills – I do not know (laughing). (Pinki)

This participant seemed to know skills related to language, but not science process skills. Another participant, Thando, responded: "*Science process skills are when you are good at science.*" She regarded being good at science as science process skills. The other two participants lamented not knowing the skills involved in science. Pula said that she had no idea about skills in science learning, as follows: "*Process skills? I have no idea!*". Sbaby said that she had never heard of science skills.

The researcher had to probe more based on the common concepts dealt with in Grade R, which are floating and sinking. The following question was posed: *If you are to teach floating and sinking concepts, what skills will you engage?* Participants responded as follows:

> As they are learning, they will gain communication skills because they will be communicating; maybe they will get new words from that, they are going to observe, they are going to experiment. (Pula)

> Oh, they will be observing, right? Then when we are done with their activities, we sit down and discuss things that float and sink. (Pinki)

Pula mentioned communication and observation skills. Pinki mentioned observation skills only. However, it could be said that Pinki knew what she would discuss with learners, which is communication, even though she did not specifically mention it as one of the science process skills. Sbaby did not mention any skill: "*The skill that they will have will be... Eh.*"

Thando said this*: "I think it will be why things float and why some things will sink. The other one will sink because of its weight or the material it was made of, like metal.*" Thando's response was not relevant to the skills. This indicates that she had no idea what science skills were. The researcher explained to the participants what skills meant in science learning and provided examples of skills that could be used in the teaching of science.

## Theme 2: Engagement of Science Process Skills

This section sought to explore, through lesson plan analysis and classroom observation, how participants in this study engaged in science process skills in their teaching. Figure 1 presents a photograph of Sbaby's lesson activities that show the science process skills she planned to engage with learners.
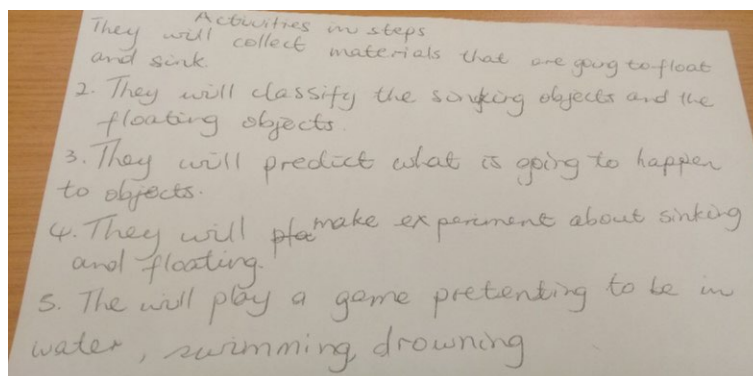


**Figure 1.** Sbaby's lesson activities

In Sbaby's planned lesson activities, she wrote that learners would classify objects between those that would float and those that would sink. Prediction is another skill she would expose learners to by

asking them to predict what will happen to the objects. This was followed by classification. Kuru and Akman (2017) suggested, however, that after prediction, learners could be asked to observe and make conclusions, which did not happen in this case. This indicates that Sbaby was not clear on how one skill could add more knowledge to the preceding activity. Figure 2 presents a photograph of Pinki's lesson activities that show the science process skills she planned to cover.
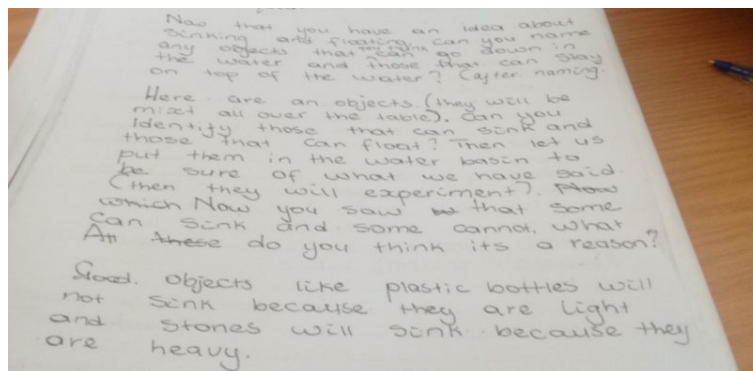


**Figure 2.** Pinki's lesson activities

Pinki asked learners to share their ideas on the objects that would float and those that would sink. The communication skill was employed in the activity. Having been presented with various objects, the learners were asked to predict which ones would float and sink in water. By identifying floating and sinking objects, the learners utilized the science process skill of observation through their sense of sight, and, lastly, confirmed their predictions. Science process skills, such as observation and communication, are highlighted in this lesson. We can appreciate that the participant knew what to do with learners in the classroom, although the knowledge of how to properly instill skills in learners was not appropriately administered, as the learners were told what to do by the participating teacher. This finding does not align with Sutiani's (2021) view that learners should take an active role in learning science concepts. Figure 3 presents a photograph of Thando's lesson activities.
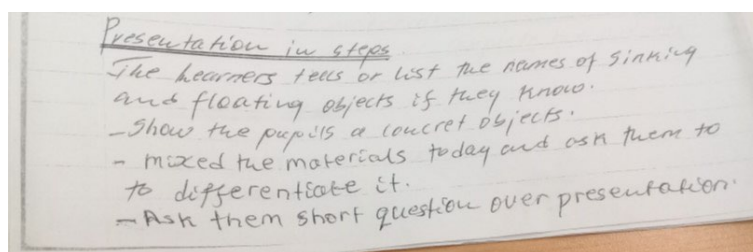


**Figure 3.** Thando's lesson activities

Thando's lesson presentation does not explicitly show science process skills that are targeted at young learners. This affords an explanation of why she could not provide an answer when asked about the science process skills she wanted to develop in learners. Only the first activity was related to floating and sinking, as learners were expected to list the floating and sinking objects they knew, which, we could relate to communication. Pratamawati (2022) asserts that science process skills contribute to the construction and deeper understanding of science concepts. However, Thando's planning shows activities that do not engage skills that could contribute to a deeper understanding of the concepts. Figure 4 illustrates how Pula planned her lesson activities.
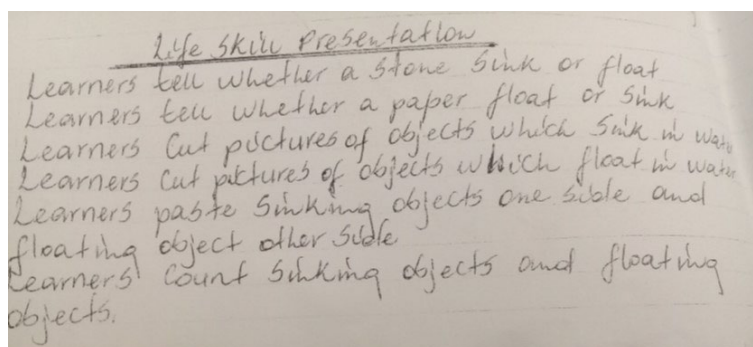
**Figure 4.**Pula's lesson activities

Pula planned to ask her learners to tell, cut, and paste objects, thus requiring them to communicate by sharing their work with their classmates. In addition, when learners count sinking and floating objects, they also communicate. Even though Pula did not specify and write the science process skills that the learners were to engage with, it seems that they were to use communication (Karademir et al., 2019).

In all the lessons observed, participants arranged tables and materials for the learners to do experiments on objects that would float and sink. Most of the participants facilitated experiments in which learners were asked to predict and classify objects according to those that would float and sink. They asked the learners to observe the phenomenon about which they had made a prediction and to observe the actual results. This corroborates the idea that science process skills are not taught in isolation (Pakombwele & Tsakeni, 2022). For illustration, Pinki asked the learners: "*Come and see which objects float and which ones sink in water.*" Learners moved closer to the experiment table to observe. She added: "*Which one do you think will float and which one will sink*?" The learners responded to her question by indicating the ones that would float and the ones that would sink. Lastly, she said: "*Classify them according to the ones that sink and the ones that float in water.*"

These instructions show that the participating teachers used science process skills in their teaching. However, they did not engage learners in a hands-on way, as is effective in the facilitation of science learning (Mulyeni et al., 2019). Vygotsky (1978) argues that learners construct their knowledge through the guidance of the teacher was minimal. None of the participants engaged learners in measuring and inferring. Instead, they told them that objects float because they are light and sink because they are heavy. In none of the classrooms observed did the learners measure the objects by comparing them even with arbitrary units. Pakombwele and Tsakeni (2022) argued that inference is one of the most fundamental skills taught to ECD learners. When given a chance to do so, learners will use their acquired knowledge to conclude the behavior of the object. Even though communication skills were used in all the classrooms, Sbaby's lesson stood out above the others because she asked learners to draw objects that float and sink and then asked them to interpret their drawings. We could see a lot of communication, active participation, and sharing of knowledge in that class.

## Discussion

The key finding of this study indicates that the engagement of science process skills was strongly influenced by the participants' limited understanding of science process skills and floating and sinking concepts. The major finding of the first theme indicates that the participants had minimal or no knowledge of science process skills. This finding is similar to that mentioned by Kazeni (2021) and Stears et al. (2019), even though their studies were not focused on Grade R teachers. It shows that teachers are not familiar with the basic science process skills (Karademir et al., 2019; Mostert, 2018; Yildiz & Guler Yildiz, 2021). Participants were not aware that science process skills are developed in the teaching of science concepts. This is worrying because the sole purpose of Grade R is to prepare learners for subsequent grades. This

finding implies that learners are not active participants in their learning but are rather told facts about the concepts prescribed in their curriculum.

The second theme indicates that participants in this study had inadequate knowledge of how to engage the basic science process skills, as measurement and inference were not mentioned at all. Again, even the skills that were mentioned were not clearly explained as to how they could be engaged in the teaching of science concepts. Learners were not given opportunities by their teachers to observe using **all** their senses, a finding similar to the one indicated by Mulyeni et al. (2018). This could imply that teachers know some of the process skills but do not know how to execute them. Notably, little knowledge of science process skills could account for poor performance and decreased motivation for learners to participate in science subjects.

There are strategies to address the limited knowledge of science process skills among teachers. One effective approach is to organse professional development workshops that focus specifically on these skills and teaching strategies. Teachers can also form learning communities where they can share their expertise in teaching science concepts using science process skills. In these communities, less experienced teachers can benefit from mentorship by seasoned educators who are proficient in science education and process skills. Additionally, the teacher training curriculum should be enhanced to ensure that teachers are equipped with the necessary knowledge and tools to effectively teach these skills. Lastly, the development and distribution of interactive teaching resources, such as lesson plans, activity guides, and visual aids, that focus on science process skills can help teachers engage learners in science concepts through hands-on activities more effectively.

## Conclusion

The significance of teachers' expertise and instructional expertise in imparting science process skills to Grade R learners is highlighted by their paramount role in fostering the development of these essential skills. Teachers become key contributors to the overall growth and understanding of science concepts in young minds during their formative years. This role is particularly important in the context of Grade R, where foundational learning experiences lay the groundwork for future academic success. Integrating science process skills at this early stage not only aligns with the objectives of integrating STEM subjects into the ECE curriculum and national educational goals but also recognizes the importance of instilling a scientific mindset from a young age. It prepares children to engage with the world through the lens of inquiry, curiosity, and problem-solving skills that are increasingly vital in an evolving and complex global landscape.

In essence, the conclusion drawn highlights the transformative potential that teachers hold in shaping the trajectory of a child's scientific understanding and engagement. The emphasis on science process skills in ECE is not merely an educational strategy; it is a holistic approach to nurturing well-rounded individuals equipped with the skills needed to navigate an increasingly complex world. As educators continue to play a central role in this developmental journey, the recognition and enhancement of their expertise become paramount for the successful integration of science education in ECD settings. By exploring the practices of early childhood teachers, this research contributes valuable insights into effective pedagogical approaches for teaching foundational science concepts, ultimately enhancing the quality of early science education. When educators design and implement lessons that actively engage students in using these science process skills, they are employing a pedagogical approach that emphasizes hands-on, experiential learning. This approach helps students develop a deeper understanding of scientific concepts and fosters critical thinking and problem-solving abilities. Therefore, integrating science process skills into teaching is indeed a pedagogical strategy aimed at enhancing science education.

## Recommendations

This study recommends continuous development programs for early childhood teachers to capacitate them with science process skills and content needed in this setting. Capacitating them can be achieved by focusing on the content covered in the ECE curriculum to ensure a sufficient depth of

knowledge for effective instruction. It is important to acknowledge the limited generalizability of the results of this study due to the small sample size, making it suitable as a foundational exploration. Consequently, this study can serve as a valuable starting point for a more extensive investigation. While the findings may not be universally applicable, they contribute valuable insights to the existing literature on science process skills in ECE. In addition, the study was limited in that it involved only four Grade R teachers, which may impede the generalization of the findings. Therefore, we propose that this study be extended to a larger scale by conducting a subsequent quantitative study to further explore the science process skills taught in ECD classes.

## Declarations

### *Authors' Declarations*

*Authors' contributions:* L. Maraisane carried out a research study by organizing, collecting, analyzing, and interpreting data as the principal investigator in her PhD research. L Jita and T. Jita provided critical guidance in writing up the research as well as providing technical guidance for all aspects of writing the article and reviewing and editing it. The final version of the manuscript was approved by all the authors.

*Competing interests:* The authors declare that they have no competing interests.

*Ethics approval and consent to participate:* Ethical clearance to embark on the study was approved by the University of the Free State Ethics Committee. The ethics number is NO.UFS-HSD 2017/1015 and the school principals to conduct the study within their educational institutions. Lastly, participants' consent to be involved in the study was prioritized, with the understanding that they could withdraw whenever they wished. They were also made aware that they would be protected from harm.

### *Publisher's Declarations*

*Editorial Acknowledgement:* The editorial process of this article was completed under the editorship of Dr. Mesut Saçkes through a double-blind peer review with external reviewers.

*Publisher's Note:* Journal of Childhood, Education & Society remains neutral with regard to jurisdictional claims in published maps and institutional affiliation.

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# From IT to I-It: Digitalization, datafication, automation, and the teacher-student relationship

Pekka Mertala[1]

**Abstract**: This conceptual article theorises the tensioned interplay between digitalization, datafication and automation and subjectness in education by asking what intensifying datafication and automation means for teacher–student relationships and how we understand and approach education. Theoretically, the paper draws on Buber's ideas of the dialogical I–Thou and objectified I–It as the key forms of human relationships. The core argument is that increasing datafication and automation steers the teacher–student relationship towards an objectified I–It relationship instead of the dialogical I–Thou relationship, which Buber (and others such as Biesta, another main influencer of the present paper) saw as the ideal. Literature-informed examples of various forms of educational datafication and automation are provided to support and concretise the arguments.

## Introduction

> The development and affordances of predictive analytics may impact how teachers and other educational actors think about and teach students and, more broadly, how society understands education. (Jarke and Magilchrist, 2021, p. 1)

The above citation neatly captures one of the most important educational questions of our era: what intensifying digitalization, datafication, and automation means for teacher–student relationships and the way we understand and approach education. The digitalization (of education) refers to two things: the use of digital resources in teaching and the digitalization of the content and goals of education (e.g., the inclusion of computing education in the curricula) (Mertala, 2020). Datafication, in turn, refers to the transformation of social action (e.g., learning) into (online) quantified data allowing for real-time tracking and predictive analysis (Mayer-Schonberger & Cuckier, 2013). Lastly, by automation, I mean the replacement of human labor with independently operating digital systems (Merriam-Webster, n.d.), one concrete example of which is automatic attendance monitoring (Selwyn, 2022).

These topics have been pondered by others as well. Selwyn et al. (2021) expressed their concern that the data-driven automation of education presumes the eradication of the subject, while Sefton-Green and Pangrazio (2022) have written about the death of the educative subject. The core argument in these writings has been that the logics of datafication and automation are at odds with the idea of subjectness— "the arrival of the 'I' in the world as subject of its own life, not as object of forces or desires from elsewhere" (Biesta, 2022, p. vii). As Selwyn et al. (2021) summarised:

> Actual subjects can behave in inconsistent, irrational or even resistant ways that threaten systems of control, management and governance. In contrast, the automated subject is 'perfectly self-identical'—therefore fitting neatly within the constraints of datafied predictability. (2021, n.p.)

This tension appears to be especially extreme in childhood education (preschool, primary school, and secondary school). O'Neill et al. pointed out that simply due to physical growth and development, "the child as an indeterminable figure refuses to be captured in ways desired by the biometric technicians and apparatuses" (2022, p. 8). Pierlejewski (2020), drawing on psychoanalytical theories, expands this view

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to children's ways of being, as she argues that under datafication the "chaotic id-driven child must be suppressed and replaced with measurable, ordered, predictable data" (Pierlejewski, 2020, p. 471).

In this article, I theorise the tensioned interplay between digitalization, datafication, automation, and subjectness in education. To complement the works cited above, I draw on the relational view of subjectness, especially Buber's ideas about philosophy of dialogue, which is commonly regarded as a fundamental source within relational theory (Aspelin, 2020).[2] In his seminal work *I and Thou* (1937), Buber established a taxonomy and typology to describe the kinds of relationships into which a human being can enter. The main ideas in Buber's thinking was that people relate to the world and to each other in two different ways. In the I–Thou relationship, subjects meet one another in their authentic existence, without any objectification of one another. In the I–It relationship, the other is objectified as a mental representation, created and sustained by the individual mind. As Karjalainen summarised, the I–It relationship is "characterized by objectification and categorization, such as classifying things and human beings based on advance information and previous experiences" (2021, p. 37).

Datafication and automation bring new perspectives to Buber's ideas, especially to the I–It relationship. Today, the representation of a student is no longer created and possessed (only) in the mind of an individual (here, the teacher), but also through and as data points that are (automatically) analysed and visualised via different (often interlinked) platforms. Through these processes a "data doppelganger" (Pierlejewski, 2020) is created from/for each student.

My argument is that increasing datafication and automation steers the teacher–student relationship towards an objectified I–It relationship instead of the dialogical I–Thou relationship, which Buber (e.g., 1967) (and others such as Biesta (e.g., 2016), another main influencer of the present paper) saw as the ideal. In the sections below, I will engage in dialogue between the works of Buber and Biesta, critical research on the digitalization, datafication, and automation of education, and material from edtech companies to provide a rich and contextualised account of the risks to relational subjectness that emerge in and through teacher–student relationships caused by the datafication and automation of education. To ensure the article appeals to a broad readership, it focuses on concrete cases involving software applications (e.g., ClassDojo, Eduten Playground, learning management systems) used at various stages of childhood education, including preschool and the early years of primary education.

I approach digitalization, datafication, and automation (in and of education) as being in a nested relationship with each other. The rapid development of digital technologies has enabled intensive data collection in schools, which has further provided the basis for automated practices such as personalised instruction based on predictive learning analytics. A similar nested relationship is present in the images of children/students: Put differently, I will show how the I–It dominant view of children already existed in the pre-datafication and -automation era of the digitalization of education.

## I–Thou and I–It in Education

For Buber (1937), I–Thou was an achievable and perceivable relationship. Some Buber-inspired scholars, however, have approached the I–Thou relationship as an "ethical ideal for authentic life with others in the world" (Charme, 1977, p. 171) rather than as a realistic relationship. Additionally, the unique nature of the educational relationship and the educator's desire to influence the educatee challenge the emergence of I–Thou—a paradox whose existence Buber (1937) also explicitly addressed. As put by Aspelin:

> Inevitably, teaching has an instrumental function: one party has the task of influencing another party in order to achieve certain goals, by using certain means and certain content. This function, and the relational structure that is attached to it, implies an 'I–It' attitude. (2020, p. 7)

Thus, it is worthwhile to ask whether education is only possible as an objectified I–It relationship, to which my answer would be no. First, it needs to be acknowledged that the relationship between I–It and

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[2] The present paper is by no means a definitive or in-depth account of Buber's educational philosophy. Those interested in looking more deeply at his thinking might find the works by Aspelin (2020) and Karjalainen (2021), alongside Buber's original publications, worth reading.

I–Thou is not necessarily binary. Perhaps the best way to exemplify the shortcomings of a binary view is to think about what would be an absolute form of I–It. One way to approach this question is to conceptualise an absolute I–It as dehumanization (Haslam, 2006), where other people are objectified by denying their humanness. The most extreme examples of dehumanization are the ways in which "Jews in the Holocaust, Bosnians in the Balkan wars, and Tutsis in Rwanda were dehumanized both during the violence by its perpetrators and beforehand through ideologies that likened the victims to vermin" (Haslam, 2006, p. 253). It is fair to argue that I–It relationships produced by digitalization, datafication, and automation are not comparable with the extreme human rights violations mentioned above. Even though there are rather strict predetermined objectives for what students should become, their humanness is not contested or challenged.

On the other hand, reducing students into data points hardly implies the presence of an I–Thou relationship either. To overcome this issue, I suggest that we imagine I–Thou and I–It as a continuum whose ends are marked by the absolute forms of the two relationships. Buber (1967) noted that while I–Thou is an achievable relationship, it is not a permanent stage but happens in fleeting moments (see also Aspelin, 2020; Karjalainen, 2021). As a result, the vast majority of our interactions with other people happen in the "gray area" in which there is always some It in Thou and vice versa.

## Formal Education as Instruction and Pedagogy

When we discuss digitalization, datafication, and automation in and of education, it is important to consider what we understand by education. According to Biesta and Miedema (2002), education can be understood as instruction and pedagogy. The instructional view emphasises measurable and testable outcomes, knowledge, skills, and a transmissional approach to education (Biesta and Miedema, 2002), whereas pedagogy refers to the "idea of a special, affectively charged relationship between teacher and child" (Friesen, 2017, pp. 733–734) —a loving attitude from the adult, as pedagogue, directed toward the physical security and social, emotional, and educational wellbeing of the child as student (Hatt, 2005). Indeed, teachers working with students of various ages have argued that their main task is to educate the "whole child," that is, promote the holistic wellbeing of students, including their social, emotional, and physical needs (e.g., Biesta & Miedema, 2002; Lasky, 2005).

Instruction and pedagogy are not mutually exclusive. Instead, formal education typically aims to provide students with observable and measurable skills, competences, and traits, as well as more ambiguous qualities. In more recent work, Biesta (2020) distinguished three dimensions of education: qualification, socialization, and subjectification. Qualification refers to society's need to qualify children for future professions. Socialization, in turn, takes place when young people are introduced to an existing societal order (Biesta, 2020). While these two dimensions have important purposes, to respect students' individuality, they need to be complemented with subjectification, which is about "our freedom as human beings—how I exist as the subject of my own life, not as the object of what other people want from [and of] me" (Biesta, 2020, p. 93).

Figure 1 summarizes my interpretation of the relationship between Biesta's and Buber's ideas. Qualification and socialization are located closer to the I–It end, as they both rely heavily on predetermined objectives of what children should become. Subjectification, in contrast, is placed closer to the I–Thou end of the continuum, emphasizing students' freedom to be and become their unique selves.
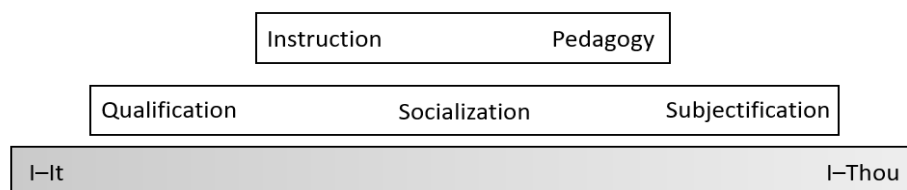


| Instruction | Pedagogy | |
| --- | --- | --- |

| Qualification | Socialization | Subjectification |
| --- | --- | --- |

| I–It | | I–Thou |
| --- | --- | --- |

**Figure 1**. I–It and I–Thou as sliding scale

The relationship between pedagogy and instruction is not balanced, but the instructional view is the

dominant one in the contemporary educational sphere. At the level of educational praxis, education as instruction is present as tests, assessments, and rankings. Traditionally, tests were held periodically, for example at the end of a teaching term. The digitalization of education, however, has inserted the logic of testing into the realm of everyday schooling. One—perhaps the most—profound example is the use of learning analytics. Let us take ViLLE, a learning analytics platform used in roughly half of Finnish schools (Mertala, 2021) as an example. The designers state that the software "automatically recognises students' learning misconceptions in mathematics based on the information collected from their submissions" (Learning Analytics, 2019, n.p.). They also refer to a study which suggests that the algorithms of ViLLE predict learning misconceptions as effectively as a widely-used pen and paper test (Laakso et al., 2018). According to the website, the only difference is that "automatic analytics enables real-time viewing of information without a separate test" (Learning Analytics, 2019, n.p.). In other words, students are unconsciously taking a test every time they use the application

Different views on education also entail different understandings of what and who students are. In the instruction-oriented view, students are seen primarily as adults in the making whose education is largely determined by the needs of working life (qualification) and the existing norms and values of society (socialization). Both Buber (1968) and Biesta (2016) express their dissatisfaction with education which aims to train students to meet certain predefined standards by operating within specific set rules outlined by others. Biesta argues that education "isn't a mechanism and shouldn't be turned into one" (Biesta, 2016, p. 4); nor should it be seen in terms of a single "truth about what the child is and what the child must become" (Winter, 2011, p. 538). Buber, in turn, warns against education in which influencing the lives of others has become "a function and a law" (1968, p. 100). In the pedagogy-oriented view, students are primarily seen as unique subjects with no fixed and predetermined future (subjectification). In Buberian terms, the instructional teacher–student relationship can be approached as an I–It relationship, whereas the pedagogical teacher–student relationship resonates better with the I–Thou relationship. In the following sections, I present examples of the ways in which data-driven and automated educational practices are built on and work in favor of the I–It-oriented relationality.

**The Image of The Child in the Digital Age**

The distress about the eradication or slow death of subjectness is mainly seen as the result of datafication and automation of education (see Jarke & Magilchrist, 2021; Sefton-Green & Pangrazio, 2022; Selwyn et al., 2021). However, it is important to acknowledge that the roots of an objectified image of children lie deeper in the digitalization of education. Indeed, children and technology appear to be a combination that evokes rather spectacular and extreme imaginaries. Selwyn (2003) analysed how children and technology were represented in media and political discourses from 1980 to 2001 and identified six themes: 1) the "natural" child computer user; 2) the "successful" child computer user; 3) the "adult" child computer user; 4) the "dangerous" child computer user; 5) the "victimized" child computer user; and 6) the "needy" child computer user, each of which portrayed children in a decontextualized manner, regardless whether the tone was optimistic or pessimistic.

Had the data been collected a little later, the "natural child computer user" would have most likely been the dominant theme. In October 2001, Prensky published an opinion piece entitled "Digital natives, Digital Immigrants," in which he claimed that "our students today are all 'native speakers' of the digital language of computers, video games and the Internet" (2001, p. 1) because digital games, the Internet, and mobile phones had been an integral part of their lives since birth. While there were no data or research studies to back up these claims, Prensky's evocative article became a massive influencer for educational practice, policy, and research (Kirschner & De Bruyckere, 2017; Mertala et al., 2024). The fact that the term "digital native" comes up with more than 3 billion results in a Google search gives an idea of the ubiquity of the concept.

While the idea of children "being naturally adept user[s] of technology" (Selwyn, 2003, p. 355) dates back to the 1980s, Prensky's (2001) article can be seen as a catalyst for establishing the idea of a digital generation. Prensky, for example, argued that due to digitalization, "today's students think and process

information fundamentally differently from their predecessors" (2001, p. 1) and therefore called for a major reformation of formal education. Looking back, one major theme in pro-digitalization discourses has been that digitalization builds bridges between formal education and students' lifeworld outside the school: The use of digital technologies makes school more relatable for students and enables them to deploy their technological proficiency for learning curricular content (e.g., Yu & Couldry, 2022; Mertala, 2020).

On a superficial level, the logic would appear to promote I–Thou relationships as the content and methods of education are reformed to meet the needs of the new "digital generation." The problem, however, is that such a generation exists only in our imagination (see Kirschner and De Bruyckere, 2017 and Mertala et al., 2024 for a review of the lack of empirical evidence). To draw on Buber's concepts, a "digital native" (or any other reductive generational label) is an "It"—a categorised and objectified image of the other (see Karjalainen, 2021). As Buber (e.g., 1968) and Biesta (e.g., 2014) noted, such a starting point has undesirable consequences for education and teacher–student relationships—a view supported by research: Mertala (2020) studied digitalization processes in Finnish basic education and found that if the students did not fit the alleged image, their views and feedback regarding the digitalization of school practices were not taken seriously. Instead, students' critical reactions were deemed unintelligible or considered to be caused by unrealistically high expectations.

### Paradoxical Promises of Personalization

The implicit message of the digital native myth is that all children are the same. The datafication and automation of education, however, appear to follow a different line of thought. The utility of datafication and automation is often backed up with promises of the personalization of teaching and learning, which revolutionises the traditional classroom where all students are taught the same content, in the same ways, at the same pace (Yu & Couldry ,2022; Watters, 2021): The more data we have about students, the more unique learning pathways we can carve out for them. Indeed, the proponents of learning analytics have argued that to be truly personalised and effective, learning analytics should be allowed to include personal information, including online behavior outside the learning management system (LMS), as "such data includes much potential for understanding and optimizing learning processes" (Ifenthaler & Schumacher, 2016, p. 933).

That said, the correspondence between the promises of personalization and the technical "reality" is far from optimal. Many of the technologies used in schools today draw on behavioristic theories, which are—metaphorically speaking—smoke-screened by their use of concepts that do not carry the undesired behaviorist legacy: instead of conditioning, we are just talking about guidance and nudging (see Watters, 2021). One example is an intelligent system: a computer program in which a scenario of how an individual should ideally interact with a learning task is modeled. After the task is completed, the individual's actual performance is compared to this so-called expert model, and the system locates those points where the individual's mental functions have deviated from the ideal. Based on the comparison, the system provides students with feedback that seeks to align their activities with the ideal model (Selwyn, 2019). Put differently, personalization, in such cases, means that there is variation in the pace and the order of the tasks, but—in the optimal situation—each route would lead to the same predefined outcome.

A similar logic is present in LMS, which predict students' performances. Jarke and Magilchrist described the functionalities of one such software, Brightspace Student Success System, by deploying quotations from the company's website:

> The 'simplified, interactive reports make risk patterns easier to see', and a 'success index' shows students' predicted grades […] Instructors can compare 'a struggling student's content usage, grades, and social engagement' 'at-a-glance' in order to 'find the cause faster', with 'interactive winloss charts' that show 'a student's position relative to course expectations'. (2021, p. 7)

As shown in the excerpt, there are explicit course expectations to which each student's performance is compared. If a student's LMS data indicate actual or potential risk (which the software promises to detect "as early as two weeks into a course (Jarke & Magilchrist, 2021, p. 7)), the teacher is alerted to take actions to get the student back on track—that is, to produce LMS data that indicate they are meeting the course

expectations.

Williamson's (2016) analyses of children's health apps used in schools offer one more relevant example of how digitalization, datafication, and automation work within the logics of predetermined objectives for (health and physical) education. As in an intelligent system, health apps are built around an ideal model of a child, as "these devices classify the child as normal or aberrant, and then generate pedagogic prompts that are intended to change their bodily behaviours to fit ideals about socially fit biocitizenship" (Williamson, 2016, p. 407).

As shown via the examples above, for a machine/software, the child is always It: a malleable object, which needs to be steered towards a predetermined goal. Therefore, the more datafied and automated education is, the more there is It in Thou, including in teacher-student relationships. The cogency of this argument is partly rooted in the history and present of the automation of work, which, throughout its history, has emphasised and increased standardisation, control, efficiency, and speed (Crawford, 2021). While the teacher-student relationship is hardly comparable with that between the employee and the factory/business owner, it would be naive to claim that socio-technological processes work completely differently in educational contexts. On the contrary, the use of digital technology appears to standardise both teachers' and students' work based on top-down predetermined objectives (Daliri-Ngametua et al., 2022), which reflects the global education policy trend emphasizing performance monitoring and accountability (Hardy & Lewis, 2017).

One concrete example of accountability is the way students' performance data are often used as a straightforward indicator of a teacher's performance. If the performance scores are low, the teacher is the one to blame (Daliri-Ngametua et al., 2022) and may even be dismissed if the grades do not meet expectations (O'Neil, 2016). Thus, teachers are compelled to "teach to the test" instead of "teaching for life," to use the old but representative expression about the steering force of standardised testing. The more the teachers are engaged in education as instruction, the less room remains for pedagogy and approaching the whole child—a topic discussed in more detail in the following sections.

## A Machine-Readable Whole Child?

One could, of course, argue that there is no conflict between datafication and the whole child approach for at least two reasons. According to the first argument, students' emotional, social, and physical states and developmental traits can be captured and datafied as well. The rationale here is that data technologies are able to capture and "understand" complex phenomena such as health and emotions and thus provide a robust foundation for I–Thou relationships. IBM, for instance, promotes its Watson Element for Education app by stating that it "enables a new level of engagement for teachers by providing a holistic view of each student at their fingertips" (Yu & Couldry, 2022, p. 132).

A glance at contemporary schools suggests that evocative promises like the one cited above are taken seriously, as they appear to make intensive use of data: Covid-19 and periods of distance education have made learning analytics an integral part of education (Beerwinkle, 2021; Mertala, 2021). At the same time, the use of wearables, such as activity wristbands and sports watches, and smartphone-based health/exercise applications has become more and more frequent in physical education (Lupton, 2021), and modern school buildings are equipped with sensors that can capture and react to classrooms' carbon monoxide levels in order to provide students with the optimal conditions for studying (Mertala, 2021). Additionally, a wide range of technologies is used to identify, monitor, and shape students' behavior, emotions, and social skills (Andrejevic & Selwyn, 2020; Manolev et al., 2019).

The second argument is that automation of some educational processes and practices would allow teachers to put more resources into sensitive interaction with their students (Eynon, 2022) —a view well captured in the following extract from the edtech company Eduten's website:

> Eduten Playground's exercises are automatically assessed. Instead of never-ending pop quizzes spend more time on providing personal guidance and support to those of your students who need it right now. (EduTen, 2021, n.p.)

Put differently, the automation of instruction and/or routine work, such as the assessment of tasks,

would provide teachers with more time and opportunities to develop genuine relationships with their students. The logic behind this rationale is that some forms of I–It relationships are acceptable because they provide more opportunities for I–Thou relationships to occur.

While both lines of thought seem logical, they contain some severe problems. Let us begin with the datafication of the so-called soft skills. Biesta and Miedema (2002) identified that in an instructional-dominant zeitgeist, the pedagogical dimension of education also follows the logics of instruction. According to them, in such situations "the pedagogical task [is] […] conceived in terms of the transmission of specific norms and values and related knowledge and skills in order to bring about 'appropriate' behavior" (Biesta & Miedema, 2002, p. 177). In other words, in an instructional zeitgeist the pedagogical dimensions of education, for instance the teaching and learning of social skills, are standardised in a similar manner to academic subjects. Biesta and Miedema's (2002) words resonate with those of Manolev et al. (2019) in their analysis of the classroom behavior management software ClassDojo.[3]

According to Manolev et al. (2019), in ClassDojo, student behavior is displayed in the form of numerical data which function as a representation of the student. As a result, students become behavioral data points from which decisions can be made about the teaching and learning of social skills. It is highly questionable whether numerical data are capable of adequately representing the social, as they tend to obscure ambiguities and limit the explanatory possibilities necessary to adequately represent the complexities of social life (Selwyn, 2015). Behavioral data points tell us nothing about the contextual elements behind the behavior. Indeed, technologies such as ClassDojo have been criticised for approaching behavior as an individual psychological phenomenon (Manolev et al., 2019).[4] In such views, behavior and possible changes in it depend on the individual's own actions, and the application does not take into account that behavior and its evaluation are always phenomena produced in a certain context. Thus, as Manovel et al. (2019) put it:

> ClassDojo's numerical representation of students through behavioural data is a form of reductionism, dismantling the complexity of behaviour in order to facilitate the governance of students via classification, rankings, comparison and the like. (2019, p. 45)

The same reductionist logic is present in automated emotion recognition. Let us briefly examine the marketing material of the edtech company Viatech (2018), who claim on their website that classroom performance can be maximised through the use of facial recognition technology (FRT), because it

> ...can help teachers recognize different student emotions in class, measure their levels of interest, frustration, and comprehension, and use this information to adjust their styles accordingly. With FRT, teachers will be able to change their pace of instruction and tailor their classroom instruction to maximize students' involvement and performance. (2018, n.p.)

There are several issues with these assertions. Firstly, using facial expressions as indicators of emotions is unreliable. Additionally, FRT discriminates based on race, often interpreting faces of people of color as expressing more negative emotions compared to white individuals, marking them as more angry and contemptuous (Crawford, 2021). It's also crucial to recognize that children's faces undergo significant changes throughout their school years: the inherent flexibility and constant evolution of a child's face pose a challenge for its accurate modeling and algorithmic representation, making it especially hard to capture through algorithms (O'Neill et al., 2022). Second, even though the description of the software implies that it enables more sensitive education, it actually intensifies I–It relationships, as teachers relate to students based on the software analyses of the emotional landscape of the class. Put differently, if the software informs the teacher that students are feeling bored, she or he may relate to them as such regardless of whether the software has detected the emotional stage correctly or not.

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[3] For those not familiar with ClassDojo, a brief description based on Manolev et al. (2019) is offered below. ClassDojo is a software that is compatible with most mobile devices and personal computers with online connectivity. Initially, teachers must create a class list in which each student is represented by a customizable ClassDojo monster avatar. Teachers then choose the behaviors and/or skills they wish to target and develop in students. Teachers can select from a range of default options, or they can customize their own. Once this is done, teachers can begin implementing ClassDojo at its most rudimentary level by rewarding students with points for desired behavior and penalizing them by taking points away. For visual information, see https://www.classdojo.com/

[4] It should be noted that the criticism that datafication and automation neglect the social and contextual dimensions of education is not restricted to behavioral datafication but, rather, seen as characteristic of all datafication and automation (Jarke & Magilchrist, 2021; Selwyn et al., 2021).

The second argument—that datafication and automation would save teachers' time for meaningful interactions with students—is contested by empirical research. There is a great deal of hidden human labor behind the automation of different services and practices (Crawford, 2021), and education is no exception. Research in Australia and the UK (e.g., Bradbury & Roberts-Holmes, 2017; Daliri-Ngametua et al., 2022) has shown that generating digital data in schools leads to an increase in human labor. This includes both officially recognized tasks and less noticeable work related to infrastructure maintenance and repair

Additionally, there is evidence that the automation of what are considered time-consuming routine tasks actually diminishes teachers' possibilities to create meaningful interactions with their students. One example of such practice is automated attendance screening/roll calling, which relies on AI-based facial recognition. To put it simply, students' faces are screened at the beginning of the class, and the teacher (and school administration) automatically receives a report of who is present or absent. It is estimated that lesson-based roll calls take two and a half hours per week, which equals over 93 hours per year[5]—more than a month's worth of the "learning time" and "lesson time" described by the FRT companies (Selwyn et al., 2022, pp. 5–6). It should be asked, however, whether roll calls are mere burdensome routine tasks, and the answer from teachers seems to be that they are not.

Australian teachers in Selwyn's (2022; see also Selwyn et al., 2023) study emphasised that roll calls are not just a way to check whether a child is in a classroom, but allow teachers to actually greet the child and welcome them. They also stated that "for a new teacher the roll is a crucial process to get to know who is there. With the repetition, by the end of term you do get to know their names" (Selwyn, 2022, p. 81). In addition, the teachers pointed out that traditional roll calls provide a chance to show a little discretion: "If a kid was having troubles and was persistently late you might opt to delay taking the roll until 10 minutes into the lesson so they don't show up as being late yet again. If the roll is taken automatically in the first minute, then you don't have that leeway" (Selwyn, 2022, p. 81). The extracts strongly suggest that automation of roll calls decreases teachers' possibilities to build dialogical I–Thou relationships with students, as it takes away daily opportunities to greet the children, sense their moods, and create meaningful relationships with them. Additionally, preset rolls narrow teachers' possibilities to express sensitivity to students' challenging life situations as they allow no room for flexibility. To conclude, while automation of roll calls may increase the number of hours spent on learning and lessons—instructional education, in other words—teachers' reports suggest that the very same time is taken away from pedagogy.

## Concluding remarks

In this conceptual paper, I have addressed different kinds of pitfalls of intensifying digitalization, datafication, and automation of education for the nature of teacher-student relationships. Theoretically, I have drawn on Buber's (1937) ideas of the dialogical I–Thou and objectified I–It as the key forms of human relationships to complement previous research on the same topic. Instead of treating I–It and I–Thou as mutually exclusive categories, I have suggested that the two could be approached as a continuum, as in our interactions with other people there is always some It in Thou, especially in the context of formal education. Furthermore, I have discussed Biesta's (e.g., 2014) writings on the different forms (instruction and pedagogy) and purposes (qualification, socialization, and subjectification) of education to better contextualise Buber's (e.g., 1937) ideas to formal education.

My core argument was that digitalization, datafication, and automation, in their different forms, works within the logic that steers teacher-student relationships towards the objectified I–It relationship instead of the dialogical I–Thou relationship. During the course of this article, I have demonstrated how the objectified "It" is present in popular images of children and technology as well as in the more quotidian attempts to compress children and their learning and development into data points that enable automated practices.

While my tone has been critical, I do not wish to present myself as a doomster—a writer of tragedy (Bigum & Kenway, 2005)—who sees digital downsides as an inevitable outcome of technology use in

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[5] Calculated based on the number of school days in Finland

education. However, having a suspicious mind is essential in order to distinguish between the actual capabilities of the technologies and the extensive claims and promotional activity embedded in discourses around digitalization, datafication, and automatization of education, which are certain about events, thus leaving little room for alternate outcomes (Mertala, 2020). Certainty and determinism do not fit well with relationality and subjectification, which both emphasise the openness and unpredictability of education. Neither are they backed up by empirical evidence when it comes to the presumed benefits of technology use. Take learning analytics, a central application of the digitalization, datafication, and automation of education, for example. Learning analytics are often claimed to improve learning practices by transforming learning processes (e.g., Baer & Norris, 2017; Viberg et al., 2018).

However, a review of 252 studies suggests that in only 9% of cases were learning outcomes improved via the use of learning analytics (Viberg et al., 2018). Put differently, while there are situations in which learning analytics may be beneficial, the number of such occasions appears rather limited. Thus, commonly-made bold statements such as "learning analytics holds the potential to transform the way we learn" (Baer & Norris, 2017, p. 309) are plausible only if the undesired I–It relationships are included among the possible forms of transformation.

By the use of the word "possible" in the previous sentence, I wish to be explicit that while the arguments presented in this paper are grounded in a careful reading of the theoretical and empirical research literature, they are inevitably speculative and hypothetical. There is an urgent need for empirical research that aims for a comprehensive understanding of what intensifying datafication and automation means for student-teacher relationships. Contemporary technology- and data-saturated classrooms are not short of suitable and information-rich cases, as the various examples provided throughout this paper have illustrated. For instance, the "student at risk" dashboard stories (Jarke & Magilchrist, 2021) would provide an interesting context in which the theoretical and conceptual ideas presented in this article could be put into action.

## Declarations

### Publisher's Declarations

*Editorial Acknowledgement:* The editorial process of this article was completed under the editorship of Dr. Mehmet Toran through a double-blind peer review with external reviewers.

*Publisher's Note:* Journal of Childhood, Education & Society remains neutral with regard to jurisdictional claims in published maps and institutional affiliation.

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