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Research Article

Factors affecting first-grade pupils' physical activity during the school day: A pilot study

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Abstract: Physical activity is essential for the healthy development of children, yet many do not achieve the recommended levels. This study investigates the influence of school environments and educational practices on pupils' PA during the school day, emphasizing the importance of supportive school conditions and structured activities. This pilot study involved 43 children from three primary schools in the Olomouc region of the Czech Republic. PA was measured using digital pedometers. Data on school conditions and family lifestyle were collected via two questionnaires. The analysis employed variance inflation factor analysis, principal component analysis (PCA), multiple linear regression, and Spearman's correlation coefficient to identify key predictors of PA. The results show that the most influential factors on PA were passive conditions of the school environment, particularly school size and access to sports facilities. Active conditions, such as organized PA breaks and outdoor learning, also had a positive effect on PA levels. However, family lifestyle did not show a significant direct impact on school-day PA. The findings underscore the crucial role of school environments and educational practice in maintaining children's PA. There is a significant need for policies and initiatives that promote active school environments. Schools should implement comprehensive PA programs to support children's overall health and well-being.

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Physical activity regime; School environment; Active school; Step counts; Family lifestyle

Introduction

Physical activity (PA) plays a crucial role in children's development, significantly contributing to health-oriented fitness. Studies show that physically fit pupils participate more in both physical education (PE) lessons and school breaks, leading to higher overall PA levels (Gomes et al., 2017; Haug et al., 2010; Poitras et al., 2016). Health recommendations suggest at least 60 minutes of daily moderate-to-vigorous PA (MVPA) (Singh et al., 2012). However, a significant proportion of adolescents (80.3%) fail to meet these guidelines (Gomes et al., 2017). Given these concerning statistics, school-based interventions have been explored as a viable strategy to promote PA among students, highlighting the crucial role of structured school environments. This underscores the need for effective interventions that encourage regular movement throughout the school day. One promising approach is school-based PA programs, which provide structured opportunities for students to engage in PA. Jarnig et al. (2023) demonstrated that implementing daily PA interventions in primary schools significantly enhances children's cardiorespiratory endurance, muscle strength, and flexibility. Recognizing the importance of early intervention, researchers emphasize that structured PA programs should begin as early as preschool to ensure long-term engagement. Higher levels of vigorous physical activity (VPA) in preschool age support the development of healthy body composition and aerobic fitness later in childhood (Sigmund et al., 2007). Li et al. (2023) provide further evidence that school-based PA interventions positively influence academic performance, particularly in mathematics and reading, reinforcing the necessity of integrating PA within school curricula. Costa et al. (2024) further emphasize that multi-component school-based PA programs, including structured exercise sessions and active learning approaches, significantly enhance not only

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students' physical fitness but also their motivation and engagement in daily movement activities. Contardo Ayala et al. (2024) expand on this by demonstrating that well-structured PA interventions lead to sustained behavioral changes, helping students maintain an active lifestyle beyond school settings.

Recognizing the importance of PA in childhood development, many countries have incorporated PA into their national education policies as a preventive approach to declining activity levels. In the Czech Republic, PA is an integral part of the national education system, with PE being a compulsory subject in both primary and secondary schools (Gába et al., 2022). On average, students attend two PE lessons per week, with some schools incorporating additional movement breaks or extracurricular sports activities. The national curriculum emphasizes a holistic approach, promoting not only sports skills but also general motor development, health education, and the importance of an active lifestyle (Kovář et al., 2023). However, despite these structured efforts, differences in PA engagement persist across socio-economic groups and genders, requiring further attention to equity in school-based PA opportunities. Research indicates that boys generally engage in more structured PA activities than girls, with boys more frequently meeting MVPA recommendations (14.6%–40.5%) compared to girls (7.5%–25.2%) (Kantanista et al., 2021). Additionally, disparities in PA participation are also evident across socio-economic groups, with children from lower socioeconomic status backgrounds exhibiting lower overall PA levels and higher obesity prevalence compared to their higher socioeconomic status peers (Richard et al., 2023). Li et al. (2023) further highlight that structured PA initiatives should be adapted to address disparities in participation, as engagement levels may vary based on student demographics, school policies, and available resources. Various national initiatives, such as the "Active school" program (Kovář et al., 2023), have been introduced to encourage more physical movement throughout the school day. Nevertheless, research suggests that existing policies may not fully counteract the rise in sedentary behaviors, particularly among older students, stressing the need for continuous policy revisions. Reis et al. (2024) emphasize that without consistent reinforcement and policy adjustments, many school-based PA initiatives fail to achieve long-term behavioral changes in students, emphasizing the necessity of a sustained commitment at the institutional level. This underscores the necessity of sustained efforts in PA policy adaptations and intervention strategies to ensure that PA remains a priority throughout childhood and adolescence.

Beyond physical health, PA has significant implications for cognitive and academic outcomes. Sufficient PA positively impacts mental health and the educational process, enhancing various dimensions of school engagement, including behavior (e.g., time-on-task), emotions (e.g., lesson enjoyment), cognition (e.g., self-regulated learning, executive function), and academic performance (e.g., grades, test scores) (Singh et al., 2012; Van Dijk et al., 2014). Some authors question the direct link between PA and academic achievements. Taras (2005) notes that PA improves short-term concentration but has limited long-term academic benefits. While certain studies suggest a strong connection between PA and academic performance, others indicate only minor improvements in cognitive outcomes. Li et al. (2023) provide additional insights, emphasizing that the extent of PA's impact on academic outcomes depends on its frequency, duration, and integration within school curricula. Their meta-analysis highlights that PA interventions with consistent implementation and adequate support from educators yield the most substantial academic benefits. Observation measures show a strong positive association with school engagement, while subjective measures show a smaller positive association. Overall, PA has a small positive impact on school engagement but no effect on disengagement (Trudeau & Shephard, 2008). Moreover, regular physical activity has been associated with improved mental health outcomes in children, including reductions in anxiety and depression, as well as enhancements in self-esteem and cognitive function (Hale et al., 2023; Rodriguez-Ayllon et al., 2019). This discrepancy may stem from variations in PA intensity, duration, and its integration within the school curriculum, highlighting the need for more standardized approaches. Nonetheless, PA is positively linked with school engagement, as physically active pupils exhibit better classroom focus and reduced off-task behavior (Watson et al., 2017).

Given the complexity of PA's effects, further examination of environmental and social determinants is necessary to understand and optimize intervention strategies. The Report Card on Physical Activity for Children and Youth in the Czech Republic highlights that a notable percentage of Czech children and

adolescents fail to meet PA guidelines and exhibit high levels of sedentary behavior (Gába et al., 2022). Effective improvements in PA require understanding the factors that influence it. Hu et al. (2021) identified support from friends, parents, teachers, and the availability of facilities and safe environments as key predictors.

Among these determinants, family and school environments play a crucial role in shaping PA habits. Family and parental influence on children's PA presents a mixed picture. Petersen (2020) highlights the impact of parental behavior, while Trost and Loprinzi (2011), Bauman et al. (2012), and a meta-analysis by Pugliese and Tinsley (2007) found no correlation. Yao and Rhodes (2015) identified a moderate effect. The impact of family on a child's PA changes with age, with parental support playing a key role in preschool age but decreasing as peer influence increases. Overall, parents' support is related to the level of PA and the perception of this support by children (Pugliese & Tinsley, 2007; Wilk et al., 2018; Yao & Rhodes, 2015).

Environmental predictors such as school opportunities, access to PA facilities, and weather influence children's time spent on PA and the types of activities they engage in (Tay et al., 2021). Studies consistently show a positive correlation between children's outdoor time and overall PA (Ferreira et al., 2007; Sterdt et al., 2014; Vanderloo et al., 2013). By fostering a supportive school environment with sufficient PA opportunities, educators and policymakers can play a key role in mitigating the decline in PA levels seen during adolescence.

Schools play a crucial role in shaping children's PA habits, as their daily structure significantly influences activity levels. The organization of the school day significantly impacts PA levels. Children in activity-permissive school environments exhibit higher levels of movement compared to those in traditional settings (Culková et al., 2020; Lanningham-Foster et al., 2008.). The availability and use of sports facilities and equipment during school hours, such as game equipment during recess, enhance children's MVPA levels (Lanningham-Foster et al., 2008; Sterdt et al., 2014; Verstraete et al., 2006). Increasing PA time at school through additional PE lessons positively affects children's body mass (Ługowska et al., 2022; Reisberg et al., 2020). Allocating up to an additional hour per day for PA programs does not negatively impact academic performance, despite reducing time for other subjects (Hatfield & Chomitz, 2015; Singh et al., 2012). By fostering a supportive environment that encourages regular movement, schools can help mitigate the decline in PA levels observed in later childhood and adolescence, reinforcing the long-term benefits of school-based PA interventions. Creating opportunities for PA within and outside of lessons, providing access to adequate facilities, and incorporating movement-based learning strategies are essential components of a comprehensive approach to promoting PA among pupils.

In the Czech Republic, notable changes in children's PA levels occur after transitioning from preschool to primary school, a period that requires targeted intervention strategies (Sigmund et al., 2009). School-aged children tend to be more active on school days, whereas preschool children reach their highest activity levels on weekdays (Brazendale et al., 2021; Roscoe et al., 2019). Duncan et al. (2007) found that children engage in more PA on weekdays than on weekends, with lunchtime serving as a crucial source of daily PA. This suggests limited support for PA during school hours, except for lunchtime, highlighting the need for structured PA integration throughout the school day. Other studies highlight that preschool children generally exhibit higher PA levels than adolescents and young adults (Sigmund et al., 2007). As children get older, their natural need for movement decreases, so they need more support to maintain their PA levels (Martin et al., 2014; Vale et al., 2010).

A document by the Czech School Inspectorate titled "Active School" (Kovář et al., 2023) provides methodological recommendations divided into four pillars to support PA in schools: quality of PE lessons, non-formal learning opportunities, regular sports events, and the physical regime of pupils in the school environment. This study focuses on the fourth pillar, presenting examples of good practices and analyzing predictors and factors of pupils' PA at school. The alternative hypothesis is stated as follows: “School environment and conditions have a significant effect on children’s level of physical activity.” The follow-up research question is: “Which factors and practices within the fourth pillar of the "Active School" program most influence the level of physical activity among pupils during the school day?”

Method

Survey Design, Participants, Measures and Procedures

To deliver the goals of the pilot study, quantitative measurement was applied using inSPORTline Strippy digital pedometers and two questionnaire surveys. The total number of the children was 52. The measurement was completed by 43 pupils (21 girls and 22 boys) and the measuring period covered 5 days in October 2022. The measurement took place within school time range from 7:30 AM till 2:00 PM. Pedometers were attached to children's ankles, as per the manufacturer's guidelines.

Three primary schools were selected based on a teacher survey focusing on the conditions for physical activity. Primary schools in the Olomouc region were contacted, and 30 schools out of 104 were randomly selected. These schools received a questionnaire addressed to first-grade teachers through the school management. As part of the questionnaire, they agreed to cooperate in further research, which included a questionnaire survey for parents of first-grade pupils and the measurement of children's activity levels using digital pedometers. Fourteen school representatives completed the questionnaire, and nine agreed to further cooperation. From these nine, three schools were selected based on their varying conditions for the implementation of physical activity during the school day, ensuring a diverse representation of school environments.

All selected school facilities were located in the Olomouc region of the Czech Republic, in areas with similar geographical and urban characteristics. The questionnaire was self-constructed, focusing on both passive and active school conditions for PA as outlined in the fourth pillar of the document "Active School"(Kovář et al., 2023). Among the passive conditions, the questionnaire examined school size, number of floors, sports facilities and equipment, their availability to pupils, and the duration of the long recess. Regarding active conditions, we investigated the frequency of lessons conducted outside the school building, the integration of movement-based learning, and the organization of physically active breaks. Based on the questionnaire results, three public primary schools with varying PA conditions were selected. The specific differences between these schools are presented in Table 1.

A second self-constructed questionnaire was distributed to the parents of the children and aimed to assess the family's lifestyle, the pupil's exercise habits, and personal characteristics potentially linked to the pupil's PA. The questionnaire items were developed based on current research in the field of children's PA and included questions regarding the child's temperament, tendency toward spontaneous PA, leisure-time interests, participation in sports clubs, sports skills, and other regular physical activities. Additionally, it assessed whether the family practiced active transportation to school, engaged in seasonal sports activities, and whether there was a competitive athlete in the family.

The study included 52 first-grade children from the Olomouc region, selected from three primary schools with different conditions for physical activity implementation. The children were first-grade students, typically aged 6 to 7 years old. Regarding socio-economic status (SES), the Olomouc region is a diverse area encompassing both urban and rural communities, ensuring that participants come from a range of socio-economic backgrounds. The schools selected for this study included children from various socio-economic classes, as the region itself reflects a mix of middle-class, working-class, and lower-income households. While no direct SES data were collected, the selected schools represent typical public primary education institutions, which accommodate children from different socio-economic environments. Family characteristics were assessed indirectly through a parent questionnaire, which included items on family lifestyle, physical activity habits, and home environment factors influencing children's PA engagement. This allows for an understanding of parental involvement in PA and potential socio-economic influences.

The following validated questionnaires served as references for constructing survey items: Physical Activity Questionnaire for Children (PAQ-C) (Cuberek et al., 2021) and International Physical Activity Questionnaire (IPAQ) – Short Form (Lee et al., 2011).

Table 1
Structure of the Questionnaires: Number of Items Taken from Validated Questionnaires and Newly Created Ones

Questionnaire	Total items (excluding demographics)	Borrowed items	Newly created items
Teacher Questionnaire	15	6	9
Parent Questionnaire	13	7	6

Examples of questions:

- Borrowed item - Teacher Questionnaire: How often is first-grade teaching conducted outside the school building? (Inspired by PAQ-C)
- Newly created item - Teacher Questionnaire: What types of sports equipment are available at school?
- Borrowed item - Parent Questionnaire: How many hours does your child spend on screens on an average weekday? (Inspired by IPAQ-SF)
- Newly created item - Parent Questionnaire: Does your child take advantage of opportunities for spontaneous movement?

Table 2
Overview of the Factors and Components of the Teacher Questionnaire

Component	Factor	Number of Items	Question Example	Measurement Scale
School size	Passive conditions	4	How many floors does the school where you teach have?	Numerical response (number of floors)
Availability of outdoor and indoor spaces for PA	Passive conditions	1	The school where I teach has access to (garden, courtyard, gym, etc.)	List of options + open response
Length of the long break	Passive conditions	1	How long is the longest break during the school day?	Numerical response (minutes)
Possibility of active break participation	Passive conditions	1	Do first-grade students have the opportunity to spend breaks actively outside the classroom?	4-point Likert scale
Availability of physical activities during breaks	Passive conditions	1	What physical activities can students engage in during breaks?	List of options + open response
Stability of the learning environment (classroom movement)	Passive conditions	1	Do first-grade students stay in the same classroom all day?	Multiple-choice (yes/no, frequency of movement)
Frequency of outdoor lessons	Active conditions	1	How often does first-grade teaching take place outside the school building?	Numerical response (days per week)
Integration of movement breaks into lessons	Active conditions	1	How often do teachers incorporate movement breaks in lessons?	5-point Likert scale
Organization of movement-recreational breaks	Active conditions	1	Do you organize movement-recreational breaks with first-grade students?	Multiple-choice (yes/no)
Utilization of school spaces by students	Student behavior	1	How often do first-grade students use these spaces?	List of options + usage frequency
Most frequent student activities during breaks	Student behavior	1	Select the 3 most common activities first-grade students do during breaks.	List of options + selection of the most frequent

Table 3
Overview of the Factors and Components of the Parent Questionnaire

Component	Factor	Items	Question Example	Measurement Scale
Gender	Respondent factors	1	What is your child's gender?	Multiple-choice (Male/Female/Other)
Age	Respondent factors	1	How old is your child?	Numerical response (years)
Temperament	Respondent factors	2	How would you describe your child's temperament?	4-point Likert scale
Sports skills	Family influence	1	Which sports skills does your child possess at an intermediate level?	Multiple-choice
Extracurricular activities	Family influence	2	Does your child regularly participate in any sports training?	Multiple-choice

Screen time	Family influence	1	How many hours does your child spend on screens on an average weekday? (TV, mobile, tablet, etc.)	Numerical response (hours)
School transport	Family factor	1	What is the most common way your child travels to and from school?	Multiple-choice
Athlete in the family	Family factor	1	Is there an athlete in your family who participates in competitions or matches?	Yes/No
Family activities	Family factor	2	Select the winter activities you regularly engage in with your child (several times per month).	Multiple-choice

Content Validity and Pilot Testing

Content validity was assessed by gathering input from subject matter experts in the relevant field. For content validity, three experts with expertise in educational research, psychology, and physical activity reviewed the questionnaire items in a two-round process. In the first round, they individually assessed the clarity, relevance, and alignment of each item with the research objectives. Based on their feedback, necessary revisions were made. In the second round, the revised questionnaire was re-evaluated by the same experts to ensure that the modifications addressed their concerns and improved the overall validity of the instrument. Following the expert validation process, the questionnaire was pilot-tested on three potential respondents representative of the target population. Their feedback focused on the clarity of instructions, comprehensibility of items, and ease of completion. Minor wording adjustments were made to enhance the user-friendliness of the questionnaire, ensuring that it was well understood by participants.

Furthermore, Principal Component Analysis (PCA) was applied to address multicollinearity issues before performing multiple linear regression. While PCA primarily served as a dimensionality reduction technique, it also provided insight into the underlying structure of the questionnaire variables, helping to confirm their meaningful grouping into principal components. This approach strengthened the interpretability and robustness of the statistical analysis.

Informed consent was obtained from participants at all stages of the research. Consent was provided by school management and parents, while children gave their verbal assent. All research was conducted in accordance with the standards of the Declaration of Helsinki.

Data Cleaning and Statistical Analysis

To analyze the collected data, a publicly accessible statistical software, Jeffrey's Amazing Statistics Program (JASP), version 0.17.3, was used. Multiple linear regression was conducted to identify significant predictors of PA. Prior to implementing the regression model, the data were standardized, and a variance inflation factor (VIF) analysis was performed to detect and address multicollinearity issues among variables. Variables with a VIF value exceeding 10 were considered problematic. As a result of high VIF values, Principal Component Analysis (PCA) was applied to reduce data dimensionality and create principal components that represented the original dataset while eliminating multicollinearity.

After conducting PCA, multiple linear regression was reapplied to identify significant predictors of PA, measured by the number of steps. In this analysis, principal components served as independent variables, while step count functioned as the dependent variable. Additionally, Spearman's correlation coefficient was computed to assess monotonic relationships between variables.

This study analyzes children's PA through advanced statistical modeling, which involves mitigating multicollinearity using PCA and subsequently incorporating principal components into a regression model. This approach provides a more comprehensive understanding of the relationships between the school environment, daily activities, and children's PA.

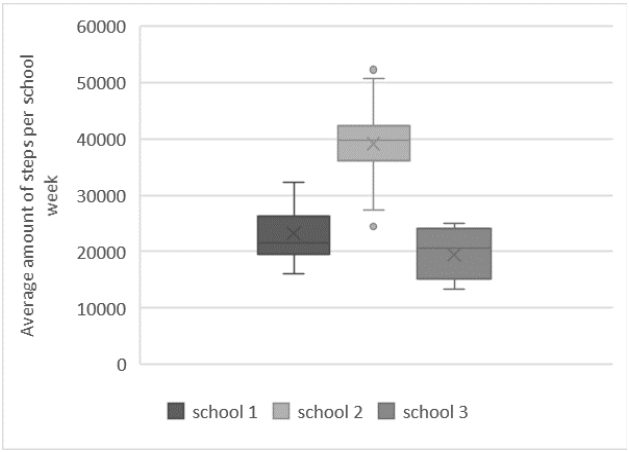
Findings

The specific differences between chosen schools are in Table 4.

Table 4
Passive and Active Conditions for Physical Activity in the Schools Surveyed

	School 1	School 2	School 3
Number of pupils in the school	180	146	90
Gymnasium part of the school	✔	✔	Small gymnasium
Multifunctional sports pitch	✔	✔	×
Garden or park nearby	✔	✔	✔
Outdoor classroom (space for teaching outside the school)	✔	×	×
Change of classrooms during the day	×	✔	×
Possibility to spend recess outside	×	✔	✔
Possibility of free movement along school corridors	✔	✔	✔
Possibility of free movement in a garden/at sports pitch	×	✔	✔
Regular outdoor lessons	once per 2 weeks	twice per week	×
Availability of facilities and equipment for PA	×	✔	×
Organised physical recreation breaks	×	✔	×
Learning in motion or physical exercise moments during lessons	✔	✔	×
Duration of the "long" break	15 minutes	20 minutes	15 minutes
Toilets available on another floor of the school	×	✔	×

Figure 1
Differences in the Number of Steps Between the Respective Primary Schools



To evaluate the alternative hypothesis H2: "The school environment and conditions significantly affect children's level of physical activity," PCA was applied to analyze the effects of key variables. PCA was conducted on standardized variables to generate principal components, which were then used as independent variables in the regression model. The analysis identified four principal components that together explained approximately 98% of the total variability in the data. The first principal component alone accounted for 61.34% of the variability and was found to have the strongest contributions from variables related to active breaks (0.45), equipment uses during breaks (0.45), classroom transitions (0.45), outdoor breaks (0.45), and overall passive school conditions (0.421).

The primary purpose of PCA was to address multicollinearity issues before conducting multiple linear regression. Additionally, PCA provided insight into the underlying structure of questionnaire variables, confirming their meaningful grouping into principal components. PCA was chosen over Partial Least Squares (PLS) regression because the goal was to reduce data dimensionality rather than to build a predictive model with highly correlated variables. Unlike PLS, PCA creates uncorrelated principal components, making it a more suitable technique for subsequent regression analysis. After applying PCA, multiple linear regression was performed to identify significant predictors of PA, represented by the number of steps (Table 5).

Table 5
Multiple Linear Regression Analysis of Factors Affecting Children's Physical Activity

Factor	Coefficient(β)	Std. error	T-value	P-value	Significance
Active breaks	**341.30**	119.24	**2.862**	**0.008**	**Yes**
Facilities availability during breaks	**467.72**	189.46	**2.469**	**0.020**	**Yes**
Classroom size	**556.18**	210.41	**2.643**	**0.014**	**Yes**
Temperament	**6801.08**	1571.56	**4.328**	**<0.001**	**Yes**
Family lifestyle	241.25	634.52	0.380	0.706	No
Athlete in family	3592.21	2513.09	1.429	0.161	No

The dependent variable in this analysis is the step count. The regression coefficients (β) indicate the change in step count resulting from a one-unit change in the predictor variable, while holding all other variables constant. The interpretation of data analyzed by the Multiple Linear Regression Analysis is as follows.

Passive Conditions: structural aspects of schools, such as the number of floors and class size, were found to have a positive and statistically significant impact on PA. This suggests that schools with more floors and larger class sizes provide greater opportunities for pupils to move throughout the school day.

Active Conditions: Organized active recess and outdoor learning opportunities were positively correlated with higher step counts. This result suggests that school programs and policies promoting active recess and outdoor learning can make a substantial contribution to increasing children's PA.

The Role of Child Temperament: The analysis revealed that in addition to the school environment, a child's temperament plays a significant role in their PA. Children who exhibit higher levels of extroversion or a stronger tendency toward spontaneous activity showed increased step counts, highlighting the importance of considering individual differences when designing interventions aimed at enhancing PA.

Influence of Family Lifestyle: The analysis did not identify a significant direct relationship between family lifestyle and children's PA, suggesting that the home environment influences may be mediated by other factors or that the school environment exerts a more dominant influence on children's PA during the school day.

Comprehensive Analysis: Integrating the results from the regression analysis with findings from the Spearman correlation coefficient calculation provides a more holistic perspective on the factors influencing PA. While the regression analysis quantifies the impact of individual factors, the Spearman coefficient complements this by indicating the strength and direction of monotonic relationships between variables.

Correlations between PA and School Environment Factors shows Table 6.

Table 6
Spearman's Correlations of Passive and Active School Conditions and Step Counts

Variable	Steps	Variable	Steps
School corridor size	0.50***	Distance to toilets	0.05
Number of floors	0.77***	Long break duration	-0.28
Changes of classroom	0.76***	Breaks outdoor	0.76***
Classroom size	0.77***	Facilities availability during breaks	0.56***
Usage of sports equipment	0.76***	Sports facilities existence	0.50***
Active conditions	0.56***	Active breaks	0.76***
Learning outdoor	0.56***	Playing pe games during breaks	0.56***

$p < .05$, ** $p < .01$, *** $p < .001$

To address the research question "Which factors and practices within the fourth pillar of the "Active School" program most influence the level of physical activity among pupils during the school day?" we conclude that the most influential factor affecting children's PA is the passive conditions of the school environment, particularly school size and access to sports facilities, which were statistically significantly correlated with higher PA in children, as evidenced by Spearman's correlation coefficient of 0.77. Closely

following this are active conditions, including organized PA breaks and outdoor learning, both of which also positively influence children's PA. This finding underscores the crucial role of the school environment and its structural elements in supporting children's PA during the school day. Based on the results we fail to reject the alternative hypothesis: "The school environment and conditions significantly affect children's level of physical activity."

Discussion

The findings of this study underscore the significant impact of school environment and educational practices on pupils' PA during the school day. The results indicate that both passive and active conditions within the school environment play a crucial role in determining the level of PA among pupils. Specifically, schools that provide opportunities for movement through structural features and organized activities demonstrate higher levels of student PA, as evidenced by step counts.

Structural aspects of schools, such as the number of floors and classroom size, were found to have a positive and statistically significant effect on PA. This aligns with previous research suggesting that larger and more complex school layouts encourage more movement among pupils (Gibson et al., 2008). The positive correlation between the number of floors and step counts (0.77) suggests that schools with more floors provide more opportunities for incidental PA as pupils move between classes. However, some studies indicate that while school infrastructure plays a role, other factors such as school policies and teacher-led movement initiatives may also significantly impact PA levels (Poitras et al., 2016; Sterdt et al., 2014). This suggests that a holistic approach, integrating both structural and programmatic interventions, is necessary to maximize PA levels among students. Moreover, studies such as Poitras et al. (2016) and Verstraete et al. (2006) emphasize that school-based interventions should not only focus on providing movement opportunities but also consider the overall educational setting, including how PA is embedded into the curriculum and supported by school culture. Additionally, Rodrigo-Sanjoaquin et al. (2022) highlight that schools incorporating movement-based learning strategies show significant improvements not only in PA levels but also in academic performance and student engagement, suggesting that PA interventions can have broader educational benefits.

The availability of facilities for PA during breaks also showed a significant positive impact on PA levels. Schools with accessible sports equipment and designated areas for physical activities during recess were associated with higher step counts. This finding is supported by studies that highlight the importance of providing adequate resources and infrastructure to promote PA in school settings (Lanningham-Foster et al., 2008; Poitras et al., 2016; Sterdt et al., 2014; Verstraete et al., 2006). However, Sterdt et al. (2014) also suggest that simply providing facilities is not enough; active supervision and engagement strategies are necessary to maximize their impact on PA levels. Additionally, Lanningham-Foster et al. (2008) indicate that movement-friendly environments, when combined with teacher encouragement and structured PA programs, yield the most significant increases in daily step counts.

Organized active breaks and outdoor learning opportunities were strongly associated with increased PA levels. The significant coefficients for active breaks ($\beta = 341.30$, $p = 0.008$) and facilities availability during breaks ($\beta = 467.72$, $p = 0.020$) indicate that these strategies effectively increase student PA. These results align with previous research showing that structured school-based PA interventions lead to higher MVPA levels and reduced sedentary behavior (Poitras et al., 2016; Verstraete et al., 2006). Similar to Verstraete et al. (2006), who found that implementing structured PA during school hours contributed to increased PA levels, our study highlights the role of structured school activities in shaping daily movement behaviors. Moreover, the observed correlation between PA and outdoor learning supports findings by Culková et al. (2020), who reported that children in activity-permissive schools exhibit significantly higher movement levels than those in traditional school environments. Furthermore, Reisberg et al. (2020) emphasized that frequent structured PA breaks within the school setting promote both engagement and overall PA levels, reinforcing the importance of integrating PA into daily academic routines. Additionally, Sterdt et al. (2014) suggest that while structured PA opportunities in schools play a key role in promoting movement behaviors, their effectiveness depends on contextual factors such as teacher facilitation, school-

wide policies, and student motivation. This highlights the necessity of a multi-layered approach in PA interventions, ensuring that environmental, social, and educational factors align to support children's movement engagement.

To provide more specific examples based on the schools surveyed, we see that in many aspects of its conditions, primary school 2 differed from the other two schools, specifically in the following nuances: the pupils can spend their breaks outside; outdoor learning takes place twice per week; there are organized physical recreation breaks (playing PE games); pupils have access to sports equipment (for breaks and lunch break); exercise moments are included in lessons, the school practices so-called learning in motion; the so-called "long" break is 20 minutes and the pupils have to walk to another floor to use toilets. This observed school meets the requirements in accordance with other research results (Culková et al., 2020; Lanningham-Foster et al., 2008) pointing out that children from schools with activity-permissive school environment with high level of supervision and improvements move significantly more compared to the amount that they move in the traditional school environments (Sallis, 2000). Similarly, Poitras et al. (2016) (2016) and Sterdt et al. (2014) indicate that the effectiveness of PA-supportive school environments is often determined by the consistency of implementation and whether movement is perceived as a natural part of the school culture rather than an isolated initiative.

The study also highlighted the role of individual differences, such as a child's temperament, in influencing PA levels. Children with higher levels of extroversion or a greater tendency towards spontaneous activity showed higher step counts ($\beta = 6801.08$, $p < 0.001$). This underscores the need to consider individual characteristics when designing PA interventions. These findings align with previous studies that emphasize the role of personality traits in PA engagement, highlighting that extroverted children may be more inclined to participate in group-based PA, whereas more introverted children may require alternative strategies to encourage movement (Sigmund et al., 2007). Furthermore, Culková et al. (2020) - found that children in environments with flexible and child-centered PA policies were more likely to engage in spontaneous movement, reinforcing the importance of tailoring interventions to different personality types. Rodrigo-Sanjoaquin et al. (2022) also report that individualized PA strategies tailored to student personality and motivation levels can enhance both PA engagement and long-term adherence to active lifestyles.

The importance of school-based PA strategies is undeniable, but the role of family remains debated. Our findings indicate that while family lifestyle may not directly affect PA levels during school hours, it significantly influences children's engagement in PA outside of school (Bauman et al., 2012; Pugliese & Tinsley, 2007). Petersen et al. (2020) further emphasize that children in highly active families are more likely to engage in PA outside structured settings.

Additionally, successful PA implementation in schools depends on teacher awareness and institutional support. Many teachers lack formal training on incorporating PA into daily lessons (Dinkel et al., 2017), and while they generally express positive attitudes toward PA in classrooms, time constraints and competing academic demands present obstacles (McMullen et al., 2014). Programs such as 'PaV' (Havel et al., 2016) and 'Active School' (Kovář et al., 2023), aim to address these barriers, but long-term effectiveness depends on sustained institutional backing (Hatfield & Chomitz, 2015). Without continuous policy reinforcement and teacher engagement, PA initiatives may struggle to achieve lasting impact.

The results of this study highlight the importance of school-based interventions in promoting PA. Schools that implement structured PA programs, provide adequate facilities, and create an environment that encourages movement can significantly enhance pupils' PA levels. However, as emphasized by Verstraete et al. (2006) and Poitras et al. (2016), the sustainability of such programs is highly dependent on long-term institutional support and integration into daily school practices. Without continuous reinforcement from school policies and staff engagement, the effectiveness of PA interventions may decline over time.

Limitations and Future Research

We acknowledge that due to the small sample size the generalizability of the results is not possible. The selection of 52 children was influenced by limited resources and the study's focus on a particular educational setting. This smaller sample allowed for more detailed follow-up of each participant. Another limitation was our access to questionnaires. As the questionnaires were designed for the purposes of this study, it is possible that they contained social desirability bias. Although we tried to ensure the relevance and clarity of the questionnaires, future studies could benefit from using already validated questionnaires or conducting pilot testing for newly developed instruments. Another limitation is the geographical location of the research, which may affect the transferability of the results to other areas. Additionally, the study relied on self-reported measures of PA, which may be subject to reporting bias. Future research should consider larger sample sizes and objective measures of PA to validate these findings.

Conclusion

This study confirms that school structural features, such as the number of floors and class size, directly impact children's physical activity (PA). More floors and larger class sizes create natural movement opportunities throughout the school day. Organized active breaks and outdoor learning are among the most effective strategies for boosting PA levels, with schools implementing these measures seeing significantly higher pupil step counts. Temperament also plays a crucial role—extroverted and naturally active children engage more in PA, underscoring the need for tailored interventions that cater to different personality types. The absence of a direct link between family lifestyle and PA during school hours reinforces the dominant role of the school environment in shaping children's activity levels. Initiatives like 'Active Schools' prove highly effective in fostering movement-friendly environments, emphasizing the importance of deliberate, well-structured PA programs in schools. To maximize the benefits, schools must prioritize systematic PA integration, ensuring long-term improvements in children's health and well-being.

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Critical reflections on care and dyadic relationships in a toddler group

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Abstract: Authors explore role and status of care in a toddler classroom and ways dyadic relationships between children and their educator mirror care processes. Specifically, they investigated the care, and the characteristics of the dyadic relationships established by the educators with the children, with the aim to understand the values of care being played out in the practices that sustained them and their role in the development of the children's emancipation, here understood as the process of growing in autonomy and power over their lives. The case study was conducted in a class of children aged two to three years old. Class was part of a nursery school located in the Greek municipality of Ioannina. Data was collected through non-participant observation, using field notes. Results have revealed that care experiences offered by early childhood educators to toddlers represent important contexts for children´s early affective and autonomy development. Educators become a figure of subsidiary secure attachment, particularly during stressful situations and these care experiences. The dyads established between the child and the educator in care situations strengthen safe attachments if the adult respects the children´s bodies, rhythms, necessities, and interests. These safe relationships benefit all children, including those who experience social problems at home. Children could develop negative expectations and fear about interpersonal relationships and conflictive behaviors of all kinds if established relationships with them are hostile. Results indicate that secure attachments are formed only when educators empower children. In that sense, results highlight that education and care are strongly interrelated.

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Care; Dyadic relationships; Emancipation; Attachments

Introduction

One of the thorny issues that surrounds early childhood education and care (hereafter referred to as ECEC) is that of the conceptual and structural dichotomy between care and education (Vandenbroeck, 2006). Specifically, although ECEC has a legitimate aspiration to be a "caring profession" and even though neurobiological research has provided scientific evidence of the importance of care, traditional interpretations maintain a lower status of care. Care is viewed as custodial in nature and linked to welfare and it is defined as meeting children's physical needs. Also, from a traditional perspective supported by patriarchy, tasks linked to care are considered simple and easy to carry out, closely connected to the work of women and motherhood.

On the contrary, contemporary research suggests that during care children are active subjects that meet adults and jointly develop empathy and relational competencies, and that care fulfils not merely physical needs but also spiritual or psychological needs (Lindgren, 2001 cited in Löfgren, 2016). According to Cameron (2004, p. 144) "pedagogic care is about meeting everyday needs for health, education, relationships, intimacy and understanding through a variety of means".

Acknowledging the importance of caring moments and practices in ECEC, the present study aimed at exploring the role and status of care and the weight of dyadic relationships on care in a toddler classroom with children aged two and three years old. The overall objective of the study was to explore the values of

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care being played out in the practices that sustained them and their role in the development of children's emancipation, understood as the process of gaining autonomy and power over their lives. To do this, we carried out observations over the course of one month in a nursery school. We focused on classroom activities, food events, toilet and nappy change situations, and the playground. We asked ourselves about the relationships that the educators established with the children and how they were able to combine individualized attention with shared attention. We were interested in discovering the educators' strategies to build and strengthen secure attachments with children.

Our article collects, on the one hand, a theoretical foundation based on relevant work that has been conducted around care and the establishment of secure attachments by children with for them significant adults, among whom are educators. On the other hand, its purpose is to offer some relevant categories that could contribute to shedding light on the characteristics of learning environments capable of promoting the construction of secure attachments in nursery schools, both within the framework of individual and collective relationships established with children.

Value and Meaning of Caring

Caring is a specific activity that includes everything we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible. The world includes our bodies, ourselves, and our environment, all of which we seek to weave into a complex web that sustains life. Care responds to a social commitment to the common good and is thus a consequence of human interdependence (Tronto, 2010). Care, therefore, is an issue for all human beings and affects our life. Thus, care must be understood as something inherent to the socio-political context of democratic citizenship that engages all human beings (Tronto, 1993; Sevenhuijsen, 1998). According to Tronto (2017), care theory offers a more complete picture of human life because it places relationships and their completion as a central issue in our world. The democratic revolution, he argues, will be incomplete if it does not include everyone in the debates about the allocation of care responsibilities in society, which, of course, goes beyond human beings.

Although care is closely linked to parenthood, as parents play a fundamental role in their children's upbringing, care is an important element and practice that takes place in other systems in which children participate. The preschool program is one fundamental system in which children participate and interact with other human beings. Care between and among the players in the system (that is educators, children themselves, parents, and other actors in the community) influences children's emancipation, understood as the process of developing autonomy and power over their lives.

Despite the importance of care, in recent years we have witnessed a separation of care from school life and the triumph of an academization in the content of ECEC itself. This academization separates children from their educators and from their families, favoring little or no participation of the latter in school, creating a favorable territory for disagreements and confrontations. The 'need' to devalue and exclude care from the ECEC discourse is evident not only to the practice and the policies across countries (Rentzou, 2017; 2020), but also to the discourse used by the ECEC professionals, themselves. Expressions such as: "we are not babysitters", "we are not here to look after children" or "we are not a nursery" give much food for thought about the role that these professionals attribute to care in their work of educating.

This type of discourse reappeared with force in times of pandemic. The fear of becoming infected tinged human approaches and relationships. Not touching, or doing so very cautiously and under certain conditions, together with the dubious guarantees of the school environment's healthiness in the face of the coronavirus (Collins, 2020) increased animosity towards care. Thus, insufficient care is prolonged and strengthened when such perceptions of the pandemic continue to circulate.

In the case of older children (kindergarten), ECEC is inhabited by teachers with conflicting positions on care (Rentzou, 2017; Sánchez Blanco, 2009; 2019). There are some who refuse to provide certain bodily care to bodily functions related to the hygiene and feeding of children. Some organizations such as the teaching unions could support these kinds of teaching decisions about neglect body care in countries such as Spain and Greece. These teaching considerations should be criticized, questioned, and stopped by

education administration because it is helping to legitimize neglect and, especially if this discourse is supported in teachers' meetings where decisions about practices are taken. Also, this situation adds pressure for families as children's independence is considered very important to start kindergarten. It is mainly manifested in insistently supporting the child's ability to manage hygiene using the bathroom and washing hands (Jose et al., 2022). Families spend a lot of time training their children on managing toilet, but it is not a guarantee of getting it and however could produce insecurity which is an obstacle for the develop of emancipatory processes.

Such a context adds pressure on the youngest children to acquire early autonomy in certain bodily self-care before they move from nursery school to kindergarten. In this context, educators work intensively in nursery school to accelerate learning about autonomy in bodily functions, which often clashes with the children's developmental characteristics. That scenery gives way to the demand for speed in these physiological learning processes, which oppresses many children, provoking strong childhood insecurities that alter their development at all levels. Only children diagnosed with special educational needs are lucky when they have specific caregivers who attend to their bodily needs. The loving and respectful bodily treatment that all children should receive in such circumstances, if not provided, is capable of provoking disaffection in children and families themselves. Accelerating control of bodily functions such as urination and defecation is a powerful source of stress that leaves all kinds of marks on children (Siegel, 2020).

The civilizing power of body care (Elias, 2000) started to be studied several decades ago. These studies revealed harsh control and repression that educators' practices could produce over children's bodies (biopower), in institutions such as schools (Foucault, 1980; Cisney & Morar, 2015). Tobin's research (2014) illuminates us about how culture and repression can take control over teaching practices in childcare situations across the world.

Besides, academic life being imposed over care is disastrous (Aslanian, 2015), as it leads to the disembodiment of education, "with the body being subordinate to the mind" (Van Laere & Vandenbroeck, 2016). If educators relegate childcare practices exclusively to the home, to the private sphere, and academize preschool programs, they distance themselves from the possibility of establishing a shared responsibility for care (Van Laere et al., 2018), that is so essential to nurture our condition as human beings.

Care and Education

Care is an inseparable part of education and, moreover, when we value care, we are valuing the role of women who did so much to protect life (Braidotti, 2021). However, the productive public-school sector dedicated to ECEC has come to proclaim itself to be of high quality by presenting education and care as distinct, yet necessary. As such, in most European countries with a liberal market economy the split system is adopted and the dichotomy is evident (Rentzou, 2017) at many levels (administrative, preschool programs, ECEC curricula and educational/pedagogical approaches, early childhood educators' preparation). The claim that early education should incorporate both education and care is a split in itself. It is a contradiction because there is no education without care and there is no care without education. This split between care and education (Sims, 2014; Taggart, 2011) has been used to facilitate the promotion of schools in the education market (Gibbons, 2020). Yet, as already stated, care is inherent to teaching practices that are addressed to young children. Educators, teachers, have a moral responsibility to care for their pupils, to build relationships that foster reciprocity and mutual respect (Mahfouz et al., 2024).

To understand the importance of ECEC and the central role of care within ECEC theory and practice, it is important to inform our nomenclature (Rentzou, 2020; Sánchez Blanco, 2019) and move beyond traditional interpretations. Care is far from defending discourses of childhoods as utterly vulnerable and passive. On the other hand, it questions teaching practices based on the surrogate mother model that only insist on historical reminiscences, considering teaching work with young children as an extension of motherhood. The school, from the earliest ages, must educate to care and care to educate, but not to replace families, but to build with them democratic environments, true learning communities (Dewey, 1944). To insist on replacing mothers, fathers, relatives, who care for the child, breaks the emancipating project of the subjects.

In the education of children, all roles are important, whether they are directly part of the school, or part of the family or the local neighbourhood. At school, children are educated by being cared in community and based on democratic practices. All this makes it possible for the subjects to build an awareness of themselves as subjects with rights, learning to demand and claim their fulfilment (Taggart, 2016), in connection with the world around them and further away, without losing sight of the fact that care must go beyond human beings. Life thrives, Lovelock (2020) and Mancuso (2020) argue, in an interrelated way; after all living being are related (Haraway, 2016).

Care is not a matter of two, but of more subjects, even if in the first months, we recall, again, the mother-baby dyad as a model of relationship is extraordinarily valuable, important, and decisive for both parties. However, as the children lead a collective life at school, it is necessary that this dyad must be transcended by other forms of care (Aslanian & Moxnes, 2020). These forms are closely related to a collective and cooperative, democratic, happening, where the child is an active part of a learning community. Care must involve not only educators, all school staff, and families, but also all citizens, starting with the neighborhood and the locality where the school is located.

Care as part of education weaves a whole network linking the people closest to the child and those furthest away from him/her. They all contribute to the development of the child's emancipatory project as a human being. However, at specific, intimate moments, the child requires dyads; for example, in intimate bodily care that requires close contact between the educator and the child. Bathing, changing nappies, feeding, sleeping, may represent some examples of the earliest ages, to which Pikler (2007), among other researchers with psychoanalytical roots, referred to years ago.

Even in a dyad, if we analyze the relationship in depth, we will realize that care goes beyond the mother; also, the sibling, or the father, the grandfather or grandmother, the uncle or aunt who get involved, to give a few examples, have a transcendental role: they support the mother in her actions of caring for the baby. Dyad as an exclusive aspiration to reproduce the exclusive prototype of care in schools should be questioned. Relationships must move towards models of relationships with children based on shared responsibilities and commitments where the whole community is involved in the care of children (Nodding, 2013). The care of children should not be the exclusive patrimony of the family, the school, paediatricians, etc. Everyone, citizens in general, must take responsibility for their care, beyond the family, because at the end of the day, we are all part of the great human family.

The relationships established in direct care involve intimacy, closeness, concern, as well as ethical acts of empathy and compassion, as Cekaite and Bergnehr (2018), and Brenne and Åmot, I (2024) point out, where verbal and non-verbal communication plays a very important role. However, moral panics (Tobin, 1997) and the media that whip them up in this regard represent a major obstacle to bodily contact with children in care situations. The fact that no-touch policies are being implemented in schools and administrations is disastrous. Touch affectionately and respectfully children´s body has a crucial role for infant learning experiences about love and life (Odent, 2012). There is no shortage of studies that support the importance of relational care and bodily closeness being embedded in settings for the benefits they bring to children (Goodwin, 2017), contrary to ideas that link professionalism with emotional distance, lack of physical contact and the predominance of purely didactic encounters (Cekaite & Bergnehr, 2018). Byung-Chul Han (2024) argues that poverty of contact makes us sick, to the extent that if we lack contact, we become irretrievably trapped in our ego.

Method

The present research study is based in a critical paradigm, using ethnography and qualitative research methods. Ethnography is a particularly useful method for the study of childhood since it allows the researcher to observe life as it happens and to consider children's voice in the production of research data.

Participants and Methodological Issues

Our observations took place in a childcare center. It enrolls children aged from 6 months to 4 years of age and operates from 7:00 to 16:00. It enrolls children of typical development and also children with disabilities and special educational needs. Our case study took place in one toddler classroom of a Greek nursery school in the municipality of Ioannina. 15 two- and three-year-old children were enrolled in the classroom. Two university graduate educators worked in this specific class. Occasionally, undergraduate students, who are involved in their teaching practicums, were visiting the class.

Method and Process Followed in the Study

Children arrive at the center between 7:00 and 9:00 am. After their breakfast, children participate in different adult-led and child-led activities, from 9:30 to 12:00. After the circle time, during which children are signing, are saying good morning and discuss with their educators about the selected topic, children are playing freely in the learning centers that exist in the classroom, in small groups. While children are playing freely, educators call dyads of children to perform activities (e.g., hands and crafts). From 11:00 to 11:45 children engage either in kinetic activities or in free play inside the classroom or in the yard, depending on the weather. From 12:00 to 12:45 children are having lunch. After lunch, educators are reading fairy tales to children. Departure time starts from 13:00. Children who depart later can play freely.

Data was collected using field notes (Goetz & Lecompte, 1993). Only one of the researchers stayed in the classroom. The non-participatory observation process which lasted one month took place from chairs located in a fixed space within the classroom, as agreed with the educators of the class. Researchers only have permission to attend one children´s classroom and write about it. Parents did not want the researcher to take photos or records videos. The purpose of the study was to take the natural state of events undisturbed by the researcher (Clark et al., 2017; Hammersley, 2019). Only interactions with children happened if they took the initiative and asked or demanded something (for example, if they give water to the researcher in a pretended play, or if they give him a hug). If one child took the researcher´s pen, it was interpreted that it was because he/she wanted to stop writing in the diary, and it must be respected.

Classroom life was always respected. Therefore, all researcher´s actions were fully subordinated to the initiatives of children and educators. In the case of the playground site, the location where the researcher was sitting was chosen by the researcher and in line with the patterns of respect for the life of the participants described above.

The acceptance of female researchers in school would be facilitated, in a way, by that collective unconscious constructed from the tradition of ancient Greece itself, configured from philoxenia or love of the stranger - any guest could be a covert god - (Tamás, 2022), it would positively influence our acceptance of the researcher on stage. Likewise, the triangulation process would be possible thanks to the meetings and discussions held with the school management and the dialogic nature of the research (Freire & Faundez, 1989), which favors the exchanges and critical reflections shared by the researchers on the observations made. Head-teachers and educators offered us valuable information about life at school. We had meetings with educators during children´s free play in the school entrance hall, while they were waiting for families came to pick up their sons/daughters. Also, we had meetings with head-teachers during their break-time in the morning. They were very interested in improving teaching practices at their school. They considered that our conversations together about our observations could give them ideas for doing it.

Our observations were carried out during the morning, between 10 a.m. and 2:30 p.m. The periods of time for our work in the nursery school were decided by the head-teachers. Critical reflection about what was happening in the scenario were reviewed with educators and headteachers at the end of our observations whenever they had time and interest for doing it. We never disturbed their work unless they wanted to ask us and have a meeting with us. Therefore, our research was subordinated to head-teachers and educators´ obligations at school. To analyze the results, the researchers carefully reviewed all the field notes written during the observations. Our field notes were reviewed trying to find significant categories

and we found that there were differences between what happened inside or outside of the classroom about the relationships between children and educators. We carried out exchanges and discussions about it and contrasted it with the information obtained in the triangulation process carried out with head-teachers and educators.

Ethical Considerations

Prior to conducting the research an ethical approval from the Ethics Committee of the University of Ioannina was gained. In addition, and after receiving the approval, a consent letter was prepared and sent to the parents of the children who were enrolled in this specific classroom. Parents were informed about the research, the aims of the research and the research processes. Only children whose parents gave consent to participate in the research were observed. The agreement was to maintain anonymity and confidentiality, as well as to record our observations by using exclusively the qualitative research field diary (Denzin & Lincoln, 2005).

As agreed with the families, photographs and audio and image recordings were totally excluded from our records, to always guarantee the anonymity of the participants. In addition, one girl was excluded from our records, because although the family accepted our presence, they did not want written information to be collected from her. The researcher who conducted the observation process in the classroom was sensitive to the children's reactions, stopping the writing of notes when one of them, showing curiosity, interacted with her. It stopped, too, when a child showed signs of discomfort through actions such as picking up their pen or showing anger or displeasure through facial expressions. Children's right to participate, therefore, would be always respected (Clark et al., 2017). Finally, it is relevant to note that the two researchers, who involved in this study, belong to different cultural contexts, so it was necessary to attend to power relations, exercising sound culturally responsive judgements (Xu & Stahl, 2022).

Results

Dyads and Life in Common

In their practices and discourses, educators show deep-rooted conceptions of the child as a very vulnerable person in need of protection and who requires the educators to put themselves in the role of a surrogate mother. Educators take on this role, especially with those children who are in the transition period, as they cry inconsolably often, and they constantly demand educators' attention. The role of the surrogate mother also reappears when any of the children fall and accidentally hit themselves, even if it is very slightly. Overprotection and avoidance of physical harm and frustration very often act as the driving force behind their actions as educators. Our observations allow us to affirm that when these situations arise, educators assume the model of a mother-baby dyad with the child, without considering children's chronological age and the child's relationships with other members of the classroom. During this time, the rest of the people in the classroom, either they are children or adults, are left out of the relationship and the collective activity does not stop. On the contrary, the activity continues to be driven by the other educator and the rest of the children are becoming mere spectators of this dyadic relationship between the educator and the child that hit or is in discomfort: a relationship that is so intimate and so close.

In addition, there are occasions when one of the educators leaves the classroom with the child who experiences discomfort, individually, without the rest of the children or the other educator intervening. Care, in this case, is not visible. It is because the relationship is hidden, it becomes part of the territory imagined by the rest of the children, and the adults who remain in the classroom. There seems to be a tacit agreement between educators not to meddle when one of them is attending to a child in circumstances such as those narrated; or in any other conflictive situation that may arise.

In addition, our observations indicate that children use body language to show to their educator what they need and want. Children's body gestures of outstretched arms or glances directed at one of the educators are extraordinarily powerful in deciding which of them is going to be involved in that dyad, in

that unique and individualized attention. At such times, the rest of the class remains on the sidelines, with no other child deciding to claim attention at the same time. In this way, they respect each other's need for support. Children show us, in this way, that they understand the needs of the other and that they empathize with their peers, an aspect that is very valuable for human development.

The snot spread on the face; the feigned accidents like small falls and blows; the crying and the throwing of some objects are used by these children to capture all the attention and claim the presence of the educator with mother role. Sometimes, children stop to attend the educator to pay attention to the woman who cleans and is sweeping meticulously the floor. The child looks at this woman and she smiles. This withdrawal of the child's attention from the educator makes her react by focusing even more on the child.

The rags, pacifiers and small toys brought from home contribute to calm the child while the real mother-baby dyad is not present, and that dyad symbolically maintained with the educator is not possible. All these objects stick to the children's body as all of them were extensions of it. Pacifiers have chains or ribbons that prevent to get lost, hanging from the child's body. Rags or blankets have a sewn string through which the child passes his hand so that he/she cannot lose this object. This does not happen with personal toys, because when the child lets go of it, it detaches itself from his body. The mother-baby dyad is powerfully maintained through the pacifier and the blanket, but not through the toy that serves to initiate separation from home when it is released and placed on the table or on the floor.

Finally, when the educators decide, in a collaborative way, to take care of the class as a collective, they propose games that break the dyad. Then the right to play emerges as an imperative need of children. If educators get to leave behind the role of mothers, children gain autonomy and control over their games.

Educators also seek to provide community care in the classroom, during collective activities. This search is carried out jointly by both educators and the participation of the undergraduate students if they are present. Sometimes a child decides to sit on the lap of an adult in the class looking for safety. The signs of acceptance of this behavior by all those present are more than evident. It is the needs of the children that condition the pedagogical decisions to move from shared attention to individualized attention based on the mother-baby dyad model.

There is, however, no shortage of children who claim the dyad as a way of relating to the educator in the collective games in the space of the carpet. Thus, if they are sitting, they seek to place themselves between the educator's legs. The educator consents, but that does not stop her introducing and continuing the game she brought to propose to the whole class. Both educators know very well when to leave if one is leading an activity so as not to cause chaos and that the children always know who is leading the way in the collective proposals.

It is common for the children who join later to disconnect from the collective proposals and turn their gaze to the other educator who does not lead the activity. In that case, the child is attended by her using a separate activity invented and directed by the child; or another one invented by educator with the purpose of not making too much noise and not disturbing the educators who are in interaction with the rest of the classroom. In this way, collective activity and mother-baby dyad coexist in unison without disturbing each other. If the child chooses to sit on the lap of the person who leads the activity, he or she must be satisfied with physical contact, because at that moment the educator is involved to attend to the group collectively. Some end up heartbroken because they fail to capture the educator's full attention. When undergraduate students were present, the educators involved them to attend individually to children who needed it.

Classroom life and practices also include time for children to take care of each other. However, these are scarce. Each day, one of them, according to a predetermined shift (order of the list of names), performs functions designed to take care of the others. The care consists of providing them with the water canteens. This happens after eating or when entering the garden. Children's pleasure is great, because it is a very special moment to interact with the classmates and make them happy by offering them something they

need. Taking care of oneself is also practiced in the class by spontaneously using the canteen when they are thirsty or going to the bathroom (those who are not wearing a diaper) when they feel like it. Taking care of oneself in one's own needs and those of others strengthens empathetic relationships in the classroom.

God appears in the discourse as a great caregiver. Every day, children are put in a position to say thank you for the food they are going to receive, minutes before the food arrives. We remember that Greece is an Orthodox state. There are no bibs or napkins, only wet wipes, if the children fill up with food, it stains their clothes, face, or hands. The care of clothes is not important, their effort as educators is focused and destined to take care of the child's body. Thus, if it gets wet or dirty, it is changed without delay, without this being a problem. They also make sure that clothes are tucked between pants or leggings. This is intended to protect the children from colds. Their hair is often stroked and combed, in the case of wearing it long and with bobby pins or pigtails, trying to remove it from the eyes. Bracelets on pupils' wrists are common, and no one seems to be bothered by it, even if it distracts them in the task of washing and drying their hands. Many of them serve as amulets given by family members to protect them.

Outside the Classroom

Children take advantage of the opportunity to go out to the outdoor spaces and perceive new challenges. However, their educators do not break with that culture of absolute overprotection that translates into suffocating care practices, which have nothing to do with care and generate relationships of dependence and domination. Educators experience many fears on the outside and they manifest it, trying to recover dyads with children, especially with the youngest. They feel that a thousand dangers lie in wait for the children, and that outside children can suffer more damage than inside the classroom. On the other hand, they get into the anthills, observe and touch the ants at the risk of being pecked, chase the bumblebees, dip their hands in the earth, even though they are given sticks and tools to avoid it, look for puddles and thistles to test if they puncture and are occupied by the most rugged terrain, as opposed to the areas of rubber soil, to wander and jump.

Educators get stressed when they try to control that life that emerges in fullness in the outdoor spaces and that escapes from the dyadic relationship by entering fully into the relationship with their peers. The fact that families are overprotective does not help the educators to exploit the outdoor environment as much as they would like to do. So, they prefer to populate those less risky spaces and areas with rubber flooring in the playground, organizing activities in them to attract children. By doing so, educators hope that they will desert the riskiest places. The place preferred by them, but not by most of the children, is undoubtedly a circular gazebo with seating around it. Once they manage to gather everyone there, getting them to sit down, they relax and calm down. Bodily control over bodies reaches its fullness on the playground. There, the educators are free from anxieties and shocks.

Hygiene situations happen collectively in other room, outside of the classroom. There are two spaces, which are perfectly divided. The space for changing diapers and the space with the toilets. While in one of the groups there are waits, as the educator must attend to the children individually, in the other space the children take the initiative and are given the freedom to develop autonomously according to their needs. Educators divide the task, so that while one oversees changing diapers, the other oversees those who are autonomous and do not wear diapers. She also takes care of hand washing. The roles are exchanged by the day. During the diaper change, a group of children sit waiting for their turn. Even from the changing table, the educator encourages them to sing a song to liven up the wait.

The educator believes that children cannot tolerate waiting. This perception does not conform to reality, for they themselves can wait to interact with each other. The perception of children as incapable makes educators get involved with both the child who is changing and the group they are expecting. This situation causes a loss of personalized attention to the child being changed. Thus, it loses sight of the fact that the children who wait enjoy watching as it changes. And the child that is lying down while being changed enjoys being turned around and looking at his/her classmates. He/She even makes eye contact with them. One of the games that is done while waiting for the diaper is made using gestures with their

hands. With their hands occupied, children are less likely to use them to explore and manipulate.

In the toilet, there is a group of children who have autonomy for using them. The educator insists on illuminating the situation, on making it visible. The light on makes everyone see each other very well. The naked body, the genitals are not objecting of taboo, even the educator asks a child to take paper to another who is demanding it to clean himself. The naked body in ancient Greece was far from taboos. Here the bathrooms do not have a curtain or door. This allows for a public display of the body without anyone seeming to be bothered. It is also a time that children use to explore themselves and compare themselves bodily, as well as to show off their underwear.

Finally, in this space educators encourage children's autonomy: pulling their clothes up and down or lifting their sleeves or rubbing their hands with soap. Bodily freedom in the toilet far surpasses the freedom granted to children at other times at the classroom or playground, where the majority of activities are directed by educators. Finally, in the bathroom, the children experience freedom to move without the educator´s control. She accompanies them in their actions, facilitating their realization, but giving them power over their actions. However, she always turns on the tap, just as she runs the soap dispenser.

Conclusion and Discussion

A revival of the exclusivist mother-baby dyad model advocated by Bowlby´s studies (2014) and refuted by Ainsworth (Ainsworth & Bowlby, 1973) appear on participant educators´ practices. Especially, it is present, during the time of the playground and spread to any kind of activity outside, producing high self-demands in dyads, high expectations, guilt, self-exploitation, and a lot of stress. It is true that this type of conception about being a mother at nursery school led educators to be excessively controlling of children's behavior, especially with those who were most in need of their care. However, in occasions, the educators who participated in the present study seem to be able to adapt to the knowledge of later studies of attachment relationships in the context of which the educator becomes a secure attachment figure, even when they share their time with a collective of children (Elfer et al., 2012). This happens when they focus on body care activities, such as changing nappies.

Accepting the need for dyad relationships in ECEC at specific times as a child's need is especially important. The presence of two educators as educative couple, facilitates this kind of relationships. However, the dyads maintained over time by educators as a mode of exclusivist relationship disturb the development of the childhoods because the emancipatory process of the children is disrupted. Requiring educators to be mothers of children and take care of them as their family is impossible and counterproductive. Early childhood education is a totally different environment, where children are cared in a context of collective life with other classmates and adults. The challenge is to create an environment where every child is respected on her/his needs and rhythm, in a collective context with several children (Degotardi, 2017). It could be more possible if the ratio in the classrooms is reduced and educational couples of educators work in a cooperative way in the classroom and, in general, during the school life. Likewise, educators would have to respect the affective attachment relationships that children establish with educators. Children choose which educator they bond emotionally with.

Nevertheless, it should be noted that there are contexts, experiences, where dyads must be respected by educators because they favor the encounter, the construction of bonds, of secure attachment that will extend to other human relationships throughout life and where the development of empathy as a capacity is essential. This is the case in situations where children individually demand to be cared for bodily. The situations of food, sleep, hygiene, bodily accidents, pain, illness, among other situations, are excellent examples where these dyads are crucial in the school life of toddler, such as those participating in our research. This means that there are moments in which the child must be attended to in a totally individualized way in his or her bodily needs, using the dyad as a model of relationship. Each child will wait for his or her moment to be attended to, but all of them, in the end, will be able to enjoy this privileged attention to their bodily needs. It is thus a matter of waiting tinged with hope because they have learned to trust their educator and to trust that this respectful, personalized attention will take place.

The need to care and to be cared must become embedded in children's identities, both in girls and boys, and regardless of the family's financial resources. The very outsourcing of care in economically solvent families because it is considered a minor task, does not help in this regard. Offering children experiences in which they are being cared and take care for their peers or adults in nursery school in a respectful way will encourage them to be empathetic towards others (Sánchez Blanco, 2013). This is why the distribution of water bottles to classmates, as well as all helping situations, is so important in the group of pupils observed. In this way, it is essential to promote activities in early childhood education based on caring for others, whether they are peers or adults, and not just directed at oneself.

However, it is important not to lose sight of the caregiving situations that children may be involved in. There are care situations for which they are not prepared, such as looking after the youngest baby while their parents are attending to other tasks. Children, in this case, feel overwhelmed by the high demands of the task. If the baby cries and there is no adult around, they will try to do what their parents do, for example, rocking or putting the dummy in the baby's mouth. If this is not effective, they will feel desolate and overwhelmed. Their emancipation process will be compromised as they will experience deep insecurity and anxiety. On the contrary, helping by providing objects within reach, while, for example, the father is changing the baby's nappies, is acceptable. In these cases, children feel useful and valuable in taking care of the brother or sister baby.

(Pre)school experiences that involve rethinking traditional roles in relation to care have a great value for children´s education because they help them to build identities free of stereotypes. It was an important question which appeared in conversations maintained with educators and head teachers. Having male educators or a male cooker chef working at nursery school, for example, would help in this hard task. In the classroom in which the present case study was conducted, the cook represented a powerful reference point for producing this type of rupture. However, there are families who have male educators in early childhood as focus of their criticism. Moral panics fueled by traditions and the very news of pedophilia can make families look with suspicion at male educators who educate by providing bodily care for children at nursery school. Also, it does not help to break stereotypes if parents consider that to establish secure attachments is easier if the educator is a woman and not a man. Encouraging fathers or grandfathers in families to take care of their children's bodies is crucial to change this kind of ideas. Also, it is helpful if women in the family trust males offering physical care to infants and toddlers. It contributes to breaking down all the prejudices we are referring to. This is evidenced by some of the discussions held with the principals of the nursery school researched.

There is another interesting discussion which appears in our conversation maintained with educators which is hiding some prejudices about the power of personal experiences of raising children. Personal experiences of educators caring for their own children at home does not seem to make educators more competent in their work and help to build more secure attachments with children. These kinds of prejudices represent an obstacle. It hinders relationships between educators, especially if educators with and without offspring coexist in classrooms. Stereotypes and prejudices must be overcome. Relationships with families can also be affected, especially when families distrust the practices of educators who do not have experiences of parenting children (Višnjić-Jevtić, 2021). Such considerations cannot serve as criteria to legitimize teaching practices and their justifications.

Besides, distancing oneself from the vision of childcare as an inescapable commitment in ECEC, putting academic matters first, is a disaster for the development of humanity. Academization puts obstacles and barriers to the construction of emotional relationships between educators and children. The establishment of emotional ties between educators and pupils must be encouraged and protected by educators. The construction of knowledge is always linked to affection and body care plays a very important role in this construction. Educators must never forget that knowledge ever happens by embodied way. However, it seems to be in the sight of many preschool programs and teachers in kindergarten, who perceive themselves as totally independent and alien to these care practices. The care practices are considered as an extra service and attributed to internal and external caregivers, depending

on whether they are the children, officially defined as functionally diverse. Teachers and educators who participated in our research wished for better working conditions, aimed at reducing ratios, based, among other things, on the demand for care as an essential part of pedagogical practices. Children need to be care supported by deliberative and reflective practices at school which protect their interest and autonomy initiatives. To have time, slow the life at school, as Clark (2023) points out, and to reduce ratios, as we said before, facilitate that children are listened to and respected.

It is worth pointing out behind much of the considerations which were commented in our article lies a devaluation of the work of early childhood educators. In our research, educators reclaim a greater appreciation of their work by families and society in general, which should be translated into better working conditions. Being a woman and having children does not represent sine qua non conditions to establish secure attachment with children and better care in nursery schools. Nor male educators are less competent than female educators and both can be equally competent to educate, and care having or not children. The deliberation of historical processes, such as those described in our paper (patriarchy, classism, gender discrimination) together with the development of critical thinking and critical pedagogy, can protect professionals in ECEC so that this historical burden does not make a dent in pedagogical practices and responsibilities, precisely because of its potential to produce critical reflections and transformations.

Finally, we cannot forget that caring is part of the human condition. It requires commitment, ethics, and empathy. Care as a democratic practice requires that we always keep in focus and at the center of our reflection the power dynamics that exist in the relationships that are established to care and be cared for if we pursuit to contribute to develop the children´s emancipatory process. This implies giving power and decision-making capacity to young children in the care activities carried out by adults regarding their bodies. Educators should respect, for example, the waiting time that some children want before changing their diapers. There are times, too, that they do not wish that adults clean their snot, or they don't want to eat more. Their body language must be understood because through it they express their desires long before using verbal language. The link established by children with educators through cares situations must contribute to the development of children as autonomous world citizens, with the capacity to make critical judgements and decisions. The secure attachments that have been built up are extraordinarily conducive to all of this. It is why it is so important that this kind of attachment forms the backbone of children's school life in institutions such as nursery schools.

Declarations

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Research Article

Exploring gendered professions in nursery rhymes: Implications for learning and social interaction

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Abstract: The significance of early childhood literature in development and perpetuation of ideas and concepts in the minds of toddlers and preschoolers is well-established. A large body of work talks about the impact and role of children's literature in the process of child development but very less or negligible importance is given to the way stereotypes are formed based on the reading and recital by children. Stereotypes generally serve as an underlying justification for prejudice. The formation and development of stereotypes and prejudices is based on the process of social categorization which is majorly related to personal experience and social learning. The paper argues that the language of early childhood literature, nursery rhymes in particular, plays a pivotal role in the perpetuation of stereotypes relating to gendered roles and therefore a reassessment of nursery rhymes is crucial to promote gender equality, the focal point being the professional roles. The Method of Critical Discourse Analysis is used to analyze the nursery rhymes taught at preschools and primary schools in the city of Ahmedabad. The analysis reflects a need for re-imagining rhymes for fostering a more inclusive and equitable society.

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Introduction

The early, foundational years of childhood, from prenatal to about eight years of age, are a formative period of development (Tayler, 2015) in which gender roles and identity are likely to start developing, primarily due to external influence such as family, educators, peers and media. The construction of gender identity in early childhood has been highlighted by Bussey and Bandura (1999) who proposed how one acquires gender schemas and stereotypes and how it shapes the notion of children's gender roles through the mechanism of social learning. Socialization in early childhood, in particular, is important to the formation of children's understanding of gender and can have long-term impacts on their future social roles and behavior. Vygotsky (1978) emphasized the function of language and cognition in development processes and thus supported how early gendered language exposure was essential in the construction of identity. These early influences affect not only children's self-perceptions but also their career aspirations and interpersonal relationships in adulthood. Studies show that children begin to exhibit gendered behaviours as early as two years of age, majorly in response to the reinforcement from caregivers, educators, and cultural narratives (Fagot et al., 2000). Research by Halim et. al, (2016) further confirms that children's gender identity development is sensitive to environmental cues, reinforcing stereotypical gender preferences through repeated social interactions. While the choice of promoting stereotypes may not be a conscious one by parents and teachers, their choice of language, activities and even nursery rhymes can subtly reinforce traditional gender norms (MacNaughton, 2000). As essential components of early childhood education, nursery rhymes serve as a linguistic and cultural tool which facilitates cognitive and social development. Nursery rhymes are learning and socialization content, which supports linguistic and cultural norms. Opie & Opie (1951) describe how rhymes construct early cognitive associations. For instance, teachers and parents may encourage girls toward nurturing activities while boys are directed towards assertive or technical activities. This pattern is reinforced across diverse cultural settings, where girls are often discouraged from pursuing roles deemed "masculine" and vice -versa. Critical analysis of

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nursery rhymes is, therefore, crucial to evaluate their appropriateness for children, ensuring that they are devoid of stereotypes and biases that are unconsciously promoted through repetition. Traditional gender assignments in these texts reflect broader societal structures in which male roles are often perceived superior or more valuable than female roles (Davies, 2003). Such rigid assignment of roles promotes general stereotypical thinking about gender and limits children's perception of gender possibilities. Research has indicated that early exposure to gender stereotypes can significantly impact children's confidence in pursuing careers outside traditional gendered expectations (Eccles, 2011).

The International Labour Organization (2017) indicated that women continue to be underrepresented in corporate mindsets and are frequently subjected to gender based discrimination. The report points out "unconscious gender bias" as spontaneous mental associations based on gender, which are ingrained in cultural tradition, societal norms and personal experiences. UNESCO's report "To be Smart, the Digital Revolution Will Need to Be Inclusive" also emphasizes the importance of overcoming such biases for inclusive progress (Bello et al., 2021). Figures from the U.S Bureau of Labour Statistics (2021) also show that men make up only 3% of preschool and kindergarten teachers and 13% of registered nurses, demonstrating how gendered career norms still dominate. In order to overcome these biases, contemporary workplaces need to identify and challenge the cultural origins of gendered career norms.

Early childhood interventions can play a critical role in influencing the attitude of society by challenging dominant stereotypes, fostering a more inclusive atmosphere, and allowing children to explore a wider range of interests without the restriction of gender (UNICEF, 2022). Despite being defined by their simple structure and easy-to-understand language, nursery rhymes have the capacity to convey hegemonic messages that unconsciously reinforce dominant societal norms. This study, therefore, scrutinizes these seemingly harmless verses closely, as their influence on young minds is immense and cannot, in any way, be taken lightly. Through the adoption of gender-neutral language and syllabi that promote gender equity, early childhood education systems can deconstruct these stereotypes and promote equal opportunities. Such models of gender-transformative education allow children to develop a more advanced perspective, free from the shackles of societal bias, thus laying the foundation for more equitable social interactions in their adult life. The consequences of these early communications carry well into the later years, as deep-seated stereotypes in the school system reinforce wider patterns in the labor market.

Nursery Rhymes as building blocks of Gender Identity

Nursery Rhymes are short traditional songs that carry a message, tell a story, or consist of rhyming words. The rhythmic pattern created by the repetitive nature of these verses makes them engaging for young children between the ages of 0-7 years. Nursery rhymes are taught either formally at schools, informally at home, or learned through play, and the learning process usually involves memorization or imitation. The musical and repetitive nature of nursery rhymes is useful for adults aiming to calm and/or entertain children.

Historically, nursery rhymes originated as oral traditions before being written down and printed, and becoming ingrained in early childhood interactions (Millán Scheiding, 2019). Many of these nursery rhymes have roots in European folklore, particularly from the United Kingdom, dating back to the 17th and 18th centuries, although some were recorded even earlier. Collections like *Tommy Thumb's Song Book* (Lovechild, 1744) and *Mother Goose's Melody* (Barry & Newbery, 1765) contributed to the popularization of nursery rhymes in print. The content of these rhymes was influenced by the socio-political events, daily life and cultural norms of their time. Overtime, these rhymes were adapted and passed down across generations, solidifying their role in childhood education worldwide.

Gardner (1983), a Harvard psychologist, proposed the theory of multiple intelligences, which includes musical intelligence - a skill that can be nurtured in educational settings. Peterson (2000) conducted a study where children learned language and maths skills with the help of music, demonstrating that musical instruction would lead to notable gains in language and reading abilities. Therefore, listening to music can enhance pronunciation and strengthen the connection between language and learning. Additionally, the effectiveness of nursery rhymes in developing musical and phonological skills was

examined in a study where exposure to nursery rhymes along with music was found to yield significant improvements in learning (Bolduc et al., 2012). These studies collectively emphasize the educational value of nursery rhymes in reinforcing linguistic and cognitive skills through their inherent musical qualities. The word 'rhyme', means words with the same final sound, in itself clearly states the involvement of some sort of rhythm/music in the poem or song. There are many articles written on the use of nursery rhymes as a form of help at an early stage of the development of speech process, which is explored in *Learning Link: Helping Your Baby Learn to Talk* by Morrisset & Lines (1994). Wynne-Jones (2006) has also contributed the same through his article *How to put words into a Child's Mouth*. *The Importance of Nursery Rhymes* by Danielson (2000) faithfully connects Mother Goose nursery rhymes with the process of literacy acquisition. The development of learning of three R's is further spoken by Rogers (2003) in *Improving students Literacy through the Use of Rhythm and Rhyme* and by Hamner (2003) in *Growing Readers and Writers with Help from Mother Goose*. Partridge (1992) focuses on the use of nursery rhymes in reading through her article *Nursery Rhymes: A Pathway to Reading?* as referenced by Chhavi (2014).

The oral experience is made concrete with the use of written language. The documented experience takes a rebirth when it is read. That is how the knowledge bound experience is transmitted over generations. Additionally, the formulaic nature of these rhymes integrates language into community, reflecting shared ideologies and cultural values (Millán Scheiding, 2019). The findings of the study conducted by Peterson (2000) state that the students who are instructed through music / rhymes improved in language and reading. Similarly, study (Bolduc et al., 2012) shows significant improvement in the development of skills in music and phonological processing where nursery rhymes are used.

Theoretical Framework

The language used in nursery rhymes play a significant role in shaping gender identity and perpetuating ideas and perceptions. Goffman (1979) suggests that our society is populated not by individuals per se, but by sexed individuals. Gender identity is taught and enforced, not constructed by the individual, as emphasized by Butler (2002). The acquisition of gender identity involves conforming to socially defined standards of femininity or masculinity. As indicated by (Our Watch, 2018), research has validated that parents serve as the primary source of information and education concerning gender for children. The language patterns used by adults, however, can inadvertently communicate to children that 'boy' and 'girl' are distinct identities from that of a 'baby,' thereby sustaining gender stereotypes. Vygotsky (1978) likewise highlighted the importance of language in influencing thought processes, arguing that linguistic structures encountered in early childhood education have a direct influence on cognitive development. Social constructivism (Vygotsky, 1978) suggests that individuals construct their understanding of reality within social groups over time. Social interaction is crucial to learning, arguing that children develop more fully with support than alone, and language is a crucial tool for cognitive development and helps shape thinking. He argued that knowledge is not individually constructed but co-constructed through communication and cultural context. The gender roles depicted in nursery rhymes reinforce these patterns and lead to the internalization of societal expectations of masculinity and femininity. Children become "normalized" to what they hear and read, and this becomes their "reality." Nursery rhymes contribute to the formation of gender stereotypes by using words that express bias against women, making them appear inferior to men. Men are shown in roles that are considered superior, while women do tasks that are considered menial, forming a stereotype and limiting our perception of thinking or perceiving anything otherwise. According to Hawkins (1971), these seemingly innocent verses reflect the worldview and its unique features. Research has established that children learn social norms of gender roles due to their exposure to gendered themes in such rhymes (Crisp & Hiller, 2011). The impact that exposure to stereotypes, whether in language, literature, or the media, can have on an individual's performance, goals, and identity development is further highlighted by Claude Steele's (1995) "stereotype threat" theory. According to Steele's (1995) research, people's performance may suffer when they are reminded of negative perceptions about their social group. Frequent reinforcement of established gender roles in nursery rhymes might lead toddlers to internalize gender expectations and shape their views of

occupations or professions that are appropriate for them. Steele's contention that stereotypes affect one's self-concept and involvement in society is supported by this implicit indoctrination.

While plenty of literature focuses on Western contexts, studies within the Indian framework are crucial for capturing localized influences on gender socialization. In the Indian context, gendered narratives in nursery rhymes are shaped by historical power structures, including the colonial education system, which privileged English-language literature. The British colonial policies that influenced curricula embedding Eurocentric values continue to shape the contemporary education material. Crenshaw's (1989) 'intersectional model' provides an analytic framework to view the ways in which language serves as a site of power and exclusion, as access to English education is often decided by socio-economic status.

Review of Literature

The construction of gender roles in early childhood has been extensively studied across disciplines, revealing how language, cultural narratives and socialization contribute to identity formation. However, Lerner (1986) argues that the issue lies in disproportionate allocation of social roles; women are often given supporting roles while men and women are equally important in the play of life. Men have written and directed the show, assigning themselves the heroic parts leaving women with supporting roles, despite the fact that neither gender contributes more or less to the whole. This disparity is reinforced in nursery rhymes which serve as early tools of linguistic and cognitive development. A study conducted by Crisp and Hiller (2011) compared the gender portrayal in Caldecott Award-winning children's picture books of 1938-2011. The result indicated that male characters were more likely to be allocated the professional occupations of scientists, lawyers, and doctors than female characters in such stories. The content analysis of children's picture books conducted by Cutler & Buell (2017), portrayed that women were frequently depicted in stereotypical domestic roles such as childcare and domestic work. Nasiruddin (2013) asserts that nursery rhymes play a significant role in shaping gender perceptions in Pakistani society, with many rhymes reinforcing gender discrimination and stereotyping. These ideas are internalized by children and can affect their attitudes and identities as they grow up. Aforementioned studies confirm that nursery rhymes reinforce traditional gender roles, thereby perpetuating stereotypes that limit children's comprehension of the multiplicity of gender identities and other gender roles. Al-Ramahi (2013) discusses the sexist bias present in the language of nursery rhymes, which reinforces the subordination of women through the use of masculine noun roots with feminine suffixes or prefixes. Women are often depicted from a male perspective as helpless and dependent. Furthermore, Fox (1993) in her work sighs over the negative conditioning women have been going through in society. She points out that young children around the age of 5 ascribe masculine gender to a lead character most often. There are no strong role models in children's literature for girls to look up to. A study by Nadesan (1974) shows that *The Real Mother Goose* collection heavily features masculine themes in nursery rhymes, with only a few rhymes featuring both masculine and feminine themes. The physical and mental weaknesses of women are talked about in most of the poems for children. Cook (2019) suggests rewriting rhymes from a woman's perspective can help fight this issue. Mukhopadhyay & Tanwani (2020) writes that the authors have the power to bring about a change in attitudes and promote 'gender appropriate' behaviours but have turned a blind eye to it. In most of the children's literature girls are depicted as passive creatures who allow things to be done to them. Not only women but men are also victims of these stereotypical expectations of society. Some professions, for example, ballet dancing, and those which are not economically viable are considered inappropriate for men. A study by Tuman (1999) on children's drawings in relation to gender roles found that boys and girls tend to focus on different aspects of gendered nursery rhymes, highlighting culturally learned approaches to the same subject. Moreover, the study conducted by Garcia Mayo and Garcia Lecumberri (2003) confirmed that male characters occupied professional positions significantly more than female characters in nursery rhymes. These findings align with the research study done by Eccles (2011) on gendered career expectations, which highlight how early exposure to stereotypes can shape lifelong ambitions and self-perception. wa Thiong'o (1986) offers a critique of linguistic imperialism, such that educational models set up in colonial times continue to shape ideas about identity and authority even within postcolonial

communities. The case is strongly argued in India, where curriculum frameworks for school-going children eschew nursery rhymes native to regions although the nation enjoys a rich oral culture.

Research Gap

Gender is a very well-researched area and incessant questioning of the idea of gender identity has led to the formation of various interest groups in recent years. There have been attempts in recent times to highlight a few problematic areas by individuals but the attempt has not been of much impact due to a variety of reasons. The rewriting of some of the rhymes by Cook (2019) from the woman's perspective viz *The Old Woman who lived in a Shoe, Peter- Peter Pumpkin eater, and Georgie Porgie* gives hope for course correction in the future. 'The Old Woman' in the rhyme *The Old Woman who lived in a Shoe* had many children. It was difficult to take care of all of them for her. She 'fed them' all some 'broth' and 'whipped them to bed'. Cook (2019) rewrites the rhymes as:

There was a young woman who lived in a shoe

Her man got her pregnant without an "I do"

He ditched her and left her without any hope;

So she tied a big knot at the end of her rope…..

And COPED!

However, the introduction of such violent concepts to children seems inappropriate at such an age. Gender is a social construct that enforces positional power (Global Health 50/50, 2019) and the intersection of language and power structure within the Indian education further influences identity formation. English nursery rhymes are valued more highly in comparison to local poetry traditions in schools due to colonial legacies, which frequently marginalize stories that question prevailing gender standards (Kumar, 1991).

The neoliberal context has reinforced these biases by promoting globally recognized English materials over local, culturally relevant texts (Batra, 2020). Despite India's linguistic diversity, English language rhymes are ubiquitous in both private and public schooling, reflecting historical colonial influence and contemporary globalization. Mukherjee (2015) examines India's educational framework, emphasizing colonial impacts, globalisation challenges, and the necessity for a blended approach that combines local wisdom with international requirements for inclusivity. While viewing English as a global language tends to lead to linguistic imperialism, a compulsion to adopt the western discourse of ECE can be seen as forms of colonization (Gupta, 2019). While native language rhymes also form a part of the curricula in some places, their marginalization within the formal education system is evident. The institutionalized role of English nursery rhymes in Indian early education necessitates an analysis of the dominant material shaping gender perceptions. This study aims to contribute to the ongoing discussion on gender-equitable early education practices. By situating the analysis within the Indian socio-educational context and considering historical power structures, this study aims to provide a more comprehensive understanding of how language, literature and social norms intersect to shape gender identity in early childhood.

Dataset and Methodology

This study attempts to stimulate the psychological interest in nursery rhymes through a Critical Discourse Analysis. Critical Discourse Analysis (CDA) emphasizes the contextual meaning of language, studying large chunks of language like entire conversations, texts, or a collection of texts examining how language functions and meaning is made in different contexts. It is an interpretative method of study that focuses on how people use language for a particular purpose and lays the groundwork for further study. This study employs Critical Discourse Analysis (CDA) in examining the gender constructions in nursery rhymes. Fairclough (2015) has described CDA as a method of analyzing power relations inherent in language, while van Dijk (1993) has highlighted the effect of discourse on social knowledge. By examining the linguistic construction of gendered professional roles, CDA uncovers the ideological underpinnings inherent in these texts.

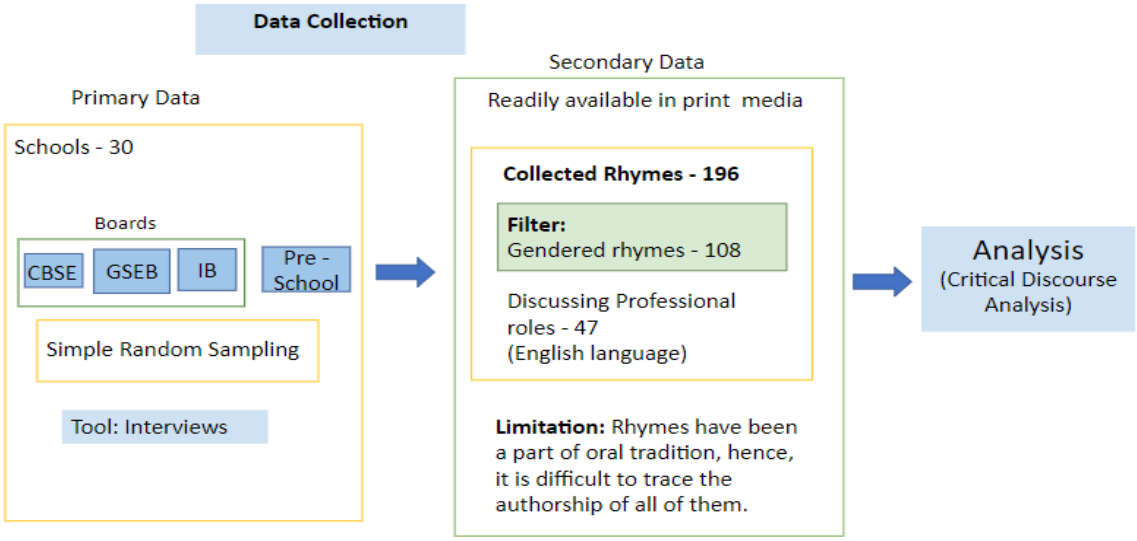
This study specifically targets English nursery rhymes, given their widespread application in typical school settings. A comparison of these with rhymes in Indian languages would offer additional evidence regarding the impact of cultural myths on gender presentation. Future research would need to investigate divergence between English and indigenous rhymes in order to ascertain variance in gender depiction. Contextual meaning is derived from the review of nursery rhymes in English. A cluster of words is studied in which gender bias emerges in a certain contextual framework which recurs frequently. Cultural correlation between practised gender roles in society and their depiction in a few nursery rhymes provide the platform to read other nursery rhymes with similar interpretations. As Wallowitz (2004) points out, "The critical reader understands that how we read is as important as what we read and asks questions about the construction of a text". Thus, the study undertakes the correlation between 'the word and the world'.

The long-standing dominance of English nursery rhymes in Indian schools is an exemplary case of a larger colonial legacy, where Western texts dominate over indigenous texts. This is most evident in Ahmedabad (Ahmedabad is a metropolitan city in the state of Gujarat located in the western part of India.), a city renowned for its long-standing private education system, where English language teaching is the norm in early childhood education institutions. The origin of this trend lies in the British colonial education policy that instituted English as the superior medium of instruction, particularly in elite schools. Macaulay's (1835) "Minute on Education" was a seminal text in institutionalizing this paradigm by establishing English as the language of knowledge and progress and placing native languages and literatures at the periphery. Even post-Indian independence, the Anglocentric education system prevailed, and English-medium schools gained more social standing. In the present, the extensive use of English nursery rhymes in schools in cities like Ahmedabad is a witness to the endurance of these colonial paradigms, where English is seen as an essential vehicle for economic and social mobility. Prioritizing the English language over regional languages in early childhood education has powerful intersectional consequences, as it reinforces inequalities along class and gender axes. In Ahmedabad, children of wealthier communities are predominantly educated in private English-medium schools, where Western nursery rhymes form the heart of the process of early literacy. Children from poorer communities, or females, however, are more likely to be educated through government schools using regional languages and therefore lack access to the cultural capital of the English language. This division has material consequences, as linguistic privilege intersects with educational and professional pathways to further marginalize those who gain no exposure to English in early formative life. The habitual reinforcement of occupational gender roles embedded in nursery rhymes reinforces this educational divide, as professional ambition is often decided by initial exposure to literature and language. The system of schooling, therefore, operates to perpetuate colonial hierarchies, wherein success is all about mastery in the English language, with local tales having little space in mass teaching.

For this study (Figure 1), popular nursery rhymes taught formally at school in the English language were collected in the region of Ahmedabad. The nursery rhymes were readily available in the print medium. All the collected rhymes were screened in terms of gender. Out of the total number of rhymes (196) only those about gender roles at large (108) and professions/occupations in specific (47) were selected for the study. The selected rhymes were analyzed through the theoretical lens of Critical Discourse Analysis (CDA) to study the portrayal of gender role stereotyping in terms of professions/occupations.

Figure 1

Research Design, Level: Pre- School, Pre – primary (Nursery, LKG and UKG) / Age group : 2 to 6-7 years.



Results and Discussion

Professional Roles Depicted in Nursery Rhymes

The research reveals how historical and contemporary power structures continue to shape gender socializations in Indian classrooms. For a long time, women have been made to believe that marriage is the only honourable goal for women which has been internalized in their psyche. It would be wrong to blame the women for such a mistaken idea. Poems like *I had a little husband* describe girls sitting at home dreaming of their wedding (Figure 2). The women have always been helpless and tired as the 'Old Woman' in the poem by the same name. In accordance with Oakhill et al. (2005), individuals who speak English tend to connect particular occupations or titles with a specific gender due to the influence of gender stereotypes on their cognitive frameworks. Furthermore, even in languages with natural gender distinctions, such as masculine and feminine forms, the usage of masculine generics may result in social discrimination, as emphasized by Stout & Dasgupta (2011).

Stereotyping of professions/occupations concerning a specific gender is common in these rhymes. Any work that requires physical strength or a longer duration of hours outside the four walls of the house is typically deemed fit for a man and is considered manly (Figure 2). Initially, the common nouns like Doctor, Farmer, Goldsmith, and Carpenter would have been gender neutral but the recurrent association of masculine pronouns with them has made them to be perceived as fit for men. It is difficult for people to imagine a woman as Santa Claus who has always been portrayed as a man in all cultural manifestations. Consider the famous rhyme *Jingle Bells*; the absence of an alternate depiction of these roles has led to the formation of such stereotypes. On the other hand, any work that was done indoors was associated with women since they would spend the majority of their time indoors. This limited women and their work to the confines of the house. And a repetitive depiction of the same developed into rigid and stereotypical molds of gender role portrayals. (Figure 2 represents this analysis) The term 'Doctor' has almost become synonymous with the gendered category of 'man' due to a repeated depiction of doctors as men. This stands true for all the nursery rhymes which are the subject of analysis here. The poems *Doctor Shane went to Spain*, *I have a doll dressed in blue, Doctor Foster, Miss Polly had a Dolly*, and several others describe a doctor who is a 'man'.The use of masculine pronoun 'he' makes this ascertain. The same is the case with the term 'Farmer'. Farming is considered an activity done by men and men have dominated this field for a long time. A farmer is typecast as a man wherever the term is used. Whether it is 'a farmer' of *A farmer went Trotting* who 'went trotting upon his grey mare' or the 'Old Macdonald' who had a farm in the poem *Old Macdonald had a farm.* The use of masculine pronouns 'his' and 'him' in these poems highlights this fact. If we look at the poem

Bread for my Baby, it is clear from the use of the pronouns 'he' and 'his' it talks about a man who is responsible to get the bread/food for the baby. The 'Soldier' by definition means a member of an army. However, the depiction of the soldier in all these rhymes is always in terms of a boy/man like in the rhyme *Ten little soldier boys*, where the work of a soldier is deemed fit only for 'soldier boys' and not for soldier girls.

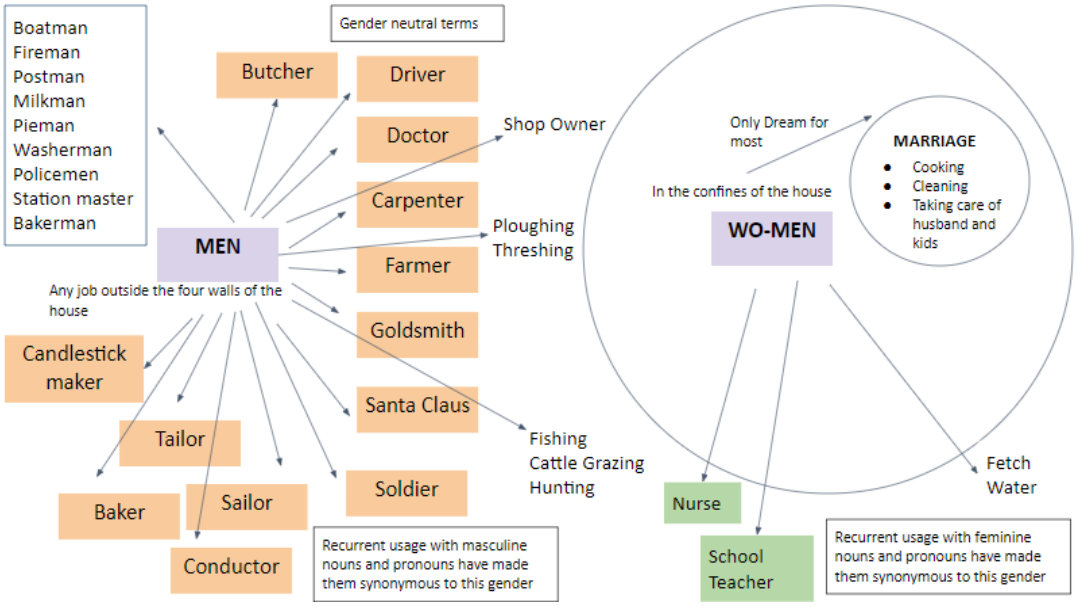
In all the rhymes considered for study here, the working professionals are 'man'. The poem *Ferry me across the river* has a 'boatman', the poem *Rat-a-tat* mentions a 'postman' the person delivering the post in the poem *Eight O'clock* is a 'postman', there is a 'milkman' in the poem by the same name and all the firefighters in the poem *Ten little firemen* are men. Even the person selling the pie in *Simple Simon* is a 'pie man'. The bus driver in the poem *Hail to the bus driver* is a man. It is very rare to have heard or come across a vocabulary that is inclusive of other genders, especially about these jobs. Whether it be a 'washer man' or a 'policeman'.

Even the work of cattle grazing or fishing is shown to be carried out only by young boys or men. In the rhyme *Little boy blue*, the 'boy' tends to the cows and sheep. In the short rhyme *Little Tommy*, fishing is done by 'Tommy'. The 'sailor' in the poem *A sailor went to sea* is described using the pronoun 'he'. The owner of the store in the poem *Shel's Store* who sells goods is a man. The 'tailor' in *A Carrion crow* is a man shaping 'his cloak'. In the poem *Down by the station*, both the 'conductor' and 'station master' are men. In the rhyme - *Lavender's Blue,* all the people working in the kingdom are men - those who 'plough', carry the 'cart', 'make hay', and 'thresh corn'. All these jobs are always depicted to be carried out by men. This to a great extent highlights how the picture of the world is painted by the gendered category labelled as 'men' where they give themselves the most important parts to play. The story is narrated by them and the spotlight always belongs to them. The hypocrisy is evident in the way the same work is perceived in a different manner depending on whether it is done by a man or a woman. Certain work is deemed to be feminine when done at home and is not given a fair amount of importance, compared to when the same is done to earn money at a professional level. It is only the men who are shown doing work to earn a living; like the 'Baker's man' of *Pat-a-cake* or 'the butcher, the baker, the candlestick maker' of *Rub-a- dub* who are 'three men'. In the poem, *Little Tommy Tucker* 'Little Tommy' 'sings for his supper'. However, if cooking/baking is done at home for the family, it is not considered worthy of being labelled as 'work'.

There are certain professions, however, especially related to care giving which are stereotypically deemed fit for women. Nursing and Teaching are two such areas. Similarly, the activity of collecting / fetching water for the house is considered fit for a woman only and is an unpaid labour activity. The rhyme *The teacher song* goes on about narrating the positive qualities of a primary school teacher. The use of feminine nouns and pronouns make it evident that the teacher is a 'woman - Mrs. Appleberry'. This has been true for all the schools considered for this study; all the pre-primary and primary teachers in the 30 schools were women. When it comes to the medical profession where a doctor is always shown/portrayed as a 'man', the word 'nurse' has become synonymous with women. The rhyme *Nurse song* effectively depicts this. The hegemonic superiority of men has hardwired the brain to put 'the man' in more powerful positions than the woman, always. A major concern at the base of women's empowerment is the unacknowledged work done by women at home.

Figure 2

Gendered Professional Roles Depicted in Nursery Rhymes



Nursery rhymes and children's songs are commonly used as a fun and engaging way to teach children about numbers, letters, and animals. However, upon closer examination of the language used in these rhymes, it becomes apparent that many contain hidden, negative meanings that have been unconsciously internalized over time. While these rhymes may seem harmless, they can perpetuate irrational ideas and biases that persist for generations. As young children, we absorb the concepts, values, and beliefs that are communicated through the language of these verses. In fact, a study by Al-Ramahi (2013) analyzed several rhymes from '*The Oxford Nursery Rhyme Book'* and identified sexist language that reinforces negative stereotypes about women. Women are often portrayed as helpless and dependent, while men are depicted as the providers who go out to earn a living. This creates a binary distinction between the roles of men and women, which is unhealthy for society. It is important to scrutinize the language used in these rhymes and ensure that they promote equality and positive values. For instance, the depictions in the rhymes '*The Old Woman who lived in a shoe'*, the lullaby *'Hush' thee', and 'Papa's going to buy a mockingbird*'. Majority of these rhymes including the ones mentioned above focus on the father's ability to earn and on a woman's reproductive duty. Thus, a binary between the work done by men and women is created. Such stereotypes are unhealthy for society and require being on a thorough check.

Neoliberal education systems have solidified the dominance of Western literature in early childhood education, influencing children's aspirations regarding their future professions by seeding gendered ideologies within commonly used educational materials, such as nursery rhymes. The focus on English-language curricula within private and elite schools, particularly in urban centers like Ahmedabad, favors Western literature over local storytelling, thereby sustaining linguistic and cultural hierarchies in favor of specific career choices over others. In this context, nursery rhymes serve as an influential tool of socialization, familiarizing children with vocational roles that frequently symbolize gender distinctions. These depictions do not merely mirror existing gender disparities; they actively promote their reproduction, subtly reinforcing the idea that some professions are better suited for one gender than another. English-language nursery rhymes' hegemony in India disproportionately benefits high socio-economic group children who go to elite schools, while the lower-income group children in regional-language schools are denied the cultural capital of English. This asymmetrical access to language not only perpetuates class-based disparities but also affects employment opportunities, as English language competence is a determining factor for accessing high-paying employment in India's competitive job market. The gendered classification of occupations in the system guarantees perpetuation of structural disparities, truncating the available chances for women and marginalized communities while perpetuating

traditional occupational functions. Thus, nursery rhymes, far from being neutral pedagogical tools, are steeped in larger socio-economic and cultural contexts with a deep impact on children's understanding of gender, work, and social mobility from a young age.

Current Challenges and Self- Reflexivity

While all attempts have been made to eliminate any personal bias, there is still a possibility of over-reading the rhymes and the gendered connotations marked in them on account of confirmation bias. The gaps in interpretation may arise out of modifications or transformations in conjectures over a period of time. The meaning thus may be relative to the socio-cultural fabric of times in which these rhymes are placed for review (Ferenczi, 1956). Although the exact connotation may have variations, a high level of probability may emerge when the frequent use of words and their context are analysed. There is a universal agreement that there will be a greater degree of probability if associations are forthcoming (Mintz, 1966). The sample size for data collection is justified by the fact that the secondary data received from these sources is sufficient in number for analysis vis-a-vis its repetition in in-class teaching at various educational institutions considered for the purpose of this study. Many of the rhymes are anonymous and there is not much clarity about the exact time of their production and publication. As language is in a constant state of flux, evolving with time, certain words might have been used in these rhymes inappropriately due to a mere lack of vocabulary. Hence, one of the aims of this research is to contribute to making language more gender-fair by pinpointing problematic areas to highlight the need for more gender-neutral terms and usage of language.

Implications of the Study

The Pollyanna hypothesis states that positive words are prevalent, quickly learned, and used across languages. People usually vouch for positive language, even when the main content of the communication is harmful. Studies of large text corpora have supported this hypothesis using translations across languages. The results of a study by Defranza et al. (2020) show that not only gender prejudice is more prevalent in gendered languages but it is caused by a higher association of male words with positive words. Positive words are semantically more associated with males than females, providing evidence of prejudice. It also illustrates that gender prejudice exists cross-culturally. The research, therefore, lays the groundwork for further research not only in the education sector per se but in areas wherever the language is used, primarily, focusing on the urgency of critically examining the language taught to and used with the children. Timely investigation of such stereotyping is crucial for the development of positive gender attitudes in children and in society at large. With the changing times where AI-enabled devices are rendering nursery rhymes and stories for children, it is pertinent to check and avoid such stereotyping to multiply at an astounding rate. Overall, the relevance and unique contribution of research that studies the impact of nursery rhymes on stereotyping of professions lies in its potential to inform interventions and policies that promote gender equality, challenge gender stereotypes, and support children's development of positive attitudes towards different professions and genders.

Conclusion and Discussion

Though language is in the process of constant evolution as our societies create new ideas, these rhymes remain unchanged and unquestioned. Rhymes should aid children to learn about a society that offers equality to all individuals and not supporting and masquerading one set of stakeholders as the superior group controlling the other, especially in terms of gender roles.

The purpose of this research is not to critique how the rhymes came into existence and are circulated in the society but to show an alternative sense in which these can be re-imagined eradicating knowingly or unknowingly the perpetuation of biases that these propagate.

Research on gender representation in professional occupations has repeatedly discovered widespread underrepresentation of women in the STEM fields—i.e., Science, Technology, Engineering, and

Mathematics—and in executive positions, a gap that can be traced back to powerful forces on career choice from a very early age. Identification of men with careers like medicine, law, and science in nursery rhymes serves to reinforce actual gaps in access to these careers, thus confirming assumptions that some careers are masculine in nature. Kahn and Ginther's (2017) study on Women and STEM concludes that arguments for early biological differences are not conclusive and do not affect ability at kindergarten entrance. There are only small differences in mathematics test scores at early ages and the gender gap widens by middle and high school. Moreover, these differences are mutable and can be influenced by family, teacher, culture, stereotypes and role models throughout the schooling process. In addition, an intersectional approach, as described by Crenshaw (1989), needs to be understood to comprehend the intersection of gendered professional stereotypes with other social hierarchies like class and language. The purpose is as Mead (1970) says "Children must be taught how to think and not what to think." Although nursery rhymes serve as a form of communication, their traditional usage has caused many educators to overlook their underlying messages which may not align with modern society. It is imperative for educators to be more cautious and consider revising or replacing the content and themes of such rhymes to prevent children from developing perspectives that conflict with contemporary society. It is important to recognize the impact of these rhymes and their influence on society in spreading positive messages. Thus, the power of language should be harnessed to update our social values. Nursery rhymes could be well edited to suit the holistic learning of the children. The study highlights the potential adverse impact of nursery rhymes, including the reinforcement of gender stereotypes and the exclusion of alternative gender identities and roles. It suggests that educators and parents should carefully consider the messages conveyed by nursery rhymes and choose materials that promote positive values and respect for diversity.

Declarations

Authors' Declarations

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Research Article

Activities of musical expression and creation in the context of the integrated curriculum for early childhood education and care

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Abstract: Adhering to the principles of social constructivism, as well as understanding the child's personality and respecting the child as a social being in a certain context, the National Curriculum for Early Childhood Education and Care offers a new paradigm of childhood. Recognizing the child's holistic image and the integrated and exploratory nature of the child's learning, musical learning activities are organized as part of a whole within a project topic. To better understand and improve the representation of musical activities in educational practice, this research aimed to describe how musical activities are implemented from the aspect of integrated curriculum and project-based learning. Participatory ethnography as a type of practice-based research was applied to present and describe various forms and ways of implementing and connecting musical activities with other methodological areas within project-based learning. A total of 18 children aged 4 to 6 years participated in the activities. To gain a deeper understanding of the children's culture, experiences and development, while building trust and supporting their holistic wellbeing, the research used ethnographic methods, including participant observation with a focus on reflexivity and descriptive writing. It is concluded that educators can effectively integrate musical activities into project-based learning in line with the national curriculum, which supports holistic child development and enriches children's competencies by creatively combining music with other areas of development.

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Introduction

The ubiquity of music in the modern world has contributed to children being surrounded by music from an early age. Their spontaneous reaction to music, manifested in eye movements in search of a sound, indicates their early perception of music (Ilari, 2002). Early musical engagement from a social perspective is rooted in communicative musicality between a mother or caregiver and child, incorporating rhythm, movement, vocal forms and narrative elements (Malloch & Trevarthen, 2009). This fosters attachment, emotional development, cultural and social learning and the growth of musicality (Dissanayake, 2012).

According to Edwin Gordon's theory of music learning (1965, 1977), the early and pre-school years are crucial for the development of musical potential, which stabilises around the age of nine under the influence of formal and informal factors (Gordon, 1999, 2011). While Gardner (1983) emphasized the importance of developing multiple intelligences, including musical potential, to align career choices with an individual's intelligence spectrum, Gordon (1967) reinforced this idea by defining musical aptitude as a unique intellectual trait, asserting its normal distribution, and highlighting its weak link to traditional intelligence (Cutietta, 2021; Hohn, 2021).

In addition to cultural diversity and educational policies that shape musical identity (Ilari, 2017), the musical environment and informal education supported by parents and early childhood educators play an important role in the development of children's musical abilities (Gruhn, 2019). Timely identification of

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musical giftedness is essential to provide appropriate support and foster further development (Bačlija Sušić & Svalina, 2021; Gagné, 2003).

The Ministry of Science, Education and Sports [Ministarstvo Znanosti, Obrazovanja i Sporta] (2014) is in line with the 2018 European Council recommendation and emphasizes holistic development and well-being through eight key competences, including communication, mathematics and science, digital skills, learning to learn, social and civic skills, entrepreneurship, and cultural awareness. It also emphasizes respecting and encouraging children's initiative, allowing them to explore their interests and draw conclusions independently (Slunjski, 2015).

The learning process and features of an integrated curriculum, such as play, learning through play, and the social and physical environment, should be understood as interrelated elements, and activities in early childhood education (ECE) are not divided into separate subject areas or methodologies. In contrast to traditional classroom structures (introduction, main part, evaluation), working in smaller groups in activity centres is more effective in fostering quality interactions and learning (Slunjski, 2020), promoting a more integrated and engaging approach to education. In line with the child's exploratory way of learning and acquiring knowledge, as well as skills and values that are fundamental to education in the 21st century (critical thinking, communication, collaboration and creativity) (Jensen, 2015; Lamb et al., 2017), activities in an ECE institution should be based on a project-based learning (PBL) method.

Project-Based Learning is a pedagogical approach in which children actively build knowledge over time by working together to create a public product that addresses an important question or solves a problem. This method encourages them to explore, ask questions, and take initiative in their learning. Beyond academic content, it helps them understand themselves as individuals while fostering relationships with peers, teachers, and the broader community. By tapping into children's curiosity and interests, PBL creates meaningful, real-world learning experiences that impact their lives and the lives of others (Lev et al., 2020).

Therefore, when working with children, especially in the preschool period, different activities are planned thematically and designed as a whole, as opposed to separate learning areas (Ministry of Science, Education and Sports, 2014). In doing so, it is important to highlight the role of educators in facilitating learning through exploration, rather than providing ready-made answers, as children engage in PBL work overtime to create or solve a specific problem (Duke, 2015; Rinaldi, 2021). Accordingly, PBL responds to the exploratory nature of the child's learning process, but also supports the types of play-based activities that are crucial for cognitive, social and emotional development.

Symbolic and pretend play are key elements of child development, emphasised by influential psychologists such as Piaget (1963), Vygotsky (1977) and Bruner (2000). This type of play allows children to explore and make sense of their world in a creative way, promoting cognitive, social and emotional growth. Play-based learning (PBLearning) in early childhood education and care (ECEC) places the child at the centre of the learning process and integrates academic, social and emotional development. By aligning with children's interests, abilities, and developmental stages, PBLearning creates meaningful learning experiences that meet individual needs (Pyle & DeLuca, 2017). Play supports the Zone of Proximal Development (ZPD) by encouraging collaboration and individual participation, with facilitation and adult guidance essential to maintain engagement and enrich play scenarios to support developmental growth (Hakkarainen & Brėdikytė, 2014).

Building on the importance of play in early childhood development, the learning environment plays a crucial role in promoting integrated and holistic learning. A well-organised spatial and material environment, rich in diverse resources and materials, encourages children to explore, discover and experiment independently. This approach allows children to engage with a variety of media such as movement, sound, drawing and language, encouraging creativity and supporting their cognitive, social and emotional development (Vujičić & Petrić, 2021). In line with this, for young children, breaking down complex problems into smaller parts within PBL helps them solve problems and feel successful along the way. By breaking down challenges, such as designing an entire classroom, into manageable steps and

creating questions under the umbrella of the driving question, this approach fosters a classroom culture where learning is relevant, authentic, and embedded in the project, supporting children's multimodal expression and development through the use of different media (Lev et al., 2020). Based on the goal of musical activities, which is to help children express themselves and thus contribute to their holistic development (Bautista et al., 2022), music becomes one of the key media that significantly supports this aspect of PBL, in which children demonstrate their learning using different modalities (Lev et al., 2020).

Given the numerous benefits of music, it fosters problem-solving, creativity, cognitive flexibility, and social collaboration in PBL settings. Musical activities have a significant impact on children's creative thinking and problem solving skills. In particular, musical creative activities such as improvisation and problem solving play a key role in fostering creativity and enhancing problem solving skills (Zhang, 2023). Both formal and informal musical activities have been found to promote analytical thinking, planning, attention, and problem solving (Serpell & Esposito, 2016).

In addition, making music has been shown to enhance executive functions, including cognitive flexibility, which is essential for problem solving. Musicians must interpret notation, recall and improvise music, plan ahead, and coordinate with others, all while monitoring their performance (Okada & Slevc, 2018). Managing this complexity may strengthen executive functions, including cognitive flexibility, and thereby improve problem-solving skills in other contexts (Cabanac et al., 2013). Children's exposure to different types of music contributes to the creation of more connections between brain cells, and greater diversity in music and its associations (e.g., dance) further strengthens these connections. This process improves cognitive functions such as memory, attention, and problem-solving skills (Zaatar et al., 2024).

Collaborative musical expression and performance promotes children's social development, including cooperation, exchange, and effective communication (MacRitchie & Garrido, 2019), as well as the development of socio-emotional competencies and better group cohesion, which contributes to the well-being of children in the group (Bačlija Sušić & Buerger-Petrović, 2023). Children also develop important social skills such as empathy and teamwork through listening and interacting with each other (Mendo-Lazaro et al., 2018).

Musical Activities in an Integrated Curriculum

Children’s musical experiences acquired in an ECE institution are the basis for their later music education. At the same time, in contrast to the results and outcomes, it is important to focus on the process itself and the quality of the relationship when carrying out activities, as well as children’s well-being as the fundamental goal of all educational activities in the curriculum (Ministry of Science, Education and Sports, 2014). The child’s right to play and express themselves in art, including music, is recognized as a benefit for the child and is included in the Convention on the Rights of the Child (United Nations, 1989).

Musical activities in ECE play a crucial role in shaping children's personalities by enriching their musical experiences, fostering a love for music, developing musical skills, perception and taste, and enhancing emotional and musical sensitivity. In addition to the above-mentioned effects and benefits of music on children's development, musical activities in ECE play a crucial role in shaping their personalities by enriching musical experiences, fostering a love of music, developing musical skills, perception and taste, and enhancing emotional and musical sensitivity. These activities also promote listening skills, artistic expression, cultural awareness and aesthetic taste. Similar to primary school, where music education is integrated with other subjects (Naimovich, 2022), ECE also requires musical activities to be integrated with other project-based activities and aspects of children's daily lives. Accordingly, by incorporating different segments of the ECE process, such as protection, care and education (Ministry of Science, Education and Sports, 2014), musical activities can be integrated into everyday activities when working with children, in the context of different related thematic activities and PBL.

Within the National Curriculum for Early and Preschool Education (Ministry of Science, Education and Sports, 2014), musical activities fall under the eighth competence, “Cultural Awareness and Expression”. This competence includes “encouraging children's creative expression of ideas, experiences

and feelings in a range of artistic areas, including music, dance, drama, literature and the visual arts. Equally, this competence aims to develop children's awareness of local, national and European cultural heritage and their place in the world... Thus, children will be encouraged to engage in various forms of creative processing of their experiences in a range of artistic areas and expressive media" (Ministry of Science, Education and Sports, 2014, pp. 29-30).

This is in line with the universal and communicative nature of music (Cross, 2014) and the multimodal nature of music education (Bačlija Sušić, 2019; Bačlija Sušić & Brebrić, 2024; Cheng, 2015; Pramling & Wallerstedt, 2009; Webster, 2016). Accordingly, the child has a spontaneous need for multimodal musical expression, which further indicates the use of a range of media, highlighting the importance of implementing an integrated approach to early childhood music education (Barrett et al., 2022). This approach relies on interdisciplinary connections and contemporary knowledge from other fields and requires a holistic perspective that recognises the links between music and child development (Sarrazin, 2016).

The successful implementation of musical activities in ECE settings depends on a number of factors that go beyond educators' interest in and sensitivity to music. While promoting awareness of the holistic developmental benefits of music is essential, additional elements such as educators' personal musical experiences, acquired habits and formal musical competence play an important role. Research has consistently highlighted the limited preparation of educators to integrate musical activities into practice (Andang'o & Mugo, 2007; Barrett et al., 2019; Baum, 2017; Chen-Hafteck & Xu, 2008; Hash, 2010; Ilari, 2007; Koutsoupidou, 2010; Lau & Grieshaber, 2018; Liao & Campbell, 2016). Many studies emphasise the importance of initial teacher education and ongoing professional development in equipping educators with the skills and confidence needed for successful implementation (Barrett, 2014; Bautista et al., 2022; Ehrlin & Tivenius, 2018; Kretchmer, 2002; Lee, 2009; Lenzo, 2014; Nardo et al., 2006; Rajan, 2017).

Research Problem, Objective, and Question

The problem addressed in this participatory ethnographic research stems from the insufficient representation of musical activities in educational practice as an integral part of the integrated ECE curriculum. Unlike the current National Curriculum for Early and Preschool Education, earlier versions of the curriculum and educational programmes provided a more detailed focus on musical activities, reflecting the transmission-oriented approach of previous curricula (Mendeš, 2020).

Understanding practice can be seen as a set of activities that extend beyond the everyday way of thinking. This can result in new outcomes and insights leading to the creation of new theories (Candy & Edmonds, 2018). Accordingly, the aim of this research is to describe how musical activities can be connected to other areas of educational practice in the context of the Integrated National Curriculum for Early and Preschool Education (Ministry of Science, Education and Sports, 2014).

In relation to the above aim and problem, the following research question has been posed: How can musical activities be integrated with children's interests and other areas of ECE in line with the holistic and project-based approach to learning outlined in the National Curriculum for Early and Preschool Education (2014)?

Method

Research Design

In order to gain insights into children's interests and to promote higher-level thinking, the research used ethnographic methods, including photo and video documentation, direct and participant observation, and individual developmental maps.

Participant observation was the primary data collection method, with a focus on reflexivity and descriptive writing to capture everyday learning experiences (Mills & Morton, 2013). This ethnographic approach enabled a deeper understanding of children's culture, experiences and development, fostered trust and supported their holistic well-being (Albon & Huf, 2021; Köngäs & Määttä, 2023).

Participants

To meet the research criteria of focusing on children within the required age range, a group of children aged 4 to 6 years (N=18) was selected from a mixed-age group in an urban kindergarten, ensuring a manageable sample to study group dynamics and educational outcomes (Merriam & Tisdell, 2015). This selection is in line with the research focus on project-based learning, constructivist approaches and holistic education, which emphasises the integration of different age groups in the learning process.

Ethical Considerations

The research was conducted in accordance with the EECERA Ethical Code for Early Childhood Researchers, which ensures that the welfare of all participants, particularly young and vulnerable children, is protected. The code promotes the highest standards of research practice and academic integrity (Bertram et al., 2016).

In accordance with *The Ethics of Research with Children and Young People* (Alderson & Morrow, 2011), children and parents were informed about the way of conducting activities. The children agreed to participate and were informed of the possibility of withdrawing from the research at any time. Likewise, the parents provided written consent for their child's participation. In accordance with ethical principles that respect children's autonomy, each child has the right to decide whether to participate in research and can withdraw at any time without negative consequences. The research was approved by the *Ethics Committee of the Faculty of Teacher Education, University of Zagreb*.

Procedures

With the aim of the child's holistic development, highlighted in the National Curriculum for Early and Preschool Education (Ministry of Science, Education and Sports, 2014), all activities were connected and integrated within project-based learning. Considering children's interest in the animal world, as well as the approaching Easter time, three project themes were chosen: rabbit, spider, and bee. Topics changed every two weeks. Within each topic, children were offered a counting rhyme, a song, and listening material. When planning incentives and thinking about individual topics, the importance of an integrated and multimodal approach to the activities was considered.

In the context of the rabbit theme, children were provided with plasticine, rabbit figurines, and plasticine mats on their first day at the art centre. Since the plasticine was quite hard, the children opted to lay their rabbits down, commenting that they were resting and looking at the stars. Encouraged by this, one girl created a standing rabbit, explaining that it was "the boss of the other rabbits". Initially, the other children didn't like the idea of their rabbits being bossed around, but after some minor disagreements, they decided that they preferred their rabbits to lie down and gaze at the stars. In the Dramatic Play Centre, children witnessed a dramatization of the story "About the Easter Bunny" prepared by the educator. In the Math and Manipulatives Centre, children engaged in a game with rules "Add the corresponding number to the set of rabbits", while in the Construction Centre, they built a house for rabbits using wooden blocks, discussing where rabbits live and what their burrows look like.

After creating stick puppets for the story "About the Easter Bunny", the children improvised the dramatization themselves. Although there were minor disagreements during the process, they resolved everything through agreement. The stick puppets and rabbit figurines they crafted were then used, in line with the text and structure of the counting rhyme, during its introduction and adoption. Initially, the rhyme was performed rhythmically with movement, body percussion, and percussion instruments in various ways. In the subsequent performances, in addition to the aforementioned methods, the rhyme was also enacted with rhythm, at different tempos, and dynamics. Children were encouraged to suggest their own approaches, leading to one child proposing the use of stick puppets and figurines as a form of dramatization during the counting.

During the activities centred around the adoption of the song "Bunny Woes", the children engaged in tasks related to literacy and mathematics at the respective centres, based on their interests. A synthesizer,

brought by a parent, was introduced in the music centre, thereby involving the parent in the group's activities. Intrigued by the instrument, all the children expressed a desire to try playing it. Following the educator's presentation of the song, the children performed it by clapping, stepping, and moving, incorporating various amusing and creative actions such as standing on one leg, singing with a blocked nose, or with closed eyes. They also explored different associations suggested by the educator, such as imitating a sleepy rabbit or a hungry rabbit in a hurry for lunch, or a sneaky rabbit, and contributed their own ideas, such as singing in a deep voice, like opera singers, or in a funny voice etc.

In line with the project theme and the nature of the composition, "Kangaroo" from Saint-Saëns's Carnival of the Animals was chosen for the music-listening activity. Alongside the previously mentioned activities in different centres (building, math and manipulatives, literacy), the educator engaged the children in discussions about rabbits, including their diet, habitat, and fears. Given that the research involved a group of early English language learners, an application with English captions was utilized to introduce the children to various parts of the rabbit's body.

While listening to the music, the children independently recognized the instruments and afterwards, they commented on the tempo and dynamics, expressing their impressions and experiences (such as likening the music to an approaching monster or a hopping rabbit or kangaroo). Narrating a story about a rabbit jumping and listening in the forest further encouraged the children to immerse themselves in the role of the rabbit. They used plastic blocks as carrots and furniture as trees under which they imagined the rabbit sleeping.

When asked about the ending of the piece, some children suggested that the bunny fell asleep, while others felt the need to continue moving and listening to the music to conclude the story in their own imagined way.

In collaboration with educators, parents contributed beeswax and various wax figurines for the bee-themed topic. These items were made available to the children in the research centre, along with a magnifying glass and a plastic box containing a bee. In the literacy centre, children were provided with letters and word templates, while the math and manipulatives centre offered bee-themed games.

During the conversation about bees, discussions revolved around what bees do and what their "husbands" are called, as well as what they do. The children mentioned that there are also wasps, so the educator suggested that they explore the difference between bees and wasps at home with their parents. When discussing the ongoing decline in bee populations and its impact on ecosystems and human society, many children expressed sadness.

Following a cartoon and an English song titled "Here is the Beehive" in the media centre, one girl spontaneously began singing the song with correct English pronunciation, inspiring others to join in. The children proposed their own movements while singing, which they practised together before dividing into two groups to perform the song with movements for each other.

Most children found singing and dancing more enjoyable than simply watching others. They continued to sing the song during afternoon activities and while preparing to go outside. When they spotted bees, they alerted the educators to the potential danger of being stung.

As part of the following activity aimed at adopting the "Bumblebees and Bees" counting rhyme, the children engaged in the activities provided at the learning centres upon their arrival at kindergarten. During the "friendship circle", the English song about the beehive was sung again, and afterwards, one girl shared information from her parents about the distinction between bees and wasps. Some children wanted to recount their experiences of encountering a bee to the group, followed by everyone watching an educational video about bees with keen interest.

Encouraged by the educator, the children performed the "Bumblebees and Bees" counting rhyme in various meters, and then, the following week, in rhythm. Although some children initially struggled to learn the text, different associations (such as imagining bees "telling" the rhyme with their feet) and

incorporating movement, body percussion, and percussion instruments (as if the sticks were "talking") helped them learn the rhyme through play. The counting rhyme was also used to count the children when determining whose turn was for a certain activity, further reinforcing its adoption.

During the third activity within the bee theme, alongside other activities, the children were provided with Kinder egg boxes in the art centre, which they used to create bees that they then placed in a beehive. In the music centre, the children had the opportunity to listen to a recording of Nikolay Rimsky-Korsakov's composition "Flight of the Bumblebee", which inspired them to enact rapid movements, assuming the role of worker bees flying from flower to flower with their companions, collecting nectar. Additionally, a picture book brought by one of the children, related to a task involving parents, further enhanced the children's immersion in the role of the bumblebee.

Although the last theme of this project, spiders, was particularly challenging and interesting for the boys, the girls also actively participated in the activities offered across different centres (including picture books featuring spider themes, puzzles, charcoal for drawing spider webs, a spider found in a box by the children and their educator in the kindergarten yard, and a video showcasing various spider species). While one boy was drawing different types of spiders, several children decided to create a memory game with a spider theme on their own initiative.

The children quickly embraced the Spider counting rhyme, repeating it with movement, body percussion, and elements of dramatization. In addition to the provided activities, the counting rhyme was frequently incorporated into the children's self-initiated and self-organized activities, indicating a positive correlation between the children's interests and the quality of the activities performed.

As an additional incentive to engage with the English folk song "Itsy Bitsy Spider", the educator, along with the children, constructed a large spider's web out of twine. The children crawled through it, enhancing their dexterity, coordination, flexibility, and agility. One boy suggested using a bell to signal the elimination of anyone who touched the web during the game. The song was performed with specific movements suggested by the children and the educator. The children encouraged and supported each other during the activities. Those who initially had difficulty coordinating movements with the song later engaged in the activities again during self-initiated and self-organized play, demonstrating their continued interest.

Following various incentives across centres, the children first engaged in free creative play while listening to the composition "Addams Family" by Vic Mizzy. The self-initiated and self-organized activity culminated in a joyful parade around the entire room. Although some children initially struggled to follow the so-called "musicogram", which aids in understanding the composition's form by following diagrams on the screen, most persisted in the activity and successfully mastered it. Humming the melody of the composition during free afternoon play and outdoor activities further confirmed the children's interest, and the quality of the activities conducted.

Results and Discussion

In line with the research aim of exploring how musical activities can be integrated into different areas of educational practice, as well as the stated research question, the findings highlight multiple ways in which musical activities can be connected to other educational areas within project-based learning (PBL). In addition, the findings suggest that music plays a critical role in supporting children's multimodal development within PBL, reinforcing its importance while enhancing learning experiences and supporting the holistic developmental goals outlined in the integrated National Curriculum for Early and Preschool Education (Ministry of Science, Education and Sports, 2014). Specifically, musical activities contribute to children's cognitive, emotional, and social development, supporting creativity, problem-solving, and collaboration.

Using and combining various artistic media such as visual arts, movement, and drama with other media in the familiar manner of PBL, these activities were intentionally integrated into a play-based

learning environment, encouraging independent exploration, creativity, and motivation through developmentally appropriate practices. Building on this integration, musical activities such as learning and repeating counting rhymes, singing, and listening to music were tailored to children's interests and linked to broader project themes related to the animal world, including topics such as rabbits, spiders, and bees. Children participated in different activity centers based on their interests, such as the Manipulatives and Games Centre, the Literacy and Mathematics Centre and the Construction Centre. This participation allowed children to explore and develop skills relevant to different areas in an engaging and interactive environment, ensuring they could deepen their musical experiences while enriching their understanding of the world around them.

Based on the goal of musical activities-to help children express themselves and thus contribute to their holistic development (Bautista et al., 2022) music becomes one of the key media that significantly supports this aspect of PBL, where children demonstrate their learning through different modalities (Lev et al., 2020). In line with the holistic development goals outlined in the National Curriculum for Early and Preschool Education (Ministry of Science, Education and Sports, 2014), this integration enables children to deepen and express their musical experiences through syncretic and multimodal creative expression (Bačlija Sušić, 2019; Bačlija Sušić & Brebrić, 2024; Cheng, 2015; Pramling & Wallerstedt, 2009; Webster, 2016).

In this context, music activities were not only integrated with other educational areas, but also naturally extended into children's play-based exploration, further enhancing their multimodal engagement. As children voluntarily engaged in activities and learned through play in play-based environments (Pyle & DeLuca, 2017), they explored independently, experimented through trial and error, and engaged in developmentally appropriate experiences. Symbolic and pretend play, which helps children make sense of their world (Bruner, 2000; Piaget, 1963; Vygotsky, 1977), provided a rich foundation for music integration as they mimicked the movements of the animals being studied, enhancing both their motor and creative development. In addition, storytelling, guided imagery, and dramatization not only enriched these experiences, but also fostered children's ability to express narratives and understand emotions (Sawyer, 2013), reinforcing music's role as a bridge between cognitive, social, and emotional learning.

This is consistent with the project-based approach, where learning is authentic, relevant, and encourages collaboration and multiple modes of expression (Lev et al., 2020). Music serves as a key medium in PBL, helping children demonstrate their learning in multiple modalities. For example, integrated activities such as singing a spider song and navigating a large spider web connected musical learning to social-emotional development and promoted musical social-emotional learning (MSEL) (Edgar, 2020; Hallam, 2015; Jacobi, 2012). These activities promoted cognitive and social-emotional growth by allowing children to explore and express different concepts. Research confirms that musical activities contribute to children's cognitive development (Zaatar et al., 2024), social-emotional competencies (MacRitchie & Garrido, 2019), empathy, teamwork (Mendo-Lazaro et al., 2018), and better group cohesion, thus improving their overall well-being (Bačlija Sušić & Buerger-Petrović, 2023).

Furthermore, a well-organized spatial and material environment by ECE educators, rich in diverse resources, encourages children to explore and experiment independently, engaging with media such as movement, sound, drawing and language, which supports their cognitive, social and emotional development (Vujičić & Petrić, 2021). This aligns with the principles of PBL and the National Curriculum for Early and Preschool Education (Ministry of Science, Education and Sports, 2014), where a rich environment supports self-directed exploration and creativity. As children engage with different activity centers and materials, they transfer knowledge across domains, fostering an integrated learning process (Incognito et al., 2021). Thus, this interdisciplinary engagement promotes the development of social, emotional, cognitive, and creative skills, contributing to the child's overall well-being and development.

Conclusion

The findings of this study highlight the important role of music integration within PBL and the National Curriculum for Early and Preschool Education (Ministry of Science, Education and Sports, 2014) in promoting holistic child development. The integrated music activities across the three project themes demonstrated how music can be creatively linked to other areas of learning, enabling children to express themselves holistically through different media and supporting their cognitive, social, emotional and creative development (Barrett et al., 2022). It further confirms that an integrated curriculum is effective in the early years (Masitoh & Mariono, 2022).

A thoughtfully structured environment rich in diverse resources supports this integration and encourages independent exploration and creativity, which in turn promotes the development of key competencies in children (Akib et al., 2020; Vujičić & Petrić, 2021). The increased presence of musical activities in daily routines, along with children's self-initiated play and creative implementation of guided activities, provides strong evidence of the quality and value of these practices (Lizačić & Bačlija Sušić, 2020). Moreover, the implemented activities have contributed not only to the development of children's competencies, but also to the professional growth of educators.

Furthermore, the preparedness of educators for effective music-based interventions is particularly supported by initial teacher education and ongoing professional development (Barrett, 2014; Bautista et al., 2022; Ehrlin & Tivenius, 2018; Kretchmer, 2002; Lee, 2009; Lenzo, 2014; Nardo et al., 2006; Rajan, 2017). This ensures that educators are equipped with the skills and confidence to effectively implement music to support children's holistic development. By enhancing children's learning experiences, this approach aligns with the holistic aims of the National Curriculum for Early and Preschool Education (Ministry of Science, Education and Sports, 2014) and provides a foundation for integrated educational practice.

As the field of music education adapts to global changes, this study suggests that integrating music into ECE practices leads to transformations in both children's musical lives and the broader educational context (Regelski & Gates, 2009). This approach provides opportunities to create new theoretical frameworks that can further improve and refine educational practices, ensuring that music education continues to evolve and contribute to the holistic development of the child (Candy & Edmonds, 2018; Green, 2017).

Limitations of Research

The study may have potential methodological limitations, such as the utilization of a small sample size for research purposes and the time constraints of 6 weeks for activity implementation. Additionally, due to the study's scope, only select activities are presented and described within the context of an integrated curriculum and PBL, reflecting the various ways music can be connected to different fields.

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Research Article

Assessing social studies competencies of 5-year-olds across different early childhood education programs in Slovenia

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Abstract: The main objective of the research was to analyse the differences in children's competencies in social studies among the various kindergarten programs in Slovenia. The assessment of competencies of five-year-old children enrolled in full-day, half-day, and shorter (240-hour) early childhood education programs were compared. The study included teachers' assessments of 955 five-year-old children, with a balanced distribution by gender and homogeneous age group, with a special focus on evaluating children's competencies in shorter programs. The results regarding the differences at the beginning and end of the shorter programs for the social studies competencies show statistically significant improvements in competencies, even though the duration of the program is only 240 hours. Comparisons between programs revealed significant differences on all items for the social studies between children in shorter programs and those in full-day or half-day programs, with children in shorter programs scoring lower compared to children in full-day or half-day programs. No significant differences in social studies competencies were found between children in full-day and half-day programs. The study results are crucial for developing teaching and learning strategies in early childhood education as they highlight the need for an approach that considers both the quality and duration of early childhood education programs.

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Introduction

Social Studies as a Learning Domain in Curriculum in Early Childhood Education

The aim of social studies as a learning domain in (Early Childhood Education) ECE is to strengthen the development of toddlers and children to participate competently in society. Given the constant changes in society, children must be empowered at an early age with competencies that will enable them to live well in their local and broader social environment and culture. It is only through cooperation that we can live in a community, and therefore, the development of children's identity, social and emotional skills, and the establishment and maintenance of relationships are fundamental. Social studies as a learning domain are also an opportunity for ECE teachers to provide a friendly and safe environment for children to develop their communication skills (e.g. learning courtesy expressions, problem-solving, negotiation, verbal and non-verbal communication skills) (Bierman et al., 2008; Moses, 2024; Seefeldt & Galper, 2006;)

Within social studies, children also learn and develop values that are important for successful functioning in a group and social environment. In kindergarten, children should gain experience of the importance of responsible and safe behaviour, ethical thinking, cultural norms, independence, awareness, and the development of healthy lifestyles and self-care. ECE teachers should create an inclusive environment where everyone has equal opportunities, regardless of gender, race, nationality, social and cultural background, religion, abilities and needs, without stereotypes and prejudices. Children can develop respect for diversity and care for others through learning and everyday activities. Social studies also include learning about themes related to cultural heritage, intergenerational education, citizenship education, and democratic participation. Children gradually develop their understanding and critical

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thinking about the importance of sustainable development, where they learn about social responsibility, children's rights, consumer and media literacy, and how to use digital technology safely and sensibly (Falkner & Rodriguez, 2024a; Neill, 2015; Seefeldt et al., 2014).

ECE addresses the holistic development of children, bringing positive experiences and enhancing academic and social competencies (Cheema et al., 2020), which are also implemented in kindergartens in Slovenia by the national Kindergarten Curriculum (Kindergarten Curriculum, 1999). Nurturing the growth of young children's social competencies has also been a long-standing goal of early childhood education (Copple & Bredekam, 2009; Kostelnik et al., 2022; Mashburn et al., 2008;). The role of ECE teachers is crucial in promoting social and emotional competencies in young children and other social skills and knowledge related to how to use social skills in society, public institutions, understanding different cultures etc. (Beamish & Bryer, 2024; Seefeldt et al., 2014). Social competencies development is seen as one of foundational elements of social studies in early childhood education, highlighting the shared goals and strategies for social competencies. It is also an integral component of learning and development in the learning domain of social studies (Kemple, 2017).

Social studies competencies of children encompass foundational skills and understandings that enable effective participation and interaction within their social and cultural contexts. These competencies include developing a positive self-identity, interpersonal and communication skills, basic understanding of community roles and rules, and early abilities related to citizenship, cooperation, and respect for diversity (Kemple, 2017). From a developmental perspective, social studies at this age align closely with frameworks such as the Head Start Early Learning Outcomes Framework (U.S. Department of Health and Human Services, 2015), the OECD's Starting Strong Curricula (Organisation for Economic Co-operation and Development, [OECD], 2017), Curriculum for Kindergartens in Slovenia (2025) and other national curriculums (e.g. Finish National Core Curriculum [Finish National Agency for Education], 2018; New Zealand Early Childhood Curriculum [Ministry of Education], 2017; Swedish Curriculum from the Preschool [Skolverket], 2019; The Irish Early Childhood Curriuculum Framework [National Council for Curriculum Assessment], 2009), emphasizing the importance of social-emotional development, cultural awareness, and foundational civic understanding as core components of early childhood education. Explicitly aligning with these global standards underscores the universal significance and developmental appropriateness of fostering social studies competencies in early childhood.

Social competencies encompass children's social, emotional, and cognitive knowledge and skills to achieve their goals and interact effectively with others (Kostelnik et al., 2022). From a developmental perspective, early childhood education primarily resides in child development's social and emotional domains. Social competencies are defined by positive self-identity, interpersonal skills, planning and decision-making, cultural competence, emotional intelligence, social values, and self-regulation (Kemple, 2017), which are indirectly included in our research of competencies in social studies as a learning domain.

Social competencies are also a strong predictor of children's readiness to learn in further education. Young children with difficulties in social competencies are at risk for maladjustment and social problems into adolescence and adulthood (Thompson & Thompson, 2015; Thompson, 2002). Children participating in programs designed to enhance their social and emotional competencies show improved academic performance and social behaviour, reduced behaviour problems, and less emotional stress (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2020; Durlak et al., 2011; Mindes, 2015). Before children can understand concepts and ideals such as fairness, the common good, and the rule of law, they need to experience real-life personal situations where these concepts come into play and practice the requisite social skills (Kemple, 2017). Preschool settings play a crucial role in offering children opportunities to interact with peers and adults in diverse situations. In addition to preschool settings, children can also practice social skills in various settings outside of school, although these opportunities may be influenced by cultural or family contexts.

These perspectives emphasise the importance of social studies in early education and are particularly relevant to our research study, during which we have analysed how children in various ECE programs in

Slovenia develop their competencies related to social studies in a key period a year before they enter primary education. By focusing on different ECE programs, our study aims to understand better how early experiences in social studies can lay a strong foundation for later schooling.

ECE Programs in Slovenia

The organisational structure and types of programs provided in kindergartens in Slovenia are regulated by the Kindergarten Act (1996). This Act outlines various program options to meet the diverse needs of children and their families. It includes full-day programs (lasting between six to nine hours, scheduled for the morning, afternoon or rotating schedules, full day); half-day programs (spanning four to six hours, available in the morning, afternoon, or on a rotating schedule); and shorter programs, specifically designed for children from remote and demographically endangered areas, ranging from 240 to 600 hours annually. Full-day and half-day programs cater to children from their first year until school entry, integrating aspects of education, care, and nutrition. Shorter programs in kindergartens in Slovenia focus on children from three years of age up to school entry. The Act requires that both full-day and half-day programs be conducted by a team of ECE teachers and ECE teacher assistants, whereas ECE teachers exclusively lead shorter programs. Kindergartens provide opportunities for reducing unfavourable environment factors and ensure that all children can integrate into the school system, regardless of their parents' education, socioeconomic status, or their affiliation with any national minority, ethnic group, or group without permanent or temporary residence in the Republic of Slovenia (White Book on Education in RS, 2011).

In Slovenia, as in other countries of the European Union, the proportion of children of all ages enrolled in kindergartens has been increasing in recent decades (White Book on Education in RS, 2011). At the beginning of the school year 2023/24, 85.5% of children aged 1–5 years were enrolled in ECE (SiStat, 2024a), with the vast majority of children (94.2%) attending public kindergartens (SiStat, 2024b). In the school year 2019/20, 92.1% children aged four and five attended Kindergarten, in 2020/21 91.4%, in 2021/22 91.1%, in 2022/23 90.8%, and in 2023/24 91.2% of children aged four and five years attended pre-school education (SiStat, 2024c).

In a national evaluation study (Licardo, Laure et al., 2024), educators reported that 93,9 % (*N=896*) of Children were enrolled in full-day programs, 2,5% (*N=24*) in half-day programs, and 3,6 % (*N=34*) in shorter programs, indicating that the majority of children are enrolled in full-day programs, with very few attending half-day and shorter programs.

Research Problem

This research aims to explore children's competencies in social studies who are enrolled in different ECE programs of public kindergartens in Slovenia. Studies on children's competencies in social studies are scarce (Barblett & Maloney, 2010; Lillvist et al., 2009, National Council for the Social Studies, 2019; Rosenberg, 2020; Willis & Schiller, 2011), so we want to fill the gap with this research. In the analysis, we compare assessments of ECE teachers on essential competencies of 5-year-old children related to social studies in full-day, half-day, and shorter programs and at the beginning and end of shorter programs, which lasted for 240 hours. This analysis is a part of a national evaluation study entitled "Analysis of the Needs, Conditions, and Possibilities for Mandatory Inclusion of Children in One of the ECE Programs from the Perspective of Reducing Social, Economic, and Cultural Inequalities" (Licardo, Laure et al., 2024). This study is carried out on two key research questions: a) What are the differences in ECE teachers' assessment of competencies of children in social studies across full-day, half-day, and shorter ECE programs? and b) How do ECE teachers assess the development of children's competencies in social studies at the start and end of the shorter programs? In this study, we aimed to explore how the length and structure of a program affect the development of early social studies skills, contributing valuable insights to research in early childhood education.

Method

Sample

The sample for the study was selected from public Kindergartens in Slovenia, which had previously confirmed their participation in a national evaluation study (Licardo, Laure et al., 2024). 105 kindergartens responded to an invitation to participate in the assessment of children in shorter, half-day, and full-day programs. The focus within this study was specifically on children transitioning to the 1st grade of primary school in September 2023. ECE teachers randomly selected three children to participate in each class and assessed their competencies.

Table 1

Number (f) and Structural Percentages (f%) of Children Who Were Included in the Social Studies Competencies Assessment

Variable	Category	f	f%
Gender	Girl	496	52.2
	Boy	455	47.8
	Other	0	0,0
Age	M = 5.89; SD = 0.34		
Slovene as Mother Tongue	Yes	895	94.2
	No	55	5.8
Type of Program	Full-day Program	896	93.9
	Half-day Program	24	2.5
	Shorter Program	34	3.6
	Total	955	100.0

Table 1 shows that the sample included a relatively balanced gender distribution of 52.2% girls and 47.8% boys. A total of 955 ECE children were included in the study. The average age of the children in the study was 5.89 years, with a standard deviation of 0.34 years, indicating a homogeneous age structure within the sample. Most children (94.2%) spoke Slovene as their first language. The majority of the children (N = 896, 93.9%) were enrolled in full-day programs, with a smaller number attending half-day (N = 24, 2.5%) and shorter programs (N = 35, 3.7%). Approximately 300 ECE teachers participated by completing the Competencies Assessment Tool for Preschool Children: KOM5 (Licardo, Ograjšek et al., 2024) for each child in this part of the study. The sample is representative for children included in shorter programs and in the structure comparable to the population of children in Slovenian kindergartens.

Data Collection

The data collection for our study was conducted as a part of a more extensive national evaluation study (Licardo, Laure et al., 2024). The objective of national evaluation study was to assess the current state of implementation of shorter preschool programs in Slovenia (240 hours). Data collection methods included an online survey, focus groups, document analysis, observations of program implementation, and gathering information on competence development as well as social, cultural, and economic disparities among three groups of children (participating in shorter, half-day, and full-day programs prior to school entry).

Public preschools that had previously confirmed their participation in the evaluation study were invited to take part. Educators in Kindergartens were instructed to randomly select three children for whom they completed the KOM5 assessment (Licardo, Ograjšek et al., 2024). Teachers were trained to use KOM5 by coordinators in their kindergarten, who received detailed training by researchers. Each kindergarten had one coordinator of the research study, who supported the research process and data collection with instructions, training and other support needed. Parental consent and children consent was obtained prior to the assessments. Coordinators were also provided with an electronic link to the KOM5 instrument, with a recommendation that educators print the instrument initially and later input the data into its online version. Data collection took place from November 2022 to May 2023, with the majority of data gathered in November and December 2022.

This study received ethical approval from the Research Ethics Committee at the University of Maribor, Faculty of Arts (approval date: 10. 03. 2023; approval number: 038-04-139/2023/16/FFUM). Written informed consent was obtained from parents, and verbal assent was secured from all participating children. Data collection and handling processes complied fully with ethical standards, including anonymization and group-level data analysis to ensure participant confidentiality. Participants were informed explicitly of their right to withdraw at any stage without consequence. The study procedures adhered rigorously to international ethical standards outlined in the Declaration of Helsinki (World Medical Association, 2013), the ethical guidelines from the European Union Agency for Fundamental Rights (2014), and regulations outlined by the General Data Protection Regulation (GDPR; European Parliament & Council of the European Union, 2016).

The Instrument

Instrument Competence Assessment Tool for Early Childhood Education Children: KOM5 (Licardo, Ograjšek et al., 2024) was developed for the purpose of this study because, in Slovenia, there are currently no other instruments designed for ECE educators to assess the competencies of children before they enter primary school. The instrument is composed of diverse competencies related to curricular domains in Slovenian public kindergartens that ECE teachers can observe in children before their school entry, such as Social and Emotional Domain, Cognition, Language, Mathematics, Social Studies, Nature, Art, Physical Development and Motor Skills.

Each domain within the instrument has comprehensive descriptors and detailed explanations, which provide a more precise and accurate evaluation of a child's competencies. Each child was observed for a minimum of three days during various segments of daily routine or structural activities. These selected timeframes provided opportunities for the child to exhibit the relevant competencies. ECE teachers rated each child on a scale from 1 to 7 (1 - not applicable and 7 - fully applicable).

The reliability or internal consistency of the scale for each content section of the instrument was determined using Cronbach's alpha coefficient (α). Our analysis confirmed the reliability of the scales across all learning domains, with alpha coefficients exceeding 0.7.

Data Analysis Procedures

The data collected from survey questionnaires and children's competencies assessments were processed using the statistical software IBM SPSS Statistics (version 27.0). We utilised the descriptive statistical methods, including the calculation of frequencies, mean values, and standard deviations, the Kruskal-Wallis test and Wilcoxon test for calculating differences in competencies between children in ECE programs and at the beginning and the end of the shorter program.

Results

The results presented in this chapter are focused on comparing ECE teachers' assessment regarding the social studies competencies of children in various ECE programs, before entering primary school. The tables below present two parts of the results, the first one is the analysis of these assessments at the beginning and end of the shorter programs, the second one is the comparison of teachers' assessment of children's social studies competencies across different ECE programs and the second.

Comparison of ECE Teachers' Assessments of Children's Competencies at the Beginning and End of the Shorter Program

The results of comparing preschool teachers' assessment on children's social studies competencies at the beginning and end of the shorter programs were analysed using the non-parametric Wilcoxon test. This test was used because the variables did not satisfy the requirements for a paired samples t-test. We also analysed the reliability measure (Cronbach's alpha coefficient) on the data sample for the shorter programs in the subgroup of social studies items.

Table 2

Differences in ECE Teachers' Assessment of Children's Competencies for the Social Studies Domain in the Shorter Program at the Beginning and End of the Program

Competencies	N	M1	SD1	Sum of pos. Ranks	M2	SD2	Sum of neg. Ranks	Z	P
The child knows the local and wider environment.	21	3.9	2.32	176.0	5.57	1.43	0.0	-4.01	0.003
The child knows and follows basic traffic rules.	15	3.8	1.9	92.0	4.87	1.25	0.0	-3.41	0.011
The child has knowledge about public institutions, occupations and working environments.	16	3.38	1.86	115.0	5.31	1.25	0.0	-3.52	0.005
The child can orientate himself.	15	4.13	1.92	89.5	4.80	1.57	9.50	-3.21	0.020
The child knows space and time categories.	15	3.27	1.67	75.0	4.27	1.33	0.00	-3.41	0.026
The child can eat independently.	35	5.46	1.72	346.5	6.23	1.03	52.5	-4.99	0.008
The child independently demonstrates concern for others and the environment.	35	4.74	1.87	424.5	5.60	1.42	114.5	-4.35	0.011
The child can take care of him/herself.	35	5.26	1.77	316.0	5.91	1.25	104.0	-4.77	0.039
The child demonstrates positive values.	34	4.76	2.09	381.0	5.44	1.64	24.0	-5.0	0.001
The child accepts different cultures.	31	5.35	1.92	243.0	5.97	1.45	0.00	-4.86	0.005

The results regarding the differences in assessment of children's competencies at the beginning and the end of the shorter program for the social studies learning domain ($\alpha = 0.92$) indicate that in 10 out of 10 measured competencies, statistically significant differences occur. These differences suggest higher ratings by ECE teachers concerning the child's knowledge at the end of the shorter programs of the local and wider environment ($z = -4.01$; $p = 0.003$), understanding and adherence to basic traffic rules ($z = -3.41$; $p = 0.011$), knowledge of public institutions, professions, and work environments ($z = -3.52$; $p = 0.005$), understanding of time and space categories ($z = -3.41$; $p = 0.026$), independent eating ($z = -4.99$; $p = 0.008$), independent demonstration of care for others and the environment ($z = -4.35$; $p = 0.011$), demonstration of self-care ($z = -4.77$; $p = 0.039$), demonstration of positive values ($z = -5.00$; $p = 0.001$), and acceptance of different cultures ($z = -4.86$; $p = 0.005$).

Regarding the differences in mean values, the greatest improvements during the shorter program in children's competencies, according to ECE teacher's assessment, occur in their knowledge about public institutions, professions and work environments, knowledge about local and wider environment, self-care competencies and knowledge about traffic rules. Less improvement occurred in accepting different cultures, orientation competencies, positive values and independent eating, which are probably competencies that need more time to learn and practice as is available in shorter programs, which last only 240 hours in a year before entering primary school. Although the results of the standard deviation indicate differences in competencies between children, some of them performed far better than others, especially in demonstrating positive values and orientation competencies.

Comparison of ECE Teachers' Assessment of Children's Competencies in Full-Day, Half-Day and Shorter Programs

To compare the competencies of children in full-day, half-day and shorter programs we used data from the KOM5 questionnaire (Licardo, Ograjšek et al., 2024), which was administered to ECE teachers in randomly selected groups.

Table 3

Differences in ECE Teachers' Assessment for Children in Full-Day, Half-Day, and Shorter Programs for the Social Studies Learning Domain

Competencies	Program	*N*	*M*	*SD*	$\bar{R}$	*Kruskal-Wallis U*
The child knows the local and wider environment.	Full-day	893	6,56	0.81	476.27	20.87**
	Half-day	24	6.88	0.34	563.56	
	Shorter	28	5.46	1.75	302.88	
The child knows and follows basic traffic rules.	Full-day	895	6.50	0.94	475.40	29.52**
	Half-day	23	6.78	0.42	529.07	
	Shorter	21	4.95	1.50	215.62	

Competencies	Program	*N*	*M*	*SD*	$\bar{R}$	*Kruskal-Wallis U*
The child has knowledge about public institutions, occupations and working environments.	Full-day	893	6.58	0.77	477.08	41.03**
	Half-day	23	6.83	0.39	544.80	
	Shorter	24	5.17	1.34	192.60	
The child can orientate himself.	Full-day	882	5.92	1.22	469.95	19.72**
	Half-day	22	6.27	0.77	527.05	
	Shorter	24	4.58	1.59	243.88	
The child is familiar with space and time categories.	Full-day	885	5.89	1.27	473.08	40.01**
	Half-day	22	6.32	0.95	554.77	
	Shorter	25	3.60	1.80	155.80	
The child can eat independently.	Full-day	897	6.77	0.60	484.64	25.31**
	Half-day	24	6.75	0.53	467.48	
	Shorter	34	6.21	1.04	321.66	
The child independently demonstrates concern for others and the environment.	Full-day	897	6.55	0.85	485.96	26.74**
	Half-day	24	6.50	0.93	469.33	
	Shorter	34	5.56	1.42	283.75	
The child can take care of himself.	Full-day	898	6.82	0.53	486.65	54.85**
	Half-day	24	6.83	0.48	488.77	
	Shorter	34	5.88	1.25	267.88	
The child demonstrates positive values.	Full-day	896	6.49	0.87	483.99	30.18**
	Half-day	24	6.67	0.76	545.62	
	Shorter	34	5.32	1.66	267.49	
The child accepts different cultures.	Full-day	845	6.65	0.70	453.11	10.80*
	Half-day	24	6.67	1.05	494.98	
	Shorter	30	5.93	1.46	337.28	

Note: *$p < 0.05$; **$p < 0.001$

The results presented in Table 3 indicate significant differences in the assessments of early childhood education (ECE) teachers regarding children's competencies in the social studies learning domain across full-day, half-day, and shorter programs. The scale shows internal validity ($\alpha = 0.88$), standard deviation values for children enrolled in full day programs are lower compared to children in half-day and shorter programs. Besides the Kruskal-Wallis test we also conducted a pairwise comparison and included results in the interpretation below.

Environmental Knowledge: Children in full-day programs had lower mean scores ($M = 6.56$, $SD = 0.81$) compared to those in half-day programs ($M = 6.88$, $SD = 0.34$), while children in shorter programs scored significantly lower ($M = 5.46$, $SD = 1.75$). The Kruskal-Wallis test indicated significant differences among the groups ($U = 20.87$, $p < 0.001$), suggesting that program length impacts children's knowledge of their local and wider environment. Pairwise Comparison indicates that children in shorter programs significantly underperform compared to both full-day and half-day programs, as evidenced by standardized test statistics (4.25 and 4.26 respectively, both $p < 0.001$). However, there is a marginal non-significant difference between full-day and half-day programs ($t = -1.79$, *adj.* $p = 0.222$), suggesting that the additional hours in full-day programs may not significantly enhance this specific competency beyond the half-day program's impact.

Traffic Rules Awareness: Similarly, full-day program participants scored lower ($M = 6.50$, $SD = 0.94$) than their half-day counterparts ($M = 6.78$, $SD = 0.42$), and significantly higher than those in shorter programs ($M = 4.95$, $SD = 1.50$). Statistical analysis confirmed significant differences ($U = 29.52$, $p < 0.001$). Significant differences in pairwised comparison were again observed, with children in shorter programs scoring lower than those in full-day and half-day programs ($t = 5.53$ and 4.71 respectively, both $p < 0.001$). The differences between full-day and half-day programs were minimal and not statistically significant ($t = -0.96$, *adj.* $p = 1.000$), indicating a potentially similar level of efficacy in teaching traffic rules.

Knowledge about public Institutions and occupations: Children in full-day programs showed lower average scores ($M = 6.58$, $SD = 0.77$) compared to half-day programs ($M = 6.83$, $SD = 0.39$), with children in shorter programs performing the lowest ($M = 5.17$, $SD = 1.34$). The differences were statistically significant ($U = 41.03$, $p < 0.001$). In pairwise comparison significant differences were again observed, with

children in shorter programs scoring lower than those in full-day and half-day programs (t = 5.53 and 4.71 respectively, both $p < 0.001$). The differences between full-day and half-day programs were minimal and not statistically significant (t = -0.96, *adj.* p = 1.000), indicating a potentially similar level of efficacy in teaching traffic rules.

Self-Orientation Skills: Scores were highest in half-day programs (M = 6.27, SD = 0.77), followed by full-day (M = 5.92, SD = 1.22), and lowest in shorter programs (M = 4.58, SD = 1.59), with significant differences observed (U = 19.72, $p < 0.001$). In pairwise comparison results indicate significant underperformance in shorter programs compared to both full-day and half-day programs (t = 6.18 and 5.42 respectively, both $p < 0.001$). There is a slight non-significant difference between full-day and half-day programs (t = -1.43, *adj.* p = 0.455).

Understanding of Space and Time: The pattern of scoring was similar, with half-day programs scoring higher (M = 6.32, SD = 0.95) compared to full-day (M = 5.89, SD = 1.27) and shorter programs (M = 3.60, SD = 1.80). Significant differences were noted (U = 40.01, $p < 0.001$). Pairwise Comparison of children in shorter programs indicates significantly lower competencies in understanding space and time categories than those in both full-day and half-day programs, as indicated by high standardized test statistics (t = 6.20 and 5.33 respectively, both $p < 0.001$). However, the difference between full-day and half-day programs is minimal and not statistically significant (t = -1.38, *adj.* p = 0.498), suggesting similar effectiveness in both program types for these competencies.

Independent Eating: There was a slight difference between full-day (M = 6.77, SD = 0.60) and half-day programs (M = 6.75, SD = 0.53), with shorter programs children scoring lower (M = 6.21, SD = 1.04). These differences were statistically significant (U = 25.31, $p < 0.001$). Pairwise comparisons show significant differences between shorter programs and both longer program types, with shorter programs underperforming (t = 3.03 and 5.45 respectively, both $p < 0.01$). The lack of significant differences between full-day and half-day programs (t = 0.70, *adj.* p = 1.000) suggests that the duration of these programs does not distinctly impact the development of independent eating skills.

Concern for Others and Environment: Full-day program children scored slightly lower (M = 6.55, SD = 0.85) compared to half-day (M = 6.50, SD = 0.93), and significantly higher than shorter program participants (M = 5.56, SD = 1.42). The analysis indicated significant group differences (U = 26.74, $p < 0.001$). Statistically significant differences are observed in pairwise comparison, favoring children in longer programs over those in shorter ones (t = 3.10 and 5.28 respectively, both $p < 0.01$). The absence of significant differences between full-day and half-day programs (t = 0.47, *adj.* p = 1.000) indicates a similar capacity of both program durations to foster this competency.

Self-Care: Minimal difference was observed between full-day (M = 6.82, SD = 0.53) and half-day (M = 6.83, SD = 0.48) programs, both outperforming shorter programs (M = 5.88, SD = 1.25). The differences were highly significant (U = 54.85, $p < 0.001$). Pairwise Comparison showed there are pronounced discrepancies favoring longer programs, with shorter programs significantly underperforming (t = 7.24 and 4.84 respectively, both $p < 0.001$). The near-zero difference between full-day and half-day programs (t = -0.11, *adj.* p = 1.000) demonstrates that both durations are equally effective at developing self-care abilities in children.

Positive Values: Scores of children in full-day program (M = 6.49, SD = 0.87) were slightly lower than of children in half-day programs (M = 6.67, SD = 0.76) and significantly higher than in shorter programs (M = 5.32, SD = 1.66). Significant differences between programs occurred (U = 30.18, $p < 0.001$). Pairwise Comparison indicates that children in shorter programs lag significantly behind those in longer programs in demonstrating positive values (t = 5.43 and 4.47 respectively, both $p < 0.001$). The comparison between full-day and half-day programs shows a non-significant difference (t = -1.17, *adj.* p = 0.730), suggesting that both durations are comparably effective in promoting positive values.

Cultural Acceptance: There were minimal differences between full-day (M = 6.65, SD = 0.70) and half-day programs (M = 6.67, SD = 1.05), with shorter programs scoring lower (M = 5.93, SD = 1.46). These

differences reached statistical significance ($U = 10.80$, $p < 0.05$). Pairwise comparison: Significant differences are noted, with children in shorter programs scoring lower than those in both longer programs ($t = 3.59$ and 2.93 respectively, both $p \leq 0.01$). The lack of a significant difference between full-day and half-day programs ($t = -0.65$, *adj.* $p = 1.000$) indicates that the length of the program may not be a critical factor in developing cultural acceptance among children.

Overall, these findings suggest that full-day and half-day programs generally provide more supportive environments for the development of competencies related to social studies compared to shorter programs. The consistent pattern of higher competencies in longer duration programs highlights the potential influence of program structure and length on early childhood education outcomes.

Discussion and Conclusions

This study explored differences in preschool teachers' perceptions of children's competencies across various pre-school education programs. We examined two key aspects: the comparison of teachers' assessment on social studies competencies across different ECE programs and the changes in these assessment from the beginning to the end of shorter programs. Although the study has some limitations, e.g. limited generalizability in specific cultural and educational context, it relies on teachers' assessments of children's competencies, which may introduce bias based on individual teacher perceptions or institutional practices, use of non-parametric tests. Besides, longitudinal approach would certainly provide richer insights in how competencies evolve and solidify over time. However, the study still contributes to the body of research by highlighting the effectiveness of shorter ECE programs in improving competencies in the social studies and underscores the need for a balanced approach in early childhood education, where both quality and duration are crucial in children's developmental and learning outcomes (Denham et al., 2012; Han & Kemple, 2006).

The results of this study, though focused on specific ECE program structures in Slovenia, contribute to broader international discussions on the role of program duration and structure in shaping children's competencies. Internationally, research consistently underscores that high-quality, sustained ECE experiences foster enduring benefits in social, cognitive, and emotional competencies, which are foundational for lifelong learning and adaptation in diverse educational and social contexts (Garcia et al., 2016; Garcia et al., 2017). Policymakers globally could leverage these insights to advocate for adjustments in the length and quality of ECE programs, particularly to support vulnerable groups and mitigate developmental disparities (Durlak et al., 2011). Thus, this study's findings reinforce the critical importance of systemic investments in early childhood education as a strategic approach to promoting equity and optimizing developmental outcomes across diverse international contexts.

The significant findings from our study suggest that while shorter programs do offer noticeable improvements in social studies competencies (Licardo, Laure et al., 2024), these gains are notably less than those observed in children participating in full-day and half-day programs.

This aligns with the research by Pelletier and Corter (2019), which asserts that longer program durations in kindergarten settings are instrumental in promoting deeper and more sustainable social and academic engagement. The assessment of early childhood educators and school professionals regarding the importance of preschool education are strongly aligned (Licardo, Laure et al., 2024). Teachers observe that children who have participated in preschool programs more easily establish relationships with peers, embrace cultural diversity, demonstrate better proficiency in language, and are better prepared for learning compared to their peers who were not enrolled in such programs. These findings affirm that enrolling children in preschool programs represents a fundamental step towards ensuring equal opportunities for all children. Furthermore, this enrolment positively impacts various aspects of children's social, cultural, and economic development, underscoring the necessity of fostering greater participation in preschool education, particularly for children from vulnerable groups.

Additionally, the research highlights the efficacy of full-day programs in addressing social and cultural disparities, similar to the study of Garcia et al. (2017), who argue for substantial returns on

investments in high-quality, full-day early childhood education, which demonstrate that comprehensive early education can yield enduring benefits in both academic performance and social adaptability.

However, the outcomes for children in shorter programs, although positive, underline the challenges these programs face in achieving equivalent results within limited hours. This discrepancy points to a critical need for policy adjustments that might extend program hours or enhance program quality, as suggested by studies like Cooper et al. (2010), emphasizing the broad-spectrum benefits of extended educational engagement from an early age. The main issue observed with shorter programs is that they are predominantly attended by children from vulnerable groups. This population of children predominantly demonstrate lower skills in learning domains, lower social skills, often come from lower social and economic background and face language difficulties (e. g. Roma children, immigrant children) (Licardo, Laure et al., 2024). Consequently, the condensed 240-hour duration of these shorter programs is insufficient for children to overcome developmental gaps. This often results in poorer academic performance in the subsequent years of schooling. Analyses show that children enrolled in shorter preschool programs progress across all developmental areas; however, achieving substantial progress in social and emotional domains requires longer timeframes. In this context, the importance of enrolling children, especially those from vulnerable groups, in full-day or at least shorter preschool programs is highlighted as a critical strategy for reducing inequalities.

Given the observed limitations of shorter ECE programs in fully developing children's social studies competencies, targeted enhancements in program design and delivery are recommended. Shorter programs might benefit from integrating more structured activities specifically aimed at social-emotional learning, community engagement, and intercultural competencies, alongside closer collaboration with families to extend learning experiences beyond the limited program hours (Denham et al., 2012; Kemple, 2017). Additionally, professional development for educators in shorter programs could emphasize evidence-based pedagogical strategies focused explicitly on social and civic competencies, ensuring that even with limited contact hours, critical developmental outcomes are effectively targeted (Falkner & Rodríguez, 2024b). Lastly, policy-level considerations could include incremental increases in the duration of shorter programs or establishing robust follow-up mechanisms to sustain and reinforce competencies acquired during limited preschool experiences, particularly for children from vulnerable backgrounds (Garcia et al., 2016).

In addition, our results engage with the discourse on educational equity, as mentioned by Falkner and Rodríguez (2024b), who stress the importance of early childhood education as a foundation for lifelong learning and social integration. The data also align with findings from Neill (2015), who notes that the social studies curriculum in early education can significantly impact children's understanding of cultural and societal norms, thereby shaping their future participatory roles in society.

This research unfolds significant relevance in the Slovenian context, offering insights into the effectiveness of various ECE programs on young children's social competencies. Our findings have important implications for early childhood education in Slovenia, highlighting how duration and structures of the program influences the development of competencies. We have found that short programs are effective in improving competencies in social studies learning domain and that they improve over the duration of the program. However, the lower performance in social competences among children in short programs compared to those in full-day and half-day programs suggests a need to refine these condensed educational experiences in Slovenia.

To ensure the continuous development and improvement of the quality of early childhood education, it is essential to systematically monitor children’s competencies within preschool programs and prior to their entry into school. Establishing a unified system of competency monitoring based on validated instruments would enable a reliable assessment of children's progress and the identification of areas requiring adjustments to educational approaches. Such a system would be particularly valuable for the early identification and intervention of children from vulnerable groups, which is significant not only for ensuring equal opportunities but also for its long-term economic benefits. Studies, such as that by Heckman

(2012), highlight that investments in high-quality early childhood education for children from vulnerable groups yield a return of up to 13% annually.

Furthermore, findings (Licardo, Laure et al., 2024) indicate that children attending full-day programmes demonstrate higher competencies across all analysed areas – including social and emotional skills, cognitive abilities, language and mathematics skills, as well as knowledge of nature, art, and movement – compared to children in shorter programs. This reinforces the necessity of adopting a systematic approach at the national level to make the enrolment of children in preschool programmes at least one year before starting school mandatory, whether in the form of full-day or shorter programmes.

Based on these findings, it can be concluded that preschool programs are crucial for the holistic development of children and for reducing social and cultural inequalities. Systematic support for increasing the participation of children, particularly from vulnerable groups, should be a priority at the national level. Such measures not only improve children's educational and social outcomes but also contribute to the long-term development of society and enhance economic prosperity.

Declarations

Authors' Declarations

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Research Article

Policy reform in Israel: Perceptions of Arab Palestinian kindergarten teachers

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Abstract: The research investigated the perceptions of kindergarten teachers in Arab Palestinian society concerning the contribution of the latest Israeli government education reform entitled the "New Horizons" reform to provide additional material enabling assessment of the reform's efficacy and attainment of its goals in Arab Palestinian kindergartens. Previous studies have shown inconsistent results concerning the benefits of the reform and indicated that educators had both positive and negative views concerning its different elements. A qualitative research study gathered data from semi-structured interviews with 16 Arab Palestinian kindergarten teachers. The findings indicated that the teachers were dissatisfied with the reform, indicating different negative aspects of the reform: burdensome work, intensive work, and lack of autonomy for the teachers, unsuitability of the programs for the kindergarten's workday and its structure. Although teachers indicated that the reform had a positive influence on the children's achievements and their progress, it also generated pressure on the teachers. The research findings clarify the way in which the reform is seen by these Arab Palestinian kindergarten teachers and points to the need for further studies, which will investigate kindergarten teachers' work in the local and global context.

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Introduction

One of the most significant educational reforms administered in recent years in Israel is the "New Horizons" reform (Sprinzak et al., 2004). The reform was implemented in elementary and middle schools in 2007 and was applied to kindergartens in the following year. The reform declared several main goals (Ram'a, 2008): the improvement of the education system's achievements, improving the school climate (including socio-emotional processes and organizational processes), the enhancement of learning-teaching methods and increasing students' achievements, improving the professional status of the teachers (including their work conditions and salaries and improvement of the enlistment process) and of the principals (improving their salaries and autonomy in the schools). This is a policy that encourages and supports preschool kindergartens to make changes and evaluate the implementation of these policies (Cohen & Caspary, 2011; Ministry of Education, 2018a; Shehory-Rubin et al., 2021).

With regard to early childhood education, the reform intended to afford an important opportunity to improve the quality of learning and experiences in the kindergartens, and to enhance the kindergarten teachers' role and their professional development (Ministry of Education, 2018a; Ram'a, 2008; 2014).

The reform immediately aroused dispute among those implementing it in the field, some supporting and some resisting it (Aram & Ziv, 2018; 2024). Some educators saw the "New Horizons" reform as the most important advance in the Israeli education system in recent years, since it set goals, and especially because it promised to reinforce the teachers' status, improve students' achievements, reduce gaps in learning and enhance the school climate (Zamir, 2009). However, the reform also drew severe criticism since it was thought to create more difficult work conditions for the teachers (Itzhak, 2011). Oplatka (2008) suggested

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that this criticism might stem from different and varied sources, for example a cultural preference for familiar, existing conditions instead of something new and unfamiliar or personal inhibitions such as teachers' low sense of self-efficacy for the new tasks, for example teaching individual lessons, dissatisfaction regarding remuneration and teachers' feelings that their salary did not sufficiently compensate for the extra work hours required by the reform.

These studies examined the reform in a general manner and included Arab Palestinian Kindergarten Teachers (hereafter: APKT) as part of their sample (Alfahel, 2012; Bishara, 2013; Oplatka, 2017; Ram'a, 2014; Sarsor & Mahajne, 2017); however, no studies were devoted entirely to the views of teachers in Arab Palestinian kindergartens (hereafter: APK) in Israel.

There is a significant difference in almost all dimensions of their job definitions between school teachers and kindergarten teachers. They have different daily work schedules, manners of work, classroom structure, work environment, communication with staff etc. (Uibu et al., 2011). Consequently, in order to clarify the effectiveness and influence of the reform on the different aspects of early childhood education, it is also informative to investigate the attitudes and perceptions of kindergarten teachers towards the reform. It is also particularly important to investigate attitudes of kindergarten teachers in Arab Palestinian society in Israel since there is little recorded knowledge concerning their attitudes in this field of research and their particular difficulties—especially those presumably imposed by the Israeli education authorities— are largely ignored in Arab Palestinian society in Israel and in research across the Arab world. Few studies have investigated this subject and they are mainly quantitative studies which have overlooked qualitative aspects (Shehory-Rubin et al., 2021). Therefore, qualitative studies on the subject could reveal valuable insights that have not yet been considered.

The Reform in Early Childhood Education in Arab Palestinian Society in Israel

The Arab Palestinian citizens of Israel are a heterogeneous minority. According to the Central Bureau of Statistics, on May 6th, 2021, the Arab Palestinian population of the state numbered 1,997.8 persons constituting (20.9%) of the state's population (Central Bureau of Statistics, 2022). Arab Palestinians are also considered to be a sociological minority since this population sector is not proportionally represented in the political, military and economic elite of the state. The Arab Palestinian population is also distinguished as a distinct traditional cultural group with internal cohesion and a crystallized collective identity (Paul-Binyamin, 2024; Haj-Yehia & Lev Tov, 2018). The Arab Palestinian society in Israel occupies a precarious position as a minority facing systemic marginalization, discrimination, and educational disparities. Challenges such as underfunded schools, discrimination, and socioeconomic disadvantages negatively impact the academic achievements of children in this community. Arab Palestinian teachers in Israel face systemic challenges within the Israeli educational system, which is predominantly shaped by Jewish-Israeli cultural values. Discrimination and bias, including limited professional development opportunities and fewer resources in Arab-majority schools, are common (Bashir, 2018). Language barriers between Hebrew-speaking Jewish-Israeli teachers and Arabic-speaking Arab teachers further hinder collaboration (Khalaila & Shtarkshall, 2017).

However, in recent years, there has been growing awareness among Arab Palestinians of the crucial role of education in fostering upward social mobility—both for individuals and for the collective society. Education is increasingly viewed as a key tool for reducing socioeconomic gaps and promoting equality (Al-Haj, 2024; Arar & Haj-Yehia, 2016). Additionally, Arab Palestinian schoolchildren develop resilience and a strong cultural identity, which can drive academic success and a commitment to social justice. Their educational outcomes are shaped not only by the barriers they face but also by the solidarity and support within their community (Al-Haj, 2024).

In Arab Palestinian society in Israel, education for early childhood is part of the national education system, but there are large gaps between Jewish-Israeli and Arab Palestinian early childhood education, especially when dealing with systemic and economic barriers affecting accessibility (Sayma et al., 2022). APKT, as a minority group, often face unique challenges that differ from those of their majority Jewish-Israeli colleagues. These challenges include cultural and linguistic barriers, limited career advancement,

and discrimination due to socio-political tensions between the Jewish-Israeli and Arab-Israeli communities. APKT may struggle with balancing their personal and professional identities, navigating biases in the classroom, and adapting to a curriculum that reflects Jewish-Israeli national values. These factors can contribute to feelings of alienation, stress, and a lack of professional support. Understanding these dynamics is essential for fostering a more inclusive educational environment (Abu-Rabia-Queder, 2010). According to the State Comptroller's report (Office of the State Comptroller, 2015) this gap between APKT, as a minority group, and Jewish-Israeli colleagues is expressed in different dimensions: the number of children learning in early childhood settings, severe shortage of kindergartens, and the number of days that children attend the kindergarten. Additionally, learning programs are not adapted for the Arab language and culture, and there is a lack of auxiliary services in Arab Palestinian society. Moreover, the report indicates partial implementation of the "New Horizons" reform in the first two years after it was introduced.

A good early childhood education is one of the most important keys to achieving economic success in life. When it comes to a minority population, such as the Arab Palestinian society in Israel, the issue takes on a different importance (Sayma et al., 2022). In the past, formal early childhood education has not received the attention it deserves in the discussions on the Arab Palestinian education system. However, in recent years, the Arab Palestinian population's awareness of the importance of formal early childhood education has increased. It seems that the improvement of Arab Palestinian parents' education level and their increased entry into the labor market (especially the women), has deepened awareness and demand for appropriate educational frameworks for their children. Protected kindergartens for ages 3-6 exclusive to Arab Palestinian children are located in Arab Palestinian society's villages and cities and also in mixed-ethnic cities in Israel. For the most part, the kindergartens are adjacent to the schools, however, recently autonomous kindergartens have been built in places separated from the schools. The typical staff for each kindergarten, includes a preschool teacher and assistant. In the 2020-2021 school year, the average number of children in the Arab Palestinian sector kindergartens was 33 children (Central Bureau of Statistics, 2022). Kindergartens for ages 3-6 are supervised by the Ministry of Education and focus on the ministry's uniform curriculum. The curriculum provides the educational framework from the children's entry into the education system (age 3) until the beginning of school studies (age 6). It is designed to promote the children's early linguistic literacy, emphasizing components that pave the way for the acquisition of reading and writing skills. In addition, the preschool curriculum includes math, science and technology, physical education, arts, health education and life skills (Aram & Ziv, 2024; Sarsor & Mahajne, 2017; Shehory-Rubin et al., 2021).

It is argued that the reform has engendered many changes in the pre-school education system, however few studies have examined Arab Palestinian society's attitudes and perceptions concerning the reform and more specifically its implementation in APK. Moreover, when the reform was applied, there was a recommendation to perform evaluation research a decade after it began, however evaluation studies were mostly performed only two to three years after implementation. These were quantitative research studies and so dimensions were already established for the measurement of attitudes, however it is possible that main important dimensions were overlooked. Thus, the current research was unique in that it examined the perceptions of kindergarten teachers in Arab Palestinian society concerning the contribution of the "New Horizons" reform and its implications in the early childhood education system, a decade after the reform's implementation. This was qualitative research, and can therefore clarify views on the reform's implementation and enrich the corpus of knowledge on this issue.

The research aimed to examine the perceptions of kindergarten teachers in Arab Palestinian society concerning the contribution of the "New Horizons" reform to their work in the kindergartens. The research questions are, therefore, formulated as follows:

1. What are APKT perceptions concerning the reform and its influences on their functioning as kindergarten teachers?

2. What are the APKT perceptions concerning the influences of the reform on the atmosphere in the kindergarten in Arab Palestinian society in Israel?
3. What are the APKT perceptions concerning the influences of the reform on the achievements of children in Arab Palestinian society in Israel?

Method

The research was an explorative study, collecting qualitative data in line with the research questions. Using qualitative research to investigate APKT perceptions and experiences concerning the implementation and consequences of the evolution of the reform over time, enabled the researchers to clarify the changes that have occurred over the years and the influence of the reform on different aspects of the kindergarten's life. Qualitative methodology helps researchers to expose inner processes that are often not overtly evident, focusing on deep understanding of the interviewees' words and perceptions and this may lead to insights and findings that explain the studied issues and help to inform policy-makers, so that their policies can be relevant to the work of the kindergarten teachers in the Arab Palestinian education system in Israel (Bryman, 2001; Shkedi, 2003).

Research Tools

The researchers designed and employed a semi-structured interview, using an interview guide in which the questions were constructed in line with the research questions. In order to test the interview questions, several preliminary examinations of the guide were conducted by other researchers working in a similar area. Then questions considered inappropriate were recomposed and redrafted to reinforce their internal reliability, until they were found to be appropriate. The interview included two parts:

Part one asked for the kindergarten teachers' personal details. *Part two* included twelve open-ended questions in which the teachers were asked to express their attitudes on different subjects, for example: "Is it important that the reform allowed the kindergarten teachers to choose between their previous work structure and the new work structure after the reform?" "How did work under the reform conditions contribute to the level of investment that you need to provide as the kindergarten teacher? And "In your opinion, did the reform improve the achievements of children in the kindergarten?"

The Research Population

16 APKT participated in the research, 14 of them were also qualified homeroom teachers. Their ages ranged from 35-50, with a range of from 13 to 28 years' teaching experience. With regard to their ranks according to the New Horizons reform, nine of the teachers had grade 6.5 while 7 had grade 4.5. Four of the teachers were working with children aged 3-4 years and 12 of the teachers were working with children aged 5-6 years. All the teachers were employed in four clusters of kindergartens in Arab Palestinian society, and had begun their work in kindergartens before the implementation of the reform. The teachers were selected as an "intentional sample" by one of the researchers who manages a kindergarten and is familiar with the region in which the participating kindergarten teachers work.

The research was conducted after receiving the institution's approval and was performed according to the institution's ethical research requirements. The researcher who interviewed the teachers (Author 3), was more easily able to gain the consent of the teachers to participate in the research because of her work in this field. The interviews were conducted in Arabic in the kindergartens where the interviewed teachers were working, and continued for an hour to an hour and a half.

Data Analysis

Data analysis was conducted according to content analysis guidelines, as delineated by various scholars (Creswell, 2004; Shelaski & Alpert, 2007; Shkedi, 2003). At the first stage, the interviews were read in full to identify meaningful themes in the texts (Cohen & Manion, 1997), and at the second stage, after finding repetitive units of meaning and identifying main common themes that emerged from the transcript texts, initial codes were generated and applied to the data (Shelaski & Alpert, 2007). The content analysis

involved sorting the statements expressed in the interviews into categories, distinguishing the kindergarten teachers' perceptions towards the reform that related to the reform's influences on Arab Palestinian society, on the kindergarten children, on APKT themselves and on the atmosphere in the kindergarten from their expressions concerning the implementation of the reform. At this stage, a mapping analysis was conducted to reinforce the reliability of the analysis and to improve the quality of the findings, so that connected categories were united in line with the emergent themes. In the final step, the categories were revised and refined. It is noted that in a qualitative study, external validity enables partial naturalistic generalization in similar contexts beyond this research.

Ethical Considerations

The ethics committee of the academic institution where two of the researchers are employed approved the performance of the research. Ethical guidelines were rigorously followed. The interviewees were provided with a clear explanation of the research's purpose, assured that their participation was voluntary, and guaranteed full confidentiality in any publication of the findings. They then gave their informed consent.

Findings

The current research aimed to investigate the perceptions of kindergarten teachers in Arab Palestinian society concerning the contribution of the latest Israeli government education reform entitled the "New Horizons" reform. This data was to provide additional material enabling assessment of the reform's efficacy and attainment of its goals in APK. Seven main categories emerged from the content analysis of data drawn from the semi-structured interviews with 16 APKT, which address the research questions. This process required careful and reflective work from the researchers, who were open to the emergence of new and unexpected patterns in the data, while maintaining objectivity. In the following descriptions of their testimony, interviewees are given pseudonyms. These areas of concern are now explained in greater detail through the words of the teachers:

The Arab Palestinian Kindergarten Teacher and the New Work Burden

The interviews revealed that the reform emphasized the teachers' responsibility for education, imposing increased accountability and many heavy, bothersome tasks on the kindergarten teachers. The multiplicity of the tasks created over-intensity in their work and made their work more difficult. For example, Sara described the burden created by the intensity of her work and the sense of pressure that she experienced:

> It is more and more demanding and stressful all the time. More work hours in small groups, more work with the parents and also more time with the staff and colleagues and individual meetings … I reckon that the reform provides a more organized program than existed before. "New Horizons" really emphasizes individual work and work in groups, so that if until now we had not done that individual work and work in groups, today we are obliged to do it. Everything is written down clearly, they tell us how many times to meet each month with each child, how many times each year. You have a larger quantitative obligation and you can check whether you have actually done it, but it's worth noting that the daily schedule under the reform is very heavy and under pressure.

The large number of activities that the kindergarten teacher is required to perform as a result of the reform and their understanding that they cannot manage to perform them in the time available means that they are constantly pressed for time. Maha related to the lack of time:

> There is not even time to eat a meal at the kindergarten, I eat my meal while I'm working with a group or during play time or yard activity. "New Horizons" has packed many activities into set periods of time, it's very difficult, but I am trying to keep up with it all the time.

Moreover, the lack of time means that the teachers often feel frustrated and unable to perform all that is demanded and are dissatisfied with the work that they do, as Monira noted:

> I have to do so many things. The work hours have become longer as have the demands! All the form-filling has produced too much bureaucracy. We need to comply with form-filling all the time, the work is unending. I think that the kindergarten teachers are now more frustrated at work.

Most of the kindergarten teachers (n=10/16) described their sense of burden due to the totality of tasks and responsibility that characterizes their role, and a few noted that there had been a difference in the level of their teachers' effort as a result of the reform. The burden was expressed in different ways: an extended work day, the teachers' participation in afternoon activities including various courses; and the influence on the teachers' free time and their family lives. The expected reduction of number of children in a class would essentially reduce the kindergarten teachers' work burden and taking care of the children's problems.

The APKT Sense of Lack of Autonomy

The reform is expressed in other administrative, pedagogic and organizational aspects of the kindergarten teachers' work and also in changes to their remuneration. The research participants expressed negative feelings towards their workplace and described the education system's lack of trust towards them. They felt that they were not awarded the respect that they deserve in light of their professional pedagogic, didactic and disciplinary knowledge, and they felt that they were treated as some sort of "technical" workers who were supposed to fulfill predefined tasks according to strict and clear standards. They felt that the educational policy-makers and other Ministry of Education role-holders did not trust their professional abilities, and to a certain extent they felt that this reduced their sense of professional autonomy, for example the demand to record each activity on various forms. Sara described this feeling:

> More paperwork, more forms, reports, summaries. In the kindergarten, the teacher does all that is demanded from her, often distancing her from the children and from the important goal of the kindergarten – to educate out of pleasure.

The external stipulations that the kindergarten teacher is expected to obey, prevent her from teaching contents derived from her educational world perception, while they also impose increased responsibility on her, as described by Nohad:

> Actually, we don't have the option to choose the structure, because the superintendent is the one who chooses the structure for us … and if … we want to change it or replace it, according to what the teacher thinks is important and her educational philosophy, it is often not accepted.

The kindergarten teachers' demand to regain their professional autonomy, does not stem from their desire to control their work time, rather out of a desire to perform tasks that are appropriate for their professional perceptions and their needs.

"**More Responsibility and More Commitment**"

Despite these feelings, the injury to the teachers' autonomy has apparently not harmed their sense of responsibility. Thus, for example, when she was asked about the character of her work within the stipulations of the reform, Hala noted: "*more responsibility and more commitment*". Samar also related to her sense of responsibility and linked this to the fact that despite the many assignments imposed on her as a kindergarten teacher, she chose out of her sense of responsibility to perform them all even at a cost to her private time and preferred not to lose her time with the children during the day:

> It`s clear that the kindergarten teacher needs her free time, because she needs more time to consider the program. The kindergarten work hours are insufficient, so there is not sufficient time to do all the work in the kindergarten. It's impossible to leave the children in the kindergarten … they need attention while they are active and occupied and we have much responsibility.

Another factor that reflects increased responsibility and commitment relates to the kindergarten teacher's leadership of the staff's work. According to the reform, the professional setup in the kindergarten is the main factor for change, and the teachers are strongly influenced by this. Manal explained how the reform had a positive influence on relations between staff members and how this affected the harnessing of the staff for common goals:

> The reform demands a lot of prior preparation from me, it requires much work and teachers' effort so that we can help the children in the kindergarten to advance, and the kindergarten staff play a very important role, since they work together to advance the kindergarten's goal, to empower the children.

The interview responses indicated that the many assignments demanded by the reform, necessitate the harnessing of the staff's help since the teacher cannot do them all alone, and this fact leads to increased cooperation and professional responsibility within the staff, guided and instructed by the kindergarten teacher.

Time Management: "The Work Never Ends"

In addition to the above-mentioned difficulties, the kindergarten teachers related to the influence of the reform on their time management. Thus, for example Samia noted:

> The clear and organized daily agenda facilitates efficient time management. You need to create programs with a certain character in advance, because every part of the day has its own program that you have to be ready for before you reach it.

Nivin also related to time management and compared the work of the kindergarten teacher before and after the reform. She also related to the different roles of school and kindergarten teachers:

> In addition to the duties that I already had to do, I now have to record my staff meetings in paperwork. In the past, I had a more comfortable relationship with the staff, there was no need to manage time, it was spontaneous and easy and everyone worked with all their soul and not only because we had to. Today … the work never ends, we arrive home … sit down and continue to record and summarize everything. It's different for [school] teachers who have special hours when they remain in school [for paperwork].

The words of the kindergarten teachers indicate that although the new fixed daily agenda helps to manage time, in the kindergartens it leads to a lack of dynamism or flexibility in their time management, because there are multiple tasks to be performed regarding the children and a large number of children in each kindergarten.

The Salaries Increased … But …

In addition to the reform's influence on managerial, organizational and pedagogic aspects of the kindergarten, the teachers noted that a principal change related to one of the reform's main goals: an increased salary for the staff. According to the new reform, kindergarten teachers who work within the new reform receive a salary that consists of a base salary combined with compensation for specific jobs and payments for overtime. Kindergarten managers are entitled to supplemental management remuneration, which is determined according to years of managerial experience and rank: up to five years' experience entitles them to management remuneration of about 17%; management experience of 6-10 years entitles them to management remuneration of 20%; and with more than 10 years of seniority they receive 21% management remuneration. In addition, kindergarten teachers who upgrade their academic knowledge with a master's degree and a doctorate receive increased salary. Nevertheless, kindergarten teachers' salaries are still lower than those of primary or secondary school teachers.

Nevertheless, although their salary had increased, they felt that their income was still inappropriate for the effort that they were required to invest, as Fadia explained:

> The teachers' effort in the reform is double [what we used to invest] because I need to continually reorganize things, to innovate learning materials … as the kindergarten teacher I feel more rewarded, it's true, although I need to make up for the individual lessons in hours that I invest at home and come to work in the kindergarten in the afternoons. I get more compensation and that gives me more motivation. But still we are not rewarded for the far more hours that we give in practice. But that's fine [the increased salary], it's a good start, it means there is appreciation. Even if it is appreciation with money.

It also appears from the interviews that there is a distinction between the increase in the novice kindergarten teachers' salary and that of the more experienced teachers. Mona also related to this subject:

> The salary increased reasonably especially for the novice teachers, but the extra salary from "New Horizons" was not enough for the extra hours which we give. It's my work, and I always knew that I was going to work so hard and the present wage in my opinion is [just] normal.

The interviews indicate that the kindergarten teachers were dissatisfied with the amount of their salary, and noted a discrepancy between their salary and the extent of their efforts in their work.

The Atmosphere in the Kindergarten: Positive and Negative Influence

Apart from the influence of the reform on the kindergarten teachers' work burden, it seems from the interviews that the reform also influenced other aspects, especially the atmosphere in the kindergarten. The sense of pressure that the teachers experienced, radiated on the atmosphere in the kindergarten, especially at the beginning of the school year, a period that is heavily loaded and stressed, when the teacher is getting to know the children, the parents and the kindergarten staff. During this period the kindergarten teacher has to deliver a learning program and to prepare the initial records for the children for the superintendent. Samar explained:

> The atmosphere was affected negatively at a cost to the children's pleasure in the kindergarten. The hours that were added to the kindergarten day were allotted for learning, not enough time for recreation. Everything is more focused on the core program and its concepts, although a child at this age searches more for pleasure and recreation instead of learning … so in my opinion it has negatively influence the atmosphere instead of improving it.

Nevertheless, there were some kindergarten teachers, who noted, albeit with much reservation, that as a result of the reform, the atmosphere in the kindergarten had improved, for example Yasmin said:

> It positively influenced the atmosphere in the kindergarten, but in a not so meaningful way, especially for the pre-compulsory education children. The reform provides more time for play and work in smaller groups, although I sometimes feel that the pleasure no longer exists in the kindergarten and they try to create irregular activities in order to improve the pupils' interest and enjoyment.

The interviews indicate that despite their view that the reform had certain positive effects, teachers felt that it had a negative effect on the kindergarten atmosphere. The kindergarten teachers, felt they were more involved in fulfilling the reform's many demands and felt that the sense of pleasure had disappeared from the kindergarten.

The Contribution of The Reform to Children's Achievements in the Kindergarten

One of the main goals of the reform related to the importance of investment in kindergarten children and the influence on their future life. In some of the interviews, the teachers noted that the reform had improved the children's achievements in the kindergarten, and that it allowed them to meet various needs and helped to provide them with effective learning skills. An example of such evidence was given by Siham:

> Yes, it improved their achievements, because "The New Horizons" reform gave a lot to the children, it improved the level of their knowledge because it offered the child sufficient hours for their kindergarten activities.

In contrast, six kindergarten teachers (n=6/16), noted that the reform did not help to improve the children's achievements, for example Amal noted:

> In my opinion it did not improve their achievements, it only provided more consideration for each individual child.

Other kindergarten teachers linked their perception that the reform did not improve the children's achievements to their view that there was a huge burden imposed on them as a result of the reform. Samia explained:

> I don't believe that it improved the children's achievements, not even a little bit, it granted us more hours, but obliged us to fill in many forms, and we were only able to manage things with difficulty.

It appeared from most of the interviews (n=11/16) that the individual lessons and the extra hours spent in the kindergarten enabled the teachers to do more with the children. Thus, Hoda remarked:

> What the children do all the day is to settle down in groups, and we consider that to be individual work, there is more time to work with the children individually, and also to do all sorts of social activities when the children are tired.

Discussion and Conclusion

The purpose of this research was to reveal the perceptions of kindergarten teachers in Arab Palestinian society towards the "New Horizons" reform in Israel, and to examine the reform's practical expressions in the work field through an examination of the teachers' perceptions concerning the influence of the reform on different aspects of kindergarten work. In general, the research findings indicated that in

most cases the kindergarten teachers felt that changes had occurred in practice as a result of the "New Horizons" reform. Many of the research participants emphasized that they continue to work as they had done before the reform but some added that positive points were added to their work. Meanwhile, the research findings indicated also that the kindergarten teachers in Arab Palestinian society were not satisfied with different aspects of the reform, especially with regard to their work and the influence on the kindergarten. The kindergarten teachers expressed negative as well positive perceptions of the "New Horizons" reform in the kindergartens.

Moreover, it seems that even after a decade of implementation of the reform their negative views concerning its effects have not altered. Thus, for example, in a study that investigated kindergarten teachers' satisfaction concerning the reform two years after it was introduced, it was already found that only a third of the kindergarten teachers in the Jewish-Israeli and Arab Palestinian early education sectors in Israel expressed general satisfaction regarding its implementation. Thus too, in a later investigation of attitudes of kindergarten teachers belonging to Arab Palestinian society it was found that only 50% of them were generally satisfied with the reform's implementation (Ram'a, 2014). In line with these findings, the present study shows that there has been no significant improvement in the satisfaction of kindergarten teachers in Arab Palestinian society with regard to the reform.

However, other research that investigated the level of satisfaction concerning the reform where kindergartens were located in schools, found slightly different results. Alfahel (2012) investigated the attitudes of Arab Palestinian elementary school teachers and found they held positive attitudes towards the reform. Similar findings were found by Gilat et al. (2009) among intern teachers performing their practicum in schools.

Analysis of the interview texts indicated that in order to perform all the tasks, the teachers take work home, sometimes even working on vacations, with consequent injury to their home lives and free time. This injury was considered in other studies that investigated this issue among school teachers, which found that the additional work hours that the reform provided was insufficient for the demands that the reform stipulated, so that they too take work home (Oplatka, 2012; Sarsor & Mahajne, 2017; Sayma et al., 2022). Consequently, in contrast to one of the reform's goals: improvement of school and kindergarten teachers' work conditions, the reform actually led the teachers to sense that there was a deterioration in their work conditions and led to criticism (Itzhak, 2011).

Moreover, although one of the reform's goals was to improve the school and kindergarten teachers' terms of employment by increasing their salaries, most of the kindergarten teachers testified that even though their salaries increased, they felt that this increase was inappropriately low to compensate for the additional teachers' effort required. This was also found in an additional study (Ram'a, 2014). Some of the kindergarten teachers noted a connection between the increase in salaries and their years of experience since novice kindergarten teachers benefitted more from the increase than experienced teachers: according to the reform, the level of educators' salaries depends on several components, such as years of experience, education, advancement steps etc. As data from previous research show, differences in these components necessitate deeper examination with regard to the issue studied here. Apart from the differences concerning salary level, in general the sense of lack of suitable reward for their work influences the kindergarten teachers' sense of satisfaction at work, since naturally, one of the main reasons for going out to work is in order to receive a financial payment (Sarsor & Mahajne, 2017). It is clear that when employees feel that the reward that they receive meets their expectations, their satisfaction regarding their work increases (O'Leary-Kelly & Griffi, 1985), meaning that there is a positive correlation between the reward of the salary and the extent of satisfaction.

The kindergarten teachers also reported a lack of professional autonomy as a result of the reform and noted that most of the demands were dictated from above, including the determination of kindergarten learning contents and contents of the courses that they were expected to study. According to the findings, the kindergarten teachers express a demand to regain their professional autonomy. This does not stem from their desire to control their work time, rather out of a desire to perform tasks that are appropriate in

order to realize their professional mission and their needs. This fact led them to feel that their role was merely to comply with the Ministry of Education instructions (Ministry of Education, 2018b). Apparently, the sense of lost autonomy influences the extent of the kindergarten teachers' satisfaction, previous studies also found a positive correlation between the level of autonomy and the level of satisfaction at work (Johnson, 2012).

The feeling of pressure that emerged in the interviews also seems to influence the kindergarten's atmosphere, so that most of the kindergarten teachers noted a deterioration in their sense of pleasure and satisfaction at work due to pressure. This finding relates to two types of pressure: pressure on the teachers and pressure on the children. Pressure occurs when there is a gap between the demands imposed on an individual and their mental resources and they sense a threat to their physical and mental wellbeing. This feeling is expressed in individual stress and may influence their extent of enjoyment and satisfaction at work (Bakker & Demerouti, 2007; Bakker et al., 2005; MacIntosh & Doherty, 2010). The kindergarten teacher has to cope with all the tasks imposed on them within the allotted time frame, and simultaneously to perform tasks such as diagnoses and evaluations of the children. This is another factor for the pressure on them and they feel as though they are continually under inspection, something that influences the level of their enjoyment in kindergarten activities. Additionally, the number of children in each kindergarten has not altered and remains large. Together with the multiplicity of tasks that the kindergarten teacher is required to perform, it is therefore not surprising that both the teacher and the children feel pressured and this is reflected in the kindergarten's general atmosphere.

The high participation in kindergartens in Israel is due to the participation rate of mothers of young children in the labor market (Aram & Ziv, 2024). The evidence from the interviews clearly indicated that there had not been any significant change concerning reduction of the number of children in the kindergartens, and the large number of children in each kindergarten does not allow deep work with each one, something that hinders follow-up after their development and progress in the kindergartens. Nevertheless, most of the kindergarten teachers indicated that the reform had a positive influence on the children's achievements and similar findings were obtained in previous research (Alfahel, 2012; Ram'a, 2008, 2010, 2014; Sarsor & Mahajne, 2017). The teachers attributed this improvement to their individual lessons with the children and longer hours that they spend in the kindergarten after the reform. The contradiction between the large number of children as a negative influence on progress and the improvement of the children's achievements as a result of the individual lessons, may testify to the kindergarten teachers' enlistment to achieve the goal of reaching each individual child in the kindergarten.

One of the important components influencing the children in the kindergarten that did not emerge significantly from the teachers' reports is the teachers' connection with the parents. This finding is surprising given the extent of parents' involvement in their children's lives especially in early childhood. The teachers' consideration of their relations with the parents was indirect and arose in connection with the extension of the workday and the work burden, when they mentioned the benefit to parents of the longer kindergarten hours as they had an arrangement for the children in the afternoons. They also mentioned the parents in their consideration of the activities that take place at the end of their workday when they meet with parents for conversations or for shared activities with the children.

The fact that the kindergarten teachers spoke about their relations with the parents in the context of their work burden, apparently stems from their perception of their relations with the parents as a source of burden and pressure. This point was emphasized by Oplatka (2012), who noted that students' parents' behavior, the interaction with parents and their expectations constitute a source for educators' dissatisfaction and generate their sense of encumbrance at work. Parents often have a negative influence on the educators, which affects their work: parents are critical, they tend to belittle educators' profession and skills. To cope with parents' many expectations and demands, the educators need to devote additional time often at the expense of their private lives. It is also noted that the kindergarten teachers' heavy workload may mean that they are unable to organize and plan activities to tighten relations with parents and to develop more meaningful relations regarding kindergarten life, which might improve parents-

teacher collaboration.

In general, it seems from the evidence in this research and in previous studies (Oplatka, 2017) that there is a gap between the reform's intentions and its implementation in practice. Moreover, it appears that the kindergarten teachers' satisfaction concerning the reform is influenced by various factors, the main factor being their sense of pressure and work burden. This feeling does not only affect the kindergarten teachers, but also the kindergarten and the children, and seems to constitute a major factor for the development of negative attitudes towards the reform, as voiced by the interviewed kindergarten teachers, generating their low level of satisfaction concerning the reform. Yet, it is again emphasized that most of the studied kindergarten teachers expressed positive perceptions of the influence of the reform on the children's progress in the kindergarten.

One of the main contributions of the present study lies in its investigation of educators' perceptions of the reform. These perceptions are very significant in order to understand the implication of the reform for the education system including educators' feelings of dissatisfaction, pressure and burnout, accompanied by feelings that they are not sufficiently rewarded for the fulfilment of the many tasks imposed on them. These feelings lead to the departure of professional educators from the education system and reduce the number of applicants for the teaching profession (Fitchett et al., 2016). This situation raises doubts concerning the reform's ability to improve the quality of teachers – one of the main goals of the reform - because, in comparison to the past, new applicants for the teaching profession have lower qualifications. This raises speculations concerning the extent of effectiveness of the reform and the attainment of its goals.

The research exploring the perceptions of APKT in Israel regarding the latest education reform, "New Horizons", can be effectively grounded in Critical Race Theory (hereafter: CRT). CRT provides a lens to examine how systemic power structures and institutional policies perpetuate racial and ethnic inequalities, even within ostensibly neutral education reforms (Delgado & Stefancic, 2023). As a minority within an educational system shaped by the Jewish-Israeli majority, APKT face unique challenges that influence their experiences with policy reforms. The "New Horizons" reform may reinforce hegemonic narratives that privilege Jewish Israeli-majority perspectives while marginalizing Arab Palestinian cultural and linguistic identities. These disparities manifest in limited professional autonomy, heavy workloads, and high student-to-teacher ratios, all of which negatively impact both the kindergarten environment and children's progress. Structural inequalities—such as underfunded schools, limited resources, and fewer professional development opportunities—further exacerbate these challenges .

A follow-up study applying a CRT framework to thematic analysis would not only reveal patterns of exclusion but also underscore the role of systemic racism in shaping educational policies and their impact on minority communities. Additionally, it could highlight how APKT experience the reform differently from their Jewish-Israeli colleagues, who, as part of the majority group, generally benefit from a more inclusive educational environment. Examining these differing experiences through the intersecting lenses of race, class, and gender would provide a deeper understanding of how ethnicity and institutional inequities influence policy implementation (Abu-Rabia-Queder, 2010; Bashir, 2018).

The study also contributes to the academic community by providing empirical evidence that can inform further research on the long-term impact of educational reforms on teacher retention and professional satisfaction. Additionally, it highlights the need for interdisciplinary collaboration among education scholars, policymakers, and sociologists to develop evidence-based strategies that address the challenges faced by educators in reform-driven environments.

Given these findings, it becomes important to reevaluate the effects of the reform among educators in general and in particular among kindergarten teachers, and to delve deeper into the program in all its aspects, investigating all the possible factors that contribute to the reform's effectiveness, in order to improve the situation and attain its goals.

Research Limitations

It is noted that the present study is limited because it is based mainly on a qualitative approach. We recommend further quantitative study that would yield statistically valid conclusions about other aspects and implications of the early childhood education policy reform in Israel on APKT. Furthermore, it is also important to acknowledge the limitations in the conclusions of this research: Many of the interviewees were known to the researcher. Broad-based future research should investigate the different characteristics that may influence attitudes and perceptions concerning the reform such as the kindergarten teachers' personal characteristics, personality traits, demographic data, characteristics of the kindergarten teachers' work and characteristics of the organization and education system that are likely to clarify this issue. This finding calls for further research into policy adjustments that balance reform goals with teacher well-being.

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Research Article

Climate anxiety in early childhood: A state-of-the-art review

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Abstract: As the climate crisis intensifies, young children are increasingly exposed to psychological stress linked to environmental change, manifesting in emerging forms of anxiety, sadness, and guilt. Although climate anxiety in children is gaining international recognition as a legitimate mental health concern, little is known about how these emotions specifically develop in children under the age of eight. This paper presents the first comprehensive state-of-the-art (SotA) review of research on climate anxiety in early childhood, systematically mapping current knowledge, identifying key conceptual and methodological gaps, and proposing priorities for future inquiry. Findings reveal that empirical studies in this area remain scarce, are often adapted from adult-centered frameworks, and predominantly situated within Euro-Western contexts. The review argues for developmentally appropriate, culturally responsive, and interdisciplinary approaches that seriously engage with both the emotional experiences and agentic capacities of young children. By highlighting critical gaps and outlining future research directions, this review lays the foundation for a more inclusive, child-sensitive, and globally relevant research agenda on climate anxiety in early childhood.

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Climate anxiety; Climate change; Early childhood; Mental health; Emotions; State-of-the-art review (SotA)

Introduction

Climate change is widely regarded as the most significant threat to the future well-being and prosperity of the planet and its inhabitants (Intergovernmental Panel on Climate Change [IPCC], 2023). Catastrophic weather events—including record-breaking heatwaves, wildfires, droughts, and floods—are occurring with increasing frequency, signalling that climate change is progressing more rapidly than anticipated. These events exacerbate existing inequalities, disproportionately affect vulnerable populations, and disrupt ecosystems and societies (IPCC, 2023; Royal College of Paediatrics and Child Health [RCPCH], 2025). As global temperatures continue to break records, the severity and complexity of climate change are expected to intensify, necessitating urgent and ambitious mitigation and adaptation efforts (IPCC, 2023).

Beyond its physical impacts, climate change has profound adverse effects on child development and mental health, including a rise in climate anxiety—a chronic fear of environmental doom (Organization for Economic Co-operation and Development [OECD], 2024; United Nations Children's Fund [UNICEF], 2021, 2022; World Health Organization [WHO], 2023). Extreme weather events and disasters can have immediate, traumatic impacts on children's mental health and well-being. Both direct experiences of climate-related events and indirect exposure through media and education can heighten anxiety, driven by perceived threats to children's futures and safety (Clayton & Brown, 2024; Clayton et al., 2023; Dodds, 2021). As a particularly vulnerable group, young children face an immense mental burden caused by a crisis largely attributable to older generations (Dodds, 2021). Notably, young children contribute the least to the climate crisis, yet they stand to lose the most if the situation remains unchecked (RCPCH, 2025: UNICEF, 2022).

Early childhood, spanning birth to age eight, is a critical period for psychological, emotional, and cognitive development. Understanding the effects of climate change on young children is essential, from disruptions caused by catastrophic weather events, to the pervasive anxiety about the future. Nevertheless,

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research on the intersection of climate change and early childhood mental health remains sorely neglected (Gil, 2024). This gap underscores an urgent need for scientific inquiry to identify both the short-term and long-term risk factors for climate anxiety for children's mental health (Sampaio & Sequeira, 2022). More importantly, the escalating severity of climate change necessitates prioritising early childhood research within the broader climate agenda. The OECD (2024) and United Nations Educational, Scientific and Cultural Organization [UNESCO] (2024) have made an urgent call for the integration of climate change education into school curricula, emphasising not only knowledge transfer but also social, emotional, and action-oriented learning. Such an approach would empower children to develop agency, self-efficacy, and the capacity to act.

In response to these gaps, this paper critically assesses and synthesises existing research on climate anxiety, with a particular focus on children under the age of eight. It aims to provide a comprehensive overview of current knowledge while identifying key areas for future research and practice.

Young Children and Climate Change

Research confirms that anthropogenic climate change adversely affects children's physical and mental health, beginning as early as the prenatal period (Squires et al., 2024; Harvard T.H. Chan School of Public Health, n.d.; RCPCH, 2025; WHO, 2023). Children are particularly vulnerable to climate change due to their physical and emotional dependence on adults (Mills & Giordano, 2023). Compared to adults, children will experience greater cumulative lifetime exposure to climate change impacts (Crandon et al., 2022; UNESCO, 2020; United Nations, 2023; van Valkengoed et al., 2023). Starting in utero, children are exposed to the direct and indirect effects of climate change, including weather extremes, malnutrition, and pollution (UNICEF, 2023). Their smaller bodies and underdeveloped immune systems make them especially susceptible to heat stress, respiratory issues, and disease (United Nations, 2023). These conditions also threaten their psychological well-being, contributing to increased rates of stress, anxiety, depression, and post-traumatic stress disorder [PTSD] (Clayton, 2020; Clayton et al., 2023; IPCC, 2023; UNESCO, 2023; United Nations Convention on the Rights of the Child [UNCRC], 2023).

Early childhood represents a critical period for psychological, emotional, and physical development. Prolonged stress during early childhood can significantly disrupt psychological, emotional, and physical development (Harvard T.H. Chan School of Public Health, n.d.; UNICEF, 2022). Climate change introduces multiple stressors, including more frequent and severe heatwaves, droughts, wildfires, floods, rising sea levels, and ecosystem degradation (European Commission, n.d.; United Nations, 2023; UNCRC, 2023; UNICEF, 2021; WHO, 2023). These events increase exposure to air pollution, vector-borne diseases, and malnutrition, thereby jeopardising children's physical health and exacerbating mental health challenges (Squires et al., 2024).

Beyond the immediate effects, climate change can drive forced migration, increased rates of hospitalisation, higher suicide rates, increase aggression and social conflict, and intensify feelings of anxiety (Hickman et al., 2021; Karabal, 2022; Lawrance et al., 2022). Emerging evidence suggests that many children are not only exposed to, but are increasingly aware of climate change and its implications (Hickman, 2024; Spiteri, 2023; Spiteri & Pace, 2023; Squires et al., 2024). This awareness can manifest as heightened anxiety, sadness, guilt, depression, and a need for appropriate psychological support (Clayton et al., 2023; RCPCH, 2025).

Climate Anxiety

The emotional and psychological impacts of climate change have given rise to various terms in the literature, including 'climate anxiety', 'eco-anxiety', 'climate grief', 'solastalgia', and 'eco-paralysis' (Albrecht, 2011; Cianconi et al., 2020; Coffey et al., 2021; Dodds, 2021; Hickman, 2024; Lawrance et al., 2022; Park et al., 2021; Pihkala, 2024). The terms 'eco-anxiety' and 'climate anxiety' are the most commonly used and often interchangeable. On the one hand, Albrecht (2011) introduced the term 'eco-anxiety' to describe emotional responses to environmental crises; on the other hand, 'climate anxiety' refers to persistent worry about climate change's real or perceived threats (Clayton, 2020; Clayton et al., 2023; UNESCO, 2022;

UNCRC, 2023). Despite frequent use, widely accepted definitions for these terms remain lacking.

This paper adopts the term 'climate anxiety', defined as a chronic fear of environmental catastrophe, triggered by both direct experiences of climate-related events and indirect exposure to global environmental threats (Clayton et al., 2023; Clayton & Swim, 2025). For children under eight years old, such anxiety is particularly significant due to their limited cognitive capacity to contextualise complex global issues (Spiteri & Pace, 2023) and their reliance on adults for emotional regulation (Spiteri, 2025). In this paper, climate anxiety in early childhood is conceptualised as persistent worry about the tangible and perceived threats of climate change, which manifests in emotional and psychological responses like fear, hopelessness, and rumination; this is particularly challenging for children under eight, who have heightened vulnerability and limited coping mechanisms during this period of rapid development. Symptoms include worry, hopelessness, fear, rumination, difficulty sleeping or studying, and impaired relationships (Dodds, 2021; Clayton, 2020; Clayton et al., 2023; Harvard. T.H. Chan School of Public Health, n.d.). Importantly, climate anxiety is not inherently pathological. Rather, climate anxiety represents a rational response to an existential, global threat and may even motivate adaptive coping strategies, such as problem-solving and pro-environmental behaviour (Dodds, 2021; Crandon et al., 2022). When anxiety becomes overwhelming and maladaptive, however, it can exacerbate existing mental health issues, leading to paralysis, avoidance, and despair (Cianconi et al., 2020; Ojala, 2012, 2022a, 2022b; Sanson et al., 2022).

While climate anxiety can impair functioning in some individuals, the aim is not to eliminate this response but to support children in developing self-efficacy and adaptive coping strategies (OECD, 2024). Currently, little is known about how climate anxiety manifests in children under eight, largely due to stigma surrounding anxiety and methodological challenges in studying young children. This lack of empirical data underscores the urgent need to foreground climate anxiety in early childhood within the broader scientific and educational discourse.

Theoretical Framework

We still lack a theoretical framework that reflects the complexities of early child development and climate change to guide empirical research and practical efforts to better support climate anxiety among young children (Sanson & Masten, 2023). To address this gap, this paper adopts an interdisciplinary framework grounded in developmental psychology, environmental science, public health, and education. This approach aims to provide a comprehensive understanding of how climate anxiety emerges and affects young children, situating it within the broader context of child development and global environmental stressors.

From a developmental perspective, climate anxiety is understood both as a rational emotional response to existential threats and as a potential disruptor of psychological development. While some level of concern can motivate adaptive behaviours, prolonged or intense anxiety may hinder emotional regulation and delay the achievement of developmental milestones. The framework recognises that early childhood is a crucial window for building emotional resilience and that children's vulnerability to climate anxiety is linked to their evolving cognitive capacities, emotional dependence on caregivers, and limited ability to make sense of abstract, global issues (Spiteri, 2025).

To contextualise these influences, the framework draws on Bronfenbrenner and Morris's (2006) ecological systems theory. This model emphasises that children's experiences are shaped by multiple, interacting systems—ranging from immediate environments (microsystems) to broader societal, cultural, and policy contexts (macrosystems). Climate anxiety is thus positioned as an outcome of stressors operating across various ecological levels, including direct physical risks (e.g., extreme weather), relational environments (e.g., emotionally reactive caregivers), and systemic factors (e.g., media narratives, educational policies). In doing so, the framework underscores the interconnection between physical and mental health outcomes, highlighting that children's cumulative lifetime exposure makes them disproportionately vulnerable compared to adults (Clayton et al., 2023; Clayton & Swim, 2025).

The framework distinguishes between adaptive responses and maladaptive responses to climate

anxiety. Adaptive responses may include increased environmental awareness, empathy, and engagement in climate action, while maladaptive responses may involve emotional withdrawal, denial, or feelings of helplessness (Ojala, 2022a). It posits that while some level of worry is a natural and even beneficial response to existential threats, excessive or unregulated anxiety can lead to emotional paralysis or withdrawal. The goal is not to eliminate climate anxiety but rather to support children in developing resilience through targeted interventions that promote emotional regulation and constructive engagement.

Education is identified as a critical mechanism for mitigating climate anxiety in early childhood. The framework advocates for integrating climate change education into early childhood curricula through approaches that combine knowledge transfer with social-emotional learning (SEL) (Ojala, 2022b). By enhancing children's agency, self-efficacy, and problem-solving skills, educators can help them develop adaptive coping mechanisms while empowering them to engage constructively with environmental challenges (Bandura, 1977). Action-oriented learning approaches are particularly emphasised as they enable children to feel a sense of control over their future.

Overall, by synthesising interdisciplinary insights and emphasising actionable strategies, this theoretical framework provides a comprehensive foundation for addressing climate anxiety in early childhood and underscores the importance of prioritising this vulnerable population within broader efforts to mitigate the psychological impacts of climate change globally.

Method

This paper employs a state-of-the-art (SotA) review methodology because "The fundamental purpose of state-of-the-art literature reviews is to create a 3-part argument about the state of knowledge for a specific phenomenon: this is where we are now, this is how we got here, and this is where we could go next" (Barry et al., 2022, p. 663). Rooted in a constructive research orientation, an SotA review methodology is a form of narrative review that aims to generate knowledge by reviewing and synthesising current research while identifying research gaps and positioning future directions (Barry et al., 2022; Barry et al., 2023). An SotA review is well-suited to explore new areas of research, particularly when developing scientific thinking about an innovative topic of research (Barry et al., 2022; Grant & Booth, 2009). Climate anxiety in early childhood represents one such emerging area.

In this paper, an SotA review methodology is particularly well-suited for reviewing the literature to explore why and how our current knowledge around climate anxiety in early childhood has developed, and to offer new research directions to help to move the field forward. Specifically, this paper argues for an SotA review because it aims to present new ways of how the literature presented here could be interpreted by researchers rather than providing a conclusive or absolute perspective on how the literature ought to be understood (Barry et al., 2022). The current SotA review is aimed at generating knowledge about climate anxiety in early childhood in order to help us understand where we are now; how we arrived at this stage; and where we need to go next (Barry et al., 2022; Barry et al., 2023). This approach aligns with the theoretical framework described above by emphasising reflexivity and iterative analysis to ensure rigour in tracing the trajectory of this emerging field. The SotA methodology also supports the aim of the theoretical framework in generating actionable insights by critically assessing how current knowledge has evolved and proposing pathways for advancing scientific inquiry.

The review followed the six-stage SotA review process outlined by Barry et al. (2022), described below.

Step 1- Determining the research question and field of inquiry: In recent years, there has been a growing interest in climate anxiety among children (Clayton et al., 2023). An initial literature search identified a number of studies that looked at children, climate change and climate change emotions. Yet a specific focus on climate anxiety in early childhood is a largely overlooked area, with limited and incidental references in the literature. More importantly, a consolidated review of the field is missing. Hence, the initial research question guiding this literature review is: What is the current state of research in climate anxiety in early childhood?

Step 2- Establishing the timeframe: The timeframe of the review begins with the publication of UNESCO's document *The contribution of early childhood education to a sustainable society* (Pramling Samuelsson & Kaga, 2008), which marks a significant milestone in the global recognition of early childhood education for sustainability (ECEfS). This can be considered the beginning of SotA thinking in ECEfS. As a result, the timeframe for this review is from 2008, extending up to March 2025.

Step 3- Finalising the research question(s): The original research question was revised to better align with the objectives of studying climate anxiety in early childhood. Such a process also led to the formulation of supplementary questions to guide the analysis process. The finalised research question is: What is the current state of research on climate anxiety in early childhood? The supplementary questions are: What is the general trend in publications? What aspects of climate anxiety in early childhood do these studies address? Where could we go next to advance this understanding?

Step 4- Developing the search strategy: An electronic search of five databases, including HyDi, PubMed, PsycINFO, Google Scholar and Web of Science, was conducted. These databases were chosen in order to capture the literature about climate anxiety in early childhood. The search strategy is outlined below, in Table 1.

Table 1
Search Strategy

Database	Search terms
HyDi	'young children', 'children', 'early childhood education', 'early childhood', 'climate anxiety', 'eco-anxiety', 'worry', 'sad', 'hopeless', 'guilt', 'climate change emotions', 'hope' and/or 'climate change education'
PubMed	
PsycINFO	
Google Scholar	
Web of Science	

The inclusion criteria for topics of interest were the connection between children, climate change, and climate anxiety, as well as other climate change emotions, and climate change education in early childhood. Eligible sources were journal articles, conference proceedings, reports, and books. The publication window spanned from 2008 to 2025, with the requirement that articles be published in English. Additionally, citation searching within included articles was used to identify relevant articles using the same inclusion criteria discussed above (See Table 2).

Table 2
Inclusion and Exclusion Criteria

Criteria	Inclusion criteria	Exclusion criteria
Language	The study is published in English	All other languages than English
Area of research	Climate change, climate anxiety and emotions, early childhood	Environmental issues in general
Participants	Children in early childhood education	Children in primary education onwards
Type of publication	Journal articles, conference proceedings, reports, books	Pilot studies, study protocols, guides, newspaper articles
Availability	The full-text of the study must be available	The full-text of the study could not be consulted via library systems or the Internet
Answers research questions	The purpose and/or research question of the publication contributes to answering the research questions of this review	The purpose and/or research question of the publication does not contribute to answering the research questions
Research design	The design of the study is either mixed methods, qualitative or quantitative	The design of the study is descriptive, systematic and/or narrative review
Discipline	Early childhood education	The education discipline is different than early childhood education

Step 5- Analysis: The analysis process consisted of two steps. In step 1, a data extraction tool was created to capture four types of information about each manuscript. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart (Fig. 1) was used to report the screening process (Page et al., 2021). An excel spreadsheet was used for data extraction. The extracted data included:

a) Article demographic data collected (e.g., year, authorship, journal);
b) Information specifically related to children and climate anxiety;
c) References to and/or descriptions of climate anxiety; and
d) Data looking at children of all ages.

Since all studies were qualitative in nature, the checklist for qualitative studies developed by Joanna Briggs Institute [JBI] (2020) was used to assess the methodological quality of the included studies. This tool is often used to assess the trustworthiness, validity, relevance, and results of publications (JBI, 2020). The included studies were then analysed systematically by the use of a coding scheme, to assess the main features of the studies. This scheme includes the sample characteristics (age, year of study), general study information (publication type, publication year, country), and a summary of the findings. This scheme ensures credibility. The classification of the included articles in the main research area was guided by the research questions. The main research area was determined after reviewing the keywords and findings from the data extraction table. This categorisation was performed by the author. Both the classification process and the identified research areas were presented to another scholar to ensure consistency in categorisation. Some articles were classified in more than one category because they focused on more than one aspect related to the research area.

In step 2, due to the expected heterogeneity of the research designs, methodologies and quantitative analyses were not pursued. Instead, an inductive approach to data analysis was conducted to answer the research questions. Initially, the literature was analysed to trace the trajectory of climate anxiety in early childhood and to identify key themes. Interpretive notes were created for each article to test and refine emerging patterns. An open coding/initial coding was utilised, generating codes that indicated the research area of the studies included. Subsequently, the codes were clustered into themes. The emerging themes were discussed with two other scholars to enhance credibility. Adjustments were made iteratively to ensure rigour and consistency.

Step 6- Reflexivity: The SotA review methodology is based on a relativist ontology and a subjective epistemology (Barry et al., 2023). Acknowledging that SotA reviews rely heavily on the researcher's subjective orientation, a reflexive approach was employed to mitigate potential biases (Barry et al., 2023). During the research process, the reflexive process helped me to neutralise my subjectivity by consciously acknowledging, critiquing and explaining my subjectivity and contextual influences in the research process (Olmos-Vega et al., 2022). Following guidance from Olmos-Vega et al. (2022), in the current study, I engaged in a continuous reflexive process involving:

a) personal reflexivity by examining, reflecting and clarifying my expectations, assumptions and conscious and unconscious influence and/or reactions to context;
b) interpersonal reflexivity by reflecting on how my engagement influenced the research process;
c) methodological reflexivity by critically assessing the impact of my methodological decision-making; and
d) contextual reflexivity by critically considering how my cultural and historical positioning may have shaped the research process.

These reflections were systematically recorded in a researcher's journal to enhance transparency.

Although this SotA review did not involve primary data collection or direct interaction with children, it adhered to rigorous ethical standards throughout. All reviewed materials were handled confidentially, and findings are disseminated with consideration of their potential impact on policy, practice, and research. The study followed the ethical guidelines set by the European Early Childhood Education Research Association (EECERA), demonstrating a commitment to integrity, accurate representation of literature, and continuous reflexivity to mitigate bias (Bertram et al., 2024; Olmos-Vega et al., 2022).

The review's aim—to advance understanding of climate anxiety in early childhood—aligns with the

principle of beneficence, contributing to the global well-being of young children. Recognising the topic's sensitivity, the study maintained an ethical stance in research design, interpretation, and reporting, avoiding alarmism while addressing the emotional vulnerabilities of young children affected by climate change.

A child-centred ethical framework guided the review, recognising children as active emotional and cognitive agents. Studies were assessed for alignment with ethical guidelines such as the United Nations Convention on the Rights of the Child (United Nations, 1989), particularly regarding children's rights to expression and protection from harm. Methodological transparency and the avoidance of coercion or psychological distress were critical evaluation criteria.

Given the affective dimension of climate anxiety, the review considered whether studies addressed potential psychological risks and highlighted those that integrated resilience-building and coping strategies as ethical best practice. It also applied a lens of equity and justice, examining how climate anxiety may be experienced across diverse socio-economic, cultural, and geographical contexts, and whether the literature avoided privileging dominant perspectives.

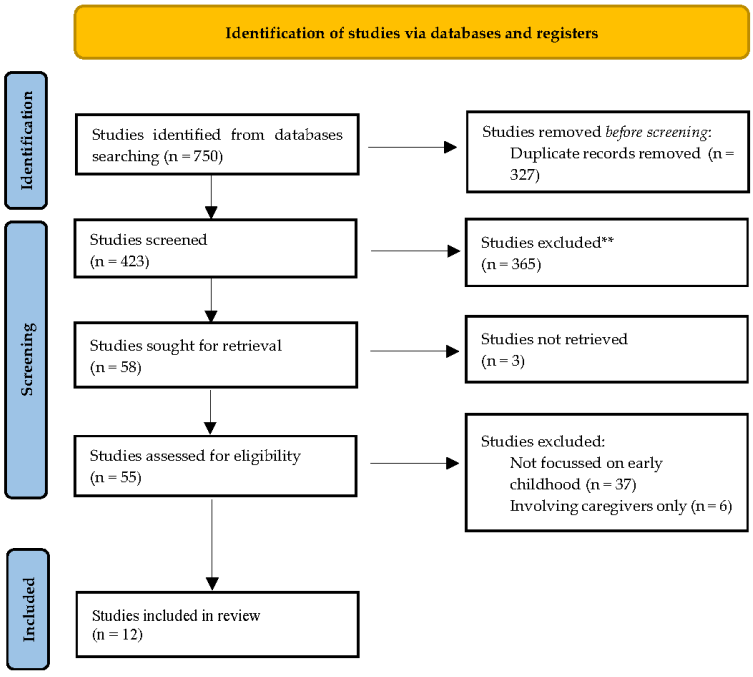
Finally, the review underscores the ethical responsibility of scholars to frame climate anxiety discourse in a manner that is balanced, non-alarmist, and empowering. Language in academic reporting should validate children's concerns while promoting agency, collective action, and constructive engagement. By embedding these ethical principles, this review seeks to contribute responsibly to the growing discourse on climate anxiety in early childhood.

Results

The database search yielded 750 articles, of which 327 were duplicates and subsequently removed. Titles and abstracts of the remaining 423 articles were screened based on predefined inclusion and exclusion criteria (Table 2), leading to the exclusion of 365 articles. This left 58 articles for full-text review. However, 3 full texts could not be retrieved. Articles were excluded at this stage if they were not in English, focused on older children, or were not peer-reviewed. Following the full-text review, 43 articles were excluded for not addressing climate anxiety, climate-related emotions, or early childhood. As a result, 12 studies were included in this review (Fig. 1).

Figure 1

PRISMA Flow Chart Showing Studies Found and Included in the Current Study (Page et al., 2021).



Study Characteristics

Research specifically examining climate anxiety in early childhood—typically defined as ages 0 to 8—is currently limited. A comprehensive review of the peer-reviewed literature revealed an absence of empirical studies that focus directly on this age group. Most available research addresses older children, adolescents, and young adults. While this reflects the state of the field at the time of writing, it is important to acknowledge that the absence of studies cannot be confirmed with absolute certainty, as new publications continue to emerge.

Given the lack of empirical research focused on climate anxiety in early childhood, the current SotA review draws on broader literature concerning climate change and early childhood education to help to move the field forward. This includes studies exploring young children's understandings of climate change as an environmental issue, pedagogical responses to climate change, and emotional development in the context of sustainability education. These contributions offer valuable, albeit indirect, insights into how young children may experience and process climate-related concerns (See Table 3).

Table 3
Studies Identified in the Search for the Literature

Authors	Pub. Year	Title of article	Publication Type (Chapter/Article)	Children's age	Country	Summary of the research findings
Bahtić, K., & Višnjić Jevtić, A.	2020	Young Children's Conceptions of Sustainability in Croatia	Article https://doi.org/10.1007/s13158-020-00266-4	3-7 years	Croatia	Children's understanding of sustainability
Burke, S.E.L., Sanson, A.V. & Van Hoorn, J.	2018	The Psychological Effects of Climate Change on Children	Article https://doi.org/10.1007/s11920-018-0896-9	5-18 years	Australia	Explores mental health risks due to climate change exposure, emphasising anxiety, PTSD, and developmental issues.
Duhn, I., McPherson, A., & Kirkwood, L.	2024	Creating a Climate for Change: Early Years Education, Climate Action, and Place-Based Learning with Young Children.	Chapter https://link.springer.com/chapter/10.1007/978-3-031-64900-4_5	3-5 years	New Zealand	Focuses on early childhood education and how place-based learning can foster climate action among young children by engaging them with local ecological issues.
Hackett, A., Kraftl, P., & White, J.	2025	Fractured stories and voices of the future; coproduced research with young children and trees	Article https://doi.org/10.1177/2043610625131521	4-7 years	UK	Uses co-produced research with young children and nature to explore how children imagine futures impacted by climate change.
Hannust, T., & Kikas, E.	2010	Young children's acquisition of knowledge about the Earth: A longitudinal study	Article https://doi.org/10.1016/j.jecp.2010.04.002	2-7 years	Estonia	What children know about the Earth and gravity and to see how children's answers change over time.
Kalhoff, H., Sinningen, K., Belgardt, A., Kersting, M., & Luecke, T.	2023	Climate change and fluid status in children: early education as one response to an emerging public health problem	Article https://doi.org/10.1017/S1368980023002562	5-11 years	Germany	Discusses how climate-induced heat can affect children's fluid balance and advocates for early education interventions to address this public health concern.
Mackey, G.	2012	To know, to decide, to	Article	3–7 years	New	Argues that young

		act: The young child's right to participate in action for the environment	https://doi.org/10.1080/13504622.2011.634494		Zealand	children are capable of participating in environmental action when supported with respectful pedagogical approaches.
Martin, G., Reilly, K., Everitt, H., & Gilliland, J.A.	2022	Review: The impact of climate change awareness on children's mental well-being and negative emotions – a scoping review	Article https://doi.org/10.1111/camh.12525	5-17 years	Canada	Review highlights that increased awareness of climate change is linked to negative emotions like anxiety and sadness, but also to increased environmental engagement.
Spiteri, J.	2023	Young children's understanding of environmental issues	Chapter https://doi.org/10.1007/978-3-031-04560-8_20	3-8 years	Malta	Children's understanding of environmental issues, including climate change issues.
Spiteri, J., & Pace, P.	2023	"When the sun gets very hot": Young children's perceptions of climate change	Article https://doi.org/10.1177/09734082231183481	4-8 years	Malta	Examines how young children express their understanding of climate change through metaphors and narratives; finds early awareness but conceptual gaps.
Wall, E. & Eapen, V.	2025	Nurturing tomorrow: Mental health effect on children and youth due to climate change	Article https://www1.racgp.org.au/ajgp/2025/january-february/nurturing-tomorrow	5-24 years	Australia	Highlights the increasing incidence of eco-anxiety among children and youth, and calls for mental health support integrated into climate change education.
White, E.J., Williams, N., & Martin, K.	2024	Worrying with Children and Water in ECEC: Exploring the Pedagogical framing Effects of Actions for Climate Change	Article https://doi.org/10.1007/s13158-024-00392-3	3-5 years	New Zealand	Analyses how early childhood educators frame climate-related water issues pedagogically, promoting action through empathy and inquiry.

The studies included in this SotA review present a diverse range of research examining young children's experiences, understandings, and responses to climate change and environmental issues. The studies were published between 2010 and 2025, and span a range of countries including New Zealand, Australia, the United Kingdom, Malta, Germany, Canada, Croatia, and Estonia. The children's ages across the studies range from as young as 3 years old to young adults aged 24, though most focus on early to middle childhood (approximately 3–11 years).

Most of the studies are empirical articles published in peer-reviewed journals, with a smaller number of book chapters. The methodologies vary, including empirical research, co-produced research, scoping reviews, and pedagogical analysis. Thematically, several studies focus on children's emotional and psychological responses to climate change, including emotional understanding (e.g., Burke et al., 2018; Martin et al., 2022; Wall & Eapen, 2025). Others investigate children's conceptual understandings of climate and environmental issues, often through narratives, metaphors, and structured learning environments (e.g., Hannust & Kikas, 2010; Spiteri, 2023; Spiteri & Pace, 2023).

A notable subset of studies explores educational interventions and pedagogical practices that support children's engagement with environmental issues. For instance, Duhn et al. (2024) and White et al.

(2024) examine place-based and water-focused climate pedagogies in early childhood education settings in New Zealand. Mackey (2012) emphasises the rights and capabilities of young children to participate in environmental action when pedagogical approaches are respectful and supportive. Similarly, Hackett et al. (2025) employ co-produced research to capture children's imaginaries of climate-affected futures through relationships with trees. Health-related concerns are also present in the literature, with Kalhoff et al. (2023) focusing on the public health implications of climate-induced heat on children's hydration in Germany, advocating for early education as a preventive strategy.

Together, these studies reflect a growing global interest in how young children understand, are affected by, and can actively respond to the climate crisis. They demonstrate an interdisciplinary approach that incorporates psychological, educational, and public health perspectives, highlighting both the vulnerabilities and the potential agency of children in the context of environmental change. Taken together, these observations highlight critical gaps and opportunities for future research. As young children are particularly vulnerable to emotional stress and are increasingly exposed to climate discourse in their homes, communities, and media environments, it is essential to investigate how they perceive and are affected by climate change. Building an empirical foundation in this area will be key to developing developmentally appropriate, culturally relevant, and ethically grounded educational and psychological interventions.

Discussion

The current SotA review addresses two key research questions: What is the current state of research on climate anxiety in early childhood? The supplementary questions are: What is the general trend in publications? What aspects of climate anxiety in early childhood do these studies address? Where could we go next to advance this understanding? The findings to address each question are detailed below.

What is the Current State of Research on Climate Anxiety in Early Childhood?

The findings indicate that the field is still in its infancy. Furthermore, the current literature paints a fragmented yet increasingly urgent picture of climate anxiety in early childhood. While there is broad consensus that children are both affected by and responsive to climate change, research specifically examining how climate anxiety manifests in children under eight remains limited and under-theorised (European Commission, n.d.; Graff Zivin et al., 2018). Studies frequently conflate general environmental concern with clinically significant anxiety, and few developmentally appropriate tools exist to differentiate between these experiences. As a result, our understanding of the emotional, psychological, and developmental impacts of climate anxiety in early childhood remains in its infancy.

Evidence shows that young children often respond to climate change with strong emotions—such as worry, fear, sadness, and confusion—particularly when the topic is introduced through education or caregiving settings (Wall & Eapen, 2025). However, these responses are rarely explored in terms of their long-term psychological implications. Although terms like 'eco-anxiety' and 'climate grief' are gaining recognition in adolescent and adult mental health research, they are seldom applied systematically in studies involving younger children.

There is growing awareness that children's climate-related emotions are shaped by a complex web of influences, including the emotional climate of the home (Raikes & Thompson, 2006; Spiteri, 2023, 2025), how environmental issues are framed pedagogically (White et al., 2024), and the availability of meaningful opportunities for action (Mackey, 2012). This represents a shift from viewing children as passive recipients of environmental stressors to recognising them as emotionally perceptive, relationally embedded, and potentially empowered individuals.

Methodologically, the field is still evolving. While innovative participatory and arts-based approaches are beginning to emerge (Hackett et al., 2025; Spiteri & Pace, 2023), much of the research remains reliant on adult-centric methods that risk oversimplifying or misrepresenting children's emotional experiences. Furthermore, the literature predominantly reflects Euro-Western contexts, with minimal

attention to Indigenous, non-Western, or low-income settings—despite the global and inequitable nature of climate-related risks and emotional impacts.

Emerging studies indicate that even very young children express deep concern about climate change, particularly regarding its effects on their future, communities, and the natural world (Martin et al., 2022; Masten, 2021; Spiteri & Pace, 2023). Their concerns frequently center on extreme weather, biodiversity loss, pollution, and resource depletion—demonstrating an early awareness of the interconnectedness between environmental degradation and their own well-being. Persistent worry, both immediate and anticipatory, is now recognised as a significant contributor to children's mental and physical health challenges (Perlant, 2023; UNCRC, 2023). Consequently, climate-related anxiety is increasingly viewed as a public health issue, particularly for vulnerable populations such as children, with potential outcomes including chronic stress, depression, and disrupted emotional and cognitive development (Godden et al., 2021).

The UNCRC (2023) has formally acknowledged climate anxiety in children as an urgent issue. Article 12 of the Convention (United Nations, 1989) affirms children's right to be heard on matters that affect them. Yet public health and education systems have been slow to develop comprehensive prevention or support mechanisms. Systemic barriers—such as limited participatory platforms and adult assumptions about children's capabilities—continue to exclude young children from climate policy and action (UNICEF, 2023). Climate change also directly threatens children's fundamental rights to clean water, nutritious food, safe shelter, and quality education—rights already under strain due to increasing displacement, extreme weather, and ecological disruption (UNICEF, 2023). In this context, the climate crisis is not only an environmental or political issue, but also a children's rights crisis (UNICEF, 2021).

Education is widely recognised as a key mechanism for climate change mitigation and adaptation (European Climate and Health Observatory, 2022; European Commission, 2021, 2023; United Nations, 2015). Global frameworks—including the Sustainable Development Goals (SDGs), the European Green Deal, and IPCC reports—emphasise the interdependence of education, climate resilience, and societal well-being. Early childhood education settings play a pivotal role in introducing environmental issues through media, curricula, and peer interaction. Climate anxiety is frequently observed as a recurring emotional response in these contexts (Spiteri & Pace, 2023). Yet has been slow, particularly in integrating emotional well-being into early childhood climate education (United Nations, 2023). Early childhood settings are therefore critical for fostering both cognitive understanding and emotional resilience. However, no studies to date have specifically examined how climate anxiety manifests and can be tackled in children under eight. This gap leaves the field under-resourced and poorly understood, raising unresolved questions about whether such anxiety is an adaptive response to a real threat or a maladaptive emotional burden (European Commission, n.d.; Graff Zivin et al., 2018).

Despite young children's capacity for environmental understanding (Spiteri, 2023), they often hold misconceptions that, if left unaddressed, may persist into adulthood (Spiteri & Pace, 2023). Effective climate education must go beyond cognitive knowledge to address emotional needs, equipping children with tools to respond constructively to environmental challenges (Ogunbode et al., 2022). The way climate change is presented in educational contexts significantly influences children's emotional responses. Without adequate emotional support, climate messaging can lead to denial, despair, or heightened anxiety (Sanson & Masten, 2023; Crandon et al., 2022). Yet the extent to which current educational programs address these emotional dimensions remains unclear.

To be effective, climate change education must create emotionally supportive environments that validate children's feelings and foster a sense of agency (Baker et al., 2021; Ojala, 2022b). Although international frameworks increasingly acknowledge the role of ECEC in climate change education, the sector remains under-utilised and under-theorised—highlighting an urgent need for developmentally informed, emotionally responsive approaches to climate anxiety in early childhood. Barriers to effective implementation include the lack of integration of climate content into national early childhood curricula and insufficient teacher training (Murphy et al., 2020; Sanson et al., 2022; UNESCO, 2024). Compared to other educational levels, ECEC significantly lags in incorporating climate change education and offering

professional development in this area. Addressing these gaps is critical to leveraging early childhood education as a foundation for climate resilience, emotional literacy, and sustainable action.

What is the General Trend in Publications?

The current SotA review reveals four major thematic clusters that define the current state of research on young children and climate change: (a) emotional and psychological responses, (b) conceptual understandings and meaning-making, (c) pedagogical responses and educational practices, and (d) children's agency in environmental action. A smaller but notable theme also concerns the public health dimensions of climate change as they affect children.

The first cluster – emotional and psychological responses, is particularly well-represented in the current literature. Studies such as Burke et al. (2018), Martin et al. (2022), and Wall and Eapen (2025) draw attention to the growing phenomenon of climate anxiety among children and youth. These works suggest that children exposed to information about climate change—whether through media, education, or lived experience—can exhibit symptoms of anxiety, helplessness, PTSD, and sadness.

The second thematic area concerns how children make sense of climate and environmental issues. Studies in this domain tend to focus on young children's cognitive and narrative frameworks—how they construct meaning around abstract or complex phenomena such as rising temperatures, weather patterns, and sustainability. Spiteri and Pace (2023), for instance, analyse children's understanding of climate change, revealing both early awareness and notable conceptual limitations. Hackett et al. (2025) extend this inquiry by engaging children in co-produced research with trees to explore future imaginaries in a warming world, showing how relational thinking and ecological empathy are integral to children's meaning-making. These works suggest that while young children may not fully grasp scientific mechanisms of a changing climate, they are capable of emotionally resonant and imaginative understandings of climate impacts.

The third theme emphasises pedagogical strategies used in early childhood settings to introduce climate change topics. Some studies—Duhn et al. (2024), Mackey (2012), and White et al. (2024)—investigate how early childhood educators can facilitate developmentally appropriate, emotionally sensitive, and action-oriented engagements with climate issues. Duhn et al. (2024) advocate for place-based education, arguing that grounding learning in local ecological contexts enables children to develop stronger environmental connections and fosters climate-related agency. Mackey (2012) frames pedagogy through a children's rights lens, arguing that young children have the capacity—and the right—to participate in environmental decision-making when educators adopt respectful, democratic teaching approaches. White et al. (2024) focus specifically on pedagogical framings of water-related climate issues, emphasising how educators' choices around language, materials, and emotional tone can either empower or overwhelm children. Collectively, these studies argue for a shift from avoidance, toward engaged, hopeful, and responsive pedagogies.

The fourth theme concerns children's agency and participation in the context of environmental and climate action. This is an emergent but powerful strand of research that contests the widespread assumption of young children as passive, cognitively immature, or emotionally fragile. Instead, studies such as Hackett et al. (2025) and Mackey (2012) frame children as active co-constructors of knowledge and potential contributors to climate solutions. Hackett and colleagues, for example, use arts-based and nature-mediated methods to support children in envisioning climate-affected futures, while Mackey (2012) calls for the recognition of children's environmental rights and competencies in global sustainability efforts. These perspectives align with broader movements in childhood studies and ECEfS that seek to reposition children as capable agents with moral, social, and ecological insight.

A final, though less frequently addressed, theme pertains to climate change as a public health issue. Kalhoff et al. (2023) provide a distinctive contribution in this area, examining how increased heat exposure due to climate change affects children's fluid balance and hydration, with potential long-term health implications. They argue for a stronger role for early education settings in mitigating these risks through

proactive health education, thus linking pedagogical practices with public health strategies. This study broadens the field by recognising the physiological vulnerabilities of children in addition to emotional and cognitive ones, yet it remains one of the few to bridge education and health in this way.

What Aspects of Climate Anxiety in Early Childhood do These Studies Address?

The reviewed studies reveal the emergence of a specialised vocabulary to describe children's emotional and psychological responses to climate change. Terms such as 'eco-anxiety', 'climate anxiety', and 'climate-related distress' appear frequently, reflecting a growing concern with the affective toll that climate awareness can have on young people. Martin et al. (2022), and Wall and Eapen (2025) explicitly use the term 'eco-anxiety' to denote persistent worry and psychological unease linked to environmental collapse and uncertainty about the future. Burke et al. (2018) adopt a clinical framing, discussing risks of PTSD, anxiety disorders, and developmental trauma associated with both direct and indirect exposures to climate-related disasters. Other studies, such as White et al. (2024), employ terminology like 'worrying with' children, emphasising inter-relational emotional work in climate pedagogy rather than shielding children from negative emotions.

In parallel, educationally-oriented studies make frequent use of terms like 'climate action', 'participatory rights', 'pedagogical framing', and 'place-based learning' to describe strategies for engaging children meaningfully and responsibly in climate-related discussions. These terms underscore a shift in discourse from protectionism to empowerment, focusing not only on what children feel or know, but what they can do in response to climate change. This evolving lexicon reflects broader shifts in both climate education and childhood studies, suggesting new interdisciplinary frameworks for understanding how emotions, cognition, and agency intersect in children's climate learning.

Where Could We go Next?

Most existing studies offer cross-sectional snapshots rather than longitudinal insights. These gaps—spanning developmental trajectories, emotional experiences, pedagogical strategies, and global representation—limit the field's ability to inform effective policy, practice, and theory. To move the field forward, climate anxiety in early childhood must be reframed not simply as an emerging psychological issue, but as a complex, multidimensional phenomenon that intersects with developmental, sociocultural, educational, and rights-based domains. Research that adopts interdisciplinary approaches, and that takes seriously both the emotional realities and the agentic capacities of young children living in a climate-altered world, is warranted—a foundational step is to create developmentally appropriate definitions of climate anxiety in early childhood. Scholars need to distinguish between normative developmental worry, general environmental concern, and clinically significant anxiety—anchoring these concepts in early childhood developmental theory. This clarity will help prevent over-pathologising children's emotions while also recognising when support is needed.

Progress in the field hinges on the use of methods that align with children's expressive and cognitive capacities. Existing tools often miss the nuance of children's emotional lives, particularly when it comes to complex and abstract threats like climate change. Research employing child-centred, participatory, and multimodal methods—including storytelling, drawing, play-based interviews, and arts-based inquiry—can allow young children to communicate meaningfully within their cultural and developmental contexts.

Longitudinal and cross-cultural research is especially needed to trace how climate change emotions evolve over time and how these trajectories vary across socioecological settings. Engaging children in communities already experiencing the direct effects of climate change can help generate more globally inclusive and ecologically grounded understandings of early emotional responses.

Given the recognition of climate change as a children's rights crisis (UNICEF, 2021), future research and policy must be aligned with the principles of the UN Convention on the Rights of the Child—particularly Articles 12 (right to be heard), Article 24 (right to health), and Article 29 (right to education that teaches children how to respect the environment early on) (United Nations, 1989). Embedding a rights-

based lens will affirm children's entitlements to emotional well-being and environmental protection, while supporting their meaningful inclusion in climate decision-making processes.

Early childhood education offers a crucial platform for addressing climate anxiety through emotionally attuned and resilience-building pedagogies. Educators need adequate training and resources to facilitate climate-related conversations in developmentally appropriate and hopeful ways (Spiteri, 2024). Future research should evaluate the effectiveness of pedagogical strategies that integrate emotional literacy, mindfulness, nature-based experiences, and opportunities for prosocial action—supporting both cognitive engagement and emotional resilience.

Children's emotional responses to climate change are shaped within the relational ecosystems of their families and communities (Spiteri, 2025). The roles of families, caregivers, and educators in mediating children's emotional responses are under-researched. The emotional tone of family and classroom discourse, media narratives, and broader cultural messages all influence how children perceive and respond to climate threats. Research must explore how climate anxiety is co-constructed in these social contexts, and how intergenerational patterns of concern, hope, and action shape children's emotional worlds.

The literature remains dominated by studies from high-income, Euro-Western contexts, neglecting the diverse experiences of children globally. This lack of geographic and cultural diversity constrains the field's relevance. Advancing the field requires a commitment to climate justice and equity. Research agendas must prioritise the inclusion of children from the Global South, Indigenous communities, climate-vulnerable regions (e.g., the Mediterranean basin), and low-income families. Without such inclusion, the field risks reproducing dominant Euro-Western perspectives and overlooking those children most affected by the climate crisis. Cross-cultural research is critical to understanding how diverse belief systems, traditions, and socio-economic realities shape children's emotional responses and adaptive strategies.

Taken together, these priorities highlight the need for a new research agenda—one that is interdisciplinary, inclusive, developmentally grounded, and action-oriented. The goal is not only to document children's climate awareness or anxiety, but to cultivate their emotional resilience, agency, and capacity for meaningful engagement. Addressing these gaps is not just a scholarly imperative; it is an ethical one. The youngest generations will inherit the consequences of today's climate decisions. There is a pressing ethical imperative for research to support children—psychologically, educationally, and socially—as they navigate an uncertain but shared future.

Strengths and Limitations

This review offers a pioneering examination of climate anxiety in early childhood, and provides a comprehensive overview of an emerging field, identifies significant gaps in empirical and theoretical knowledge, and outlines key directions for future inquiry. By adopting a child-centred, interdisciplinary, and ethically grounded approach, the review helps frame climate anxiety not only as a psychological concern but also as a developmental, educational, and rights-based issue.

Nevertheless, certain limitations must be acknowledged. First, the review focuses on the term 'climate anxiety' potentially overlooking related constructs such as 'environmental worry' or broader concepts of sustainability-related emotional distress. Second, reliance on peer-reviewed, English-language literature excludes grey literature and non-English studies, contributing to publication and regional biases. Third, the limited body of existing research restricts the ability to draw definitive conclusions.

Despite these limitations, the review provides a strong foundation for advancing research on climate anxiety in early childhood. It highlights the need for methodological innovation, greater cultural and geographic diversity, and more nuanced theoretical development in this under-explored area.

Conclusions

Children under the age of eight bear little responsibility for the climate crisis, yet they are among the

most vulnerable to its far-reaching impacts. Despite this, research into their emotional responses to climate change—particularly the phenomenon of climate anxiety—remains scarce and under-theorised.

This review highlights the urgent need for empirical and conceptual advancement to better understand how climate anxiety manifests in early childhood, and how best to support young children in navigating the emotional challenges of living in a climate-altered world. Addressing climate anxiety in young children requires comprehensive policy responses that not only mitigate the root causes of climate change but also respond to its psychological and developmental impacts. This includes age-appropriate mental health support and the integration of SEL-focused, emotionally attuned climate education into early childhood curricula, and the promotion of interdisciplinary collaboration among educators, psychologists, policymakers, and environmental scientists to design holistic, child-centred strategies.

Moving forward, a paradigm shift is needed—one that moves from reactive concern to proactive, inclusive, and systemic inquiry. We must redefine what climate anxiety means in early childhood, develop tools that authentically capture children's voices, embed emotional support within early education settings, and position children as legitimate participants in climate discourse and action. Grounding this work in developmental science, children's rights, and global justice will allow us to build a robust research and policy agenda that supports young children not only in coping with the climate crisis but in becoming resilient, hopeful, and empowered citizens of a shared and sustainable future.

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Research Article

Organizing digital competence development in preschools: Professionals' insights from three Swedish municipalities

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Abstract: This article contributes to the understanding of how digital competence development (DCD) for preschool educators is organized across three Swedish municipalities, focusing on communal preschools and drawing on participants' experiences. With a case study approach, the research addresses the growing need for DCD to integrate digital technology into pedagogy in preschool. Continuing professional development like this can be initiated and shaped through various methods, including formal education, courses, and programs. Another often more efficient approach is to support and enhance continuous, day-to-day learning in the workplace. However, in-depth research on such workplace learning and practice is lacking despite ongoing debates on digital tool use in early childhood education. Fifteen interviews with operational developers, development leaders, principals, and information and communication technology (ICT) educators serve as the basis for this study. Billet's theories on workplace learning frame the analysis, studying the organizing of DCD through the interdependence between possible learning opportunities (affordances) and the influences it has on individuals' agency (engagement) within the cases. Findings highlight that ICT educators played a pivotal role in coaching and shaping professional development, suggesting that the learning opportunities available to staff were significantly influenced by the motivation and engagement of self-driven individuals, along with principal prioritization and municipal vision. This study also shows the availability of DCD through collegial cooperation, dedicated support groups and networks. The study underscores the importance of workplace learning for enhancing preschool educators' digital competence and proposes practical strategies to facilitate staff support.

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Continuing professional development; Digital competence; ICT educators; Preschool educators; Workplace learning

Introduction

Digitalization has changed Early Childhood Education and Care (ECEC) policies, emphasizing digital competence as crucial for preschoolers in the 21st century (United Nations Convention on the Rights of the Child [UNCRC], 2021; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2022). This capability to engage technically, meaningfully, and critically with digital technology (Ilomäki et al., 2016) underscores the necessity for preschool educators to undergo digital competence development (DCD) to integrate digital technology (e.g. tablets and robots) in the pedagogical practice and craft suitable activities (Otterborn et al., 2019; Thorpe et al., 2015). While studies have shown that preschool educators' digital teaching skills are improved through teacher training (Blackwell et al., 2016; Dong, 2018; Kerckaert et al., 2015), little is known about how this developmental support is organized in local preschool settings to improve such workplace learning (cf. Schachter, 2015). This paper examines the organizing of DCD in three Swedish municipalities, theoretically framed as continuing professional development and analyzed using workplace learning theories.

In ECEC research, debates on the effects of digital tools have persisted for over a decade but have decreased recently (Furenes et al., 2021; Plowman & McPake, 2013). In Sweden, there is instead a growing debate on "screen time in preschool" (Government Offices of Sweden, 2023a, 2023b). In 2017, the Ministry of Education and Research (2017) implemented the *Swedish National Digitalization Strategy for the School System* to develop digital competence among pupils and preschoolers. The curriculum was revised to

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emphasize that children should be given opportunities to develop adequate digital competence and critical attitudes toward digital technology (Swedish National Agency for Education [SNAE], 2018). A new strategy proposed in 2022 aimed to enhance education and equality through digital tools (SNAE, 2022a), but the Minister for Schools rejected it. Following researchers in neuroscience, psychology, and psychiatry, who highlighted digital tools' negative effects on concentration and language learning (Government Offices of Sweden, 2023a, 2023b; Karolinska Institutet, 2023). However, educational researchers emphasized their benefits for cognitive development and learning (Stockholm University, 2023; University of Gothenburg, 2023). Recently, the Swedish National Agency for Education (SNAE, 2024) proposed the non-compulsory use of digital tools in preschools, emphasizing teacher evaluation of "teaching tools" and replacing "digital competence" with "technology development".

As politicians and academics debate the use of digital technology, preschools face ongoing technological advancements (Masoumi, 2015, 2021; Samuelsson et al., 2022). Management is tasked with addressing how preschool teachers should approach and enhance their digital skills in educational practices.

In this study, the focus is on DCD in the workplace. This form of continuing professional development is defined here as in-service training or activities designed to enhance educators' dispositions, knowledge, and skills to improve their work and teaching practice (Sheridan et al., 2009). Most learning in work is tightly bound to the work itself and thus often goes on quite unnoticed (Billett, 2004). However, workplace learning may be boosted by professional development activities, such as modeling, coaching and questioning (Billett, 2010). This study addresses how organized staff support unfolds naturally in local preschool settings through the accounts of staff with different professional positions. In contrast, previous research has often focused on researcher-initiated and researcher-led activities in both Swedish (e.g. Forsling, 2023; Fridberg et al., 2023; Hernwall, 2016; Landwehr Sydow et al., 2021) and international contexts (e.g. Bittner et al., 2018; Bittner et al., 2020; Chen & Price, 2006).

This study draws on theories of workplace learning (Billett, 2002, 2011), which focus on the relational aspects of *workplace affordances* and *individual engagement* to define, understand and analyze workplace learning. Workplace affordances concern aspects of the environment individuals perceive as offering them opportunities to participate and learn, and individual engagement involves here the influences it has on individuals' agency to partake. Hence, the aim of this study is to contribute to the understanding of how digital competence development is integrated into preschool educators' everyday work based on the experiences of involved professionals. The research questions are:

1) How is the DCD organized for preschool educators within the municipal frameworks?
2) What commonalities and variations exist in workplace affordances and the influences on individual engagement in the context of organizing DCD for preschool educators as perceived by the professionals?
3) What implications do the key components of the organizing have for preschool educators' workplace learning?

Digital Competence Development in Early Childhood Education Settings

ECEC research has evolved from questioning the use of digital technology to exploring its effective utilization for children's learning (Masoumi, 2015). This is followed by studies on today's digital technology in ECEC, which encompasses various tools like screen-based technology (e.g. tablets), non-screen-based technology (e.g. projectors), exploratory technology (e.g. digital microscopes), and Internet of Toys (e.g. robots) (Undheim, 2022). Despite this, research addressing pedagogical work with digital technology often overlooks workplace learning. This leaves little known about how DCD is organized for preschool educators in daily practice. However, a study by Wadel and Knaben (2022) shows how preschool staff's general learning happens. It is often through teaching methods, ideally with teachers working together in groups to develop activities. Yet, it remains challenging to integrate joint reflection into daily practices. The authors underline how development processes often lack systematic approaches or clear visions. Furthermore, reflections tend to be limited to meetings and discussions on curriculum and professional

literature, not translating easily into practical change (Wadel & Knaben, 2022). In preschools, information is shared through both formal channels like staff meetings and informal means like spontaneous interactions (Cramer et al., 2022). Staff often seek advice from colleagues they perceive as knowledgeable based on job title or camaraderie. About half of the staff share insights from external professional development with colleagues, mostly informally due to time constraints (ibid.). Thus, relationships play a significant role in educators' adoption of new practices and knowledge, with barriers including a lack of shared goals, knowledge, psychological safety, and poor communication (cf. Douglass, 2019).

When it comes to the involved professionals in organizing DCD, studies show how principals play a key role in implementing digitalization plans and supporting teachers (Liu et al., 2014). They are also responsible for ensuring the accessibility of digital resources, time, and structure for effective learning (Ng, 2015). Forms of support provided could entail courses, workshops, training, coaching or mentoring (Elek & Page, 2019). Learning digital competence can be significantly enhanced through the guidance of specialized coaches or experts who provide pedagogical support for using digital technology (SNAE, 2022b). In Sweden, these experts are often referred to as information and communication technology (ICT) educators (in Swedish: IKT-pedagoger) (ibid.). ICT educators could be considered to have a middle leader position and be considered change agents (Avidov-Ungar & Shamir-Inbal, 2017). Teachers in a middle position (e.g. teacher leaders, development teachers), with their closeness to the pedagogical practice compared to principals and external consultants, have been shown in Sweden to lead to preschool improvement by exercising different strategies and considering the context (Nehez et al., 2022; Rönnerman et al., 2017). Avidov-Ungar and Shamir-Inbal (2017) elaborate on ICT educators' multifaceted role, which encompasses personal and professional knowledge, as well as technological, pedagogical, organizational, and leadership knowledge. The last two are crucial for acting as change agents, but all aspects influence their practice. They must balance pedagogical leadership and self-directed learning to enhance their competencies while collaborating with principals to integrate vision and develop support programs.

Workplace affordances and the influences on individual engagement with the organizing DCD, as perceived by professionals, are described in various ways. Pettersson (2018) presents Swedish ICT educators' and school leaders' perceptions of the components leading to a supportive organization for digitalization. She identifies two organizational approaches that digitally competent schools have: a structure-oriented school, emphasizing formal structures like courses, and a culture-oriented school, prioritizing collegial learning. In common was the creation of space for change, with development happening through greater political goals rather than local policies. The difference was that the responsibility was more top-down for the first mentioned and the latter bottom-up (the teachers themselves). However, some studies (Dwyer et al., 2019; Marklund, 2015, 2022) suggest preschool educators do not necessarily change their practice even with perceived high support from the management and positive attitudes toward such educator training. Interested staff instead frequently engage in self-education through online resources and networking opportunities. As reported in a New Zealand study (Irons & Hartnett, 2020), preschool educators can rely on ICT educators rather than prioritize their learning, share knowledge, and neglect provided learning materials due to time constraints, perceived importance, or motivation.

Previous research highlights also some key aspects of organizing DCD and its content, introducing as well as possible implications. Initiatives usually consist of hands-on experiences with digital tools and reflections between colleagues and a coach (Cowan, 2019; Magnusson, 2023). The practice may improve when the coach considers preschool educators' prior knowledge and skills, using collegial learning and critical reflections as a method for support, as well as guiding them in situ when they use digital technology in their pedagogical activities (Chen & Chang, 2006; Elek & Page, 2019). Few studies explore the daily coaching approach. Yet, what is known is that the relationship between the coach and the preschool educators can affect their engagement. For example, in one Australian study (Colmer, 2017), the preschool staff participated less actively in the learning activities when the coach had a strong power position. It appears that coaches who accept feedback from educators and have an open attitude facilitate more teacher

change (El-Hamamsy et al., 2021). But coaches also experience scheduling conflicts, challenging learners, and depend on other coaches' support to develop their coaching (Schachter et al., 2024).

To summarize, the literature presents the possibilities and barriers for workplace learning, following organizational change, but also highlights how the ICT educators' role is central to the support and how educators' agency affects the everyday work and actualization of practice change. A gap in research is the understanding of how this DCD happens in everyday practice and what this coaching may entail, especially in a Swedish context. More investigation is needed on this in ECEC settings, as intended in this study.

Theories on Workplace Learning

In ECEC research, workplace learning theories do not have a prominent place (cf. Schei & Nerbø, 2015; Sheridan et al., 2009). Importantly, workplace learning is not to be confused with work-based education or work-integrated learning. Instead, the equivalent is discussed in terms of *professional learning* or *professional development* (Hodkinson & Hodkinson, 2005). Other terms exist (e.g. teacher learning) with differences being made or used interchangeably (Ng, 2015). In a broad sense, the terms entail professionals' continual involvement in novel learning experiences and the exercise of new knowledge in practice to uphold the occupational tasks and by engaging in critical self-reflection (Avby, 2016). This paper focuses on digital competence development, which is a form of *continuing professional development*. As previously defined, DCD is hence the in-service training or activities aimed at enhancing educators' dispositions, knowledge, and skills to improve their work and practice (Sheridan et al., 2009). From a broader theoretical perspective, which frames the study, all forms of teacher development support become what shapes *workplace learning* in preschool.

This study applies Billett's (2002, 2011) theoretical framework of workplace learning, which highlights the interdependency of both workplace affordances and individual agency, to understand and study employees' learning. *Workplace affordances* are the extent of available possibilities for individuals to partake in and learn during their work practices, which are influenced by social, organizational and cultural factors (Billet, 2002; Hager, 2011). Personal relations and different workplace hierarchies affect the distribution of learning opportunities and employees' access (Billett et al., 2004). Learning through continuing professional development can occur within everyday work activities and/or intentional learning strategies such as modeling and coaching (Billett, 2002, 2023). Besides these forms of support and guidance, other affordances can be artifacts, tools, procedures, values and norms (ibid.). Workplace affordances in the forms of participants, interactions and relationships continuously transform as they are always occurring in a social context (Billett et al., 2004).

Individual engagement refers to how individuals exercise their agency in work practices, shaped by their personal histories and subjectivities, including competence, values, and beliefs (Billett, 2002, 2011). This engagement reflects how individuals perceive and respond to workplace affordances, which frame their opportunities for learning and interaction (ibid.). In comparison, in educational research, teacher agency has not been thoroughly conceptualized but could be understood as the ability to recognize these affordances in a circumstance (e.g. a teaching activity) and should be cultivated through teacher training (Aspbury-Miyanishi, 2022). Yet, for teachers to make decisions in their practices, they need a certain degree of autonomy and institutional support (ibid.).

This study focuses specifically on the affordances influencing individual engagement, as perceived by professionals interviewed. Engagement manifests in proactive learning behaviors, such as experimenting with practices, seeking guidance from colleagues, building professional relationships, and navigating institutional norms (Billett, 2010). However, these actions may not always align with managerial objectives or workplace conditions, especially if institutional support for learning is lacking (Billett et al., 2004).

The framework has been criticized for separating individuals' agency and social aspects (Hager, 2011), but as Billett (2002, 2011) stresses, it is the *interdependency* of affordances and individual engagement

that forms workplace learning. Learning is neither simply individual nor social. Expertise is also relational, as it exists within specific knowledge fields and social practices and not as an individual competence (Billett, 2010).

Hence with workplace learning theory, the understanding and potential improvement of DCD can be enhanced as the experiences of the participants and the support conditions are studied.

The Swedish Context

Preschool in Sweden is voluntary, yet 86% of children (0-5 years) are enrolled, with 70% attending public preschools (SNAE, 2023a). Sweden has a national, regional, and local governance structure, with 21 counties and 290 municipalities, each with its own elected council (Government Offices of Sweden, 2015). Municipalities, while adhering to national laws, have autonomy in managing local administration and education departments that concern resources, child welfare, preschools, schools, and staff training. The departments also supervise private preschools (The Education Act [Skollag (SFS), 2010:800], 2023). Education departments have different divisions, each with its council board and a steering group. *Operational developers* and *development leaders* can work in these divisions. Their work tasks can differ by municipality, but generally, they oversee the pedagogical systematic quality work and contact with principals. The former works more with routines and productivity with a control function, and the latter is more process-oriented, focusing on the implementation and development of practices (cf. Nehez et al., 2022). Locally, the *principal* is responsible for the pedagogical development of the preschool. The *preschool teachers* (in Swedish: förskollärare) have a bachelor's in early childhood education and are responsible for the education. They work together with *childcare attendants* (in Swedish: barnskötare), who usually have a high school diploma. This text uses the term preschool educator for these two work titles. All staff follow the preschool curriculum (SNAE, 2018, 2024).

The Education Act (SFS 2010:800, 2023) states that education providers must offer training for their staff. Municipalities arrange this based on needs, interests, and legislation that makes certain training mandatory. The Swedish Association of Local Authorities and Regions (SALAR) is an employers' organization representing and supporting local governments, including all Swedish municipalities and regions (SALAR, 2023a). Time for teacher training is negotiated between SALAR (2013) and the teachers' union. Each teacher is entitled to an average of 104 hours of training during their regulated working time each school year. Training can be organized by staff or external providers, but from September 1 of 2025, a national professional development framework for principals, teachers and preschool teachers will be established, with a qualification system for certified teachers and preschool teachers (SNAE, 2025).

In March 2019, SALAR (2023b), on behalf of the government and in collaboration with the Swedish National Agency for Education, introduced the national action plan *#skolDigiplan* for digitalization of the educational system. This plan outlined management responsibilities and provided guidelines for training. According to SALAR (2019), training can be led by first teachers, meaning teachers with the responsibility to mentor or ICT educators. In an investigation (SALAR, 2018) on 1049 preschools, 36% had some kind of ICT educator, 17% almost did and 10% had not planned such support. Note that 6540 Swedish public preschools exist (SNAE, 2023a).

Method

A case study design (Yin, 2018) was used to present three municipalities' (cases) organizing of DCD at the municipal level. This enables the possibility to study "contemporary phenomenon (the "case[s]") in depth and within its real work context, especially when the boundaries between phenomenon and context may not be clearly evident" (ibid., p. 15). In this way, the under-researched organizing of DCD can be described and analyzed respectively for each municipality and yet compared regarding patterns and key components.

Context of Study

This study includes participants from three Swedish municipalities (see Table 1). The municipalities are situated within the East region in Sweden and all vary in size, organization, resources and job positions.

Table 1
Statistics of the Municipalities

Year 2022	**Municipality A**		**Municipality B**		**Municpality C**	
Municipality size (residence) (n)	**242 000**		**160 000**		**102 000**	
	Public	Private	Public	Private	Public	Private
Distribution of preschool types (%)	47	53	81	19	77	23
Full-time staff with preschool teacher education (%)	37	32	42	26	34	17
Children attending early education (age 1-5) (%)	63	37	87	13	89	11
Children per full-time staff member (n)	5,6	5,2	5,2	4,8	5,5	4,8

Note. Data from official statistics (rounded numbers) by the Swedish National Agency for Education (SNAE, 2023b).

Data Collection and Material

Several municipalities' top management and public preschools were contacted after browsing their web pages and choosing those that presented their pedagogical work with digital technology and described different organizing of DCD. For practical reasons, nearby areas were first contacted, with the first three municipalities that showed interest being selected for the study. The snowball sampling method (Cohen et al., 2018) was also used to find, contact and include professionals who were not explicitly written on the webpage, such as development leaders and ICT educators.

The study is based on 15 semi-structured interviews (Cohen et al., 2018) with various professionals (see Table 2). Interviewed ICT educators held a central role, overseeing support for an entire preschool area, unlike their counterparts, the "local" ICT educators, who were in charge of only their preschool. One pilot interview was conducted with someone who had worked previously as a development leader in another municipality until 2019. The data was collected in two time periods: from the end of November 2022 until the middle of February 2023 and from the end of October 2023 until the beginning of December 2023. A second round of interviews was conducted to evenly distribute participant numbers between municipalities, as municipality C had fewer participants after round one.

Each interview was around 60-105 minutes long. Seven of the interviews were physical meetings and the rest were online interviews. The interview guide included questions on general work experiences, their professional role, the structure of educator training, resources, development opportunities, and political debate. All interviews were audiotaped and transcribed. The author's comments were enclosed in square brackets in interview excerpts to clarify or improve readability. In transcriptions, the author was named the interviewer, and interviewees were named by code names.

Table 2
Participants and Background Data

Municipality	**Name**	**Professional positions**	**Preschool**	**Years in position**	**Education**
A	A1	Development leader	-	17	Preschool teacher
	A2	Principal	Aster	11	Childcare attendant
	A3	ICT educator		10	
	A4			10	
	A5			7	
B	B1	Operational developer	-	2	Preschool teacher
	B2		-	< 1	Upper secondary teacher
	B3	ICT educator	Buttercup	6	Preschool teacher
	B4	Principal	3 preschools (incl. Bluebell)	13	
	B5	ICT educator	Bluebell	6	
C	C1	ICT educator/coordinator	-	< 1	Preschool teacher
	C2	Principal	7 preschools (incl. Cosmos)	3	

C3	ICT educator	Cosmos	4	Childcare attendant
C4	Vice principal	2 preschools	< 1	Preschool teacher
C5	ICT educator	Camellia	4	

Note. For anonymity reasons, general names are used for titles and groups. Despite the same work title here or in real life, the work tasks and organization of the roles differ to some extent. Pseudonyms are used for the preschool names.

Data Analysis

The study followed a four-step qualitative content analysis approach (Cohen et al., 2018), starting with thorough transcript readings and memos as recommended by Yin (2018) for case study analysis. Next, the theoretical concepts of *workplace affordances* and *individual engagement* (Billett, 2002, 2011) were used to identify patterns in the organizing of DCD in each case, leading to codes being formed from the interview data. Coaching, time, and digital tools exemplified workplace affordances, while individual engagement was coded through utterances on affordances affecting staff agency, as perceived by interviewees, like knowledge-sharing, values, and autodidactic learning. Thirdly, the coded data were grouped into themes by analyzing the interdependence of workplace affordances and engagement (Billett, 2002). The themes named and structured the cases, and were supported by interview excerpts and visual representations. All this formed the empirical accounts of the organized DCD as presented in the findings and addressed the first research question. Finally, themes were compared to highlight commonalities and variations in the organizing of DCD, addressing implications for preschool educators' workplace learning and answering research questions two and three in the discussion chapter. Patterns, codes, and themes were continuously reviewed against transcriptions to ensure comprehensive data representation (Cohen et al., 2018).

Ethics

The study design was approved by the Swedish Ethical Review Authority (2022-03252-01) and the author followed all of the ethical requirements. Written informed consent was obtained from all participants and they were asked to respond to the transcript to clarify or exclude something if needed. The participants were also asked to comment on the draft of the findings. This enhanced the validity and reliability of the research (Cohen et al., 2018). The author continuously wrote field notes for self-reflection to reduce potential bias from their background in preschool education, as they had previously worked many years in Swedish preschools. For example, the author initially expected the participating preschools to use more technology than the average preschools. Still, with the notewriting, they could remind themselves not to focus on generalization, as this was not the aim of the study. While semi-structured interviews could provide more in-depth answers from the interviewees, to minimize interview bias, the author used peer debriefing and an interview guide (Cohen et al., 2018). The author's background also facilitated access to the educational setting and helped establish a more non-hierarchical interview environment.

Findings

This section presents the three municipalities' characteristics of the organizing of preschool educators' DCD. The institutional conditions are described to provide the reader with an empirical account based on the professionals' descriptions, to later present and discuss the key components of the cases in the discussion.

In all municipalities, the preschools had access to a similar range of digital tools, such as projectors, models of small robots, green screens, computer tablets, computers, and small microscopes (with and without screens), but the amount and use of tools differed.

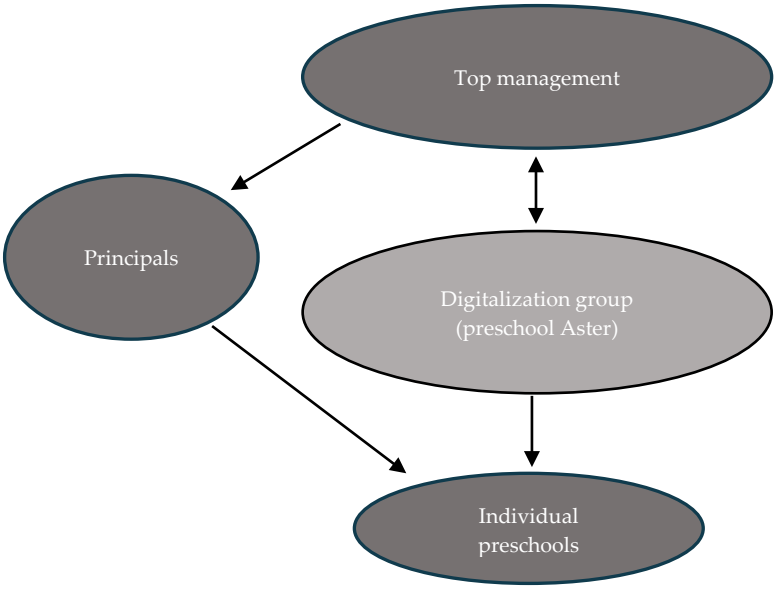
Case I: The Innovative Municipality

Municipality A is classified as a large municipality with approximately 242 000 residents. The organizing of support starts through communication and implementations by the top management or by the digitalization group from preschool Aster. The decisions reach the principals and then the individual preschools (Figure 1). From the top management, four development leaders have the task of overseeing the digital systems and strategic development based on the national digitalization strategy, teacher training,

and supporting principals. One of them is in contact with the digitalization group. The preschools are divided into four areas, each overseen by a manager. In each area, there are 15-20 preschool principals, each responsible for one to three preschools.

Figure 1

Overview of the Organizational Context in Municipality A



Innovative and Experimental Vision and Approach

A key component of the municipality's organizing of DCD was their innovative and experimental vision and approach to enhance preschool educators' learning. This initiative began over a decade ago, involving the introduction of new digital tools to preschools and the evaluation of pedagogical applications. Along with converting two newly built preschools to specialize in ICT to lead the development, preschool Aster was one of these institutions. As presented by the development leader, innovation and experimentation were valued and part of their vision for support.

> We were quite early with buying iPads (…) we began distributing them to observe the outcomes. So [we have] a little more experimenting [approach] (…) It's probably a bit dangerous to say that, but we do it under controlled conditions (development leader, A1).

Following this, they invested various resources but "under controlled conditions" from top management. During the establishment of preschool Aster, the principal created a digitalization group with preschool educators interested in digital pedagogical tools to stimulate collegial cooperation and learning. Today, the digitalization group has monthly meetings to develop the pedagogical work and consists of the principal and three preschool educators with this ICT educator role. Despite the municipality decentralizing most support in recent years and discontinuing the specialized profile, preschool Aster offers to coach preschools, driven by their ongoing interest but still in dialogue with top management. In the preschool, the innovative and experimental approach exists in everyday practice:

> I am permissive, when they present thoughts and ideas, I very rarely decline them. Instead, I tend to think: "Yes, try it out." If it turns out that: "This wasn't suitable for us at the preschool. No, but then we know. We've tried it." (principal, A2).

Likewise, the digitalization group, principals and the management team have been introduced and supported by the head preschool manager to try new technology. The digitalization group tried VR headsets but did not introduce them in preschool due to the recommended age restriction. The development leader explained:

> Our head preschool manager is a very innovative leader (…) "What is new and how do we understand this?" (…) We have tried out VR headsets in the management group (…) We gathered all the principals on a training day when they got to try out operating drones (…) Just as you should encourage the educators to dare to try out different tools

> together with the children, we as leaders and principals need to be challenged (development leader, A1).

As mentioned here, the vision guided the use, evaluation, and regulation of digital tools in the municipality by top management and at preschool Aster.

Resources and Ad-hoc Implementations

Preschool Aster has a digital atelier, equipped with rooms containing digital tools such as a green screen setup and programming resources. In collaboration with the development leader, they have established in the preschool a makerspace, which is a collaborative workspace for creative work that integrates technology, conducted workshops with study visits to their digital atelier, and provided coaching to other preschool staff. These initiatives, except the study visits, received top management funding. About half of the municipality's preschools have participated in these workshops, but only preschools from other municipalities visit today. The municipality also offers online and in-person courses through external lecturers and recorded lectures from the digitalization group.

The possibility of having this makerspace at preschool Aster comes as a result of juxtaposing conditions. First, it has available space due to a smaller number of children, while at the same time, it is a modular building and will eventually be deconstructed. This leaves the future of the initiative in a delicate state. The municipality's vision and encouragement for innovation have led to an openness, but ad-hoc implementations. As previously mentioned, the ongoing investment of resources has occurred, here reported as funds, tools, time and coaching, even when the progress was unclear.

The digitalization group mentioned an ongoing try-out of establishing a learning community with other preschools through the makerspace by offering study visits there. The makerspace concept is still under development, as there has been some misunderstanding of its purpose and use. Furthermore, collegial cooperation beyond the digitalization group has been difficult to create. There have been fewer than expected visits due to the coronavirus pandemic and overall low coaching requests. While the municipality supports the development of the makerspace and has arranged a study visit to another municipality's makerspace and discusses ways in which the idea can be better marketed, the ad-hoc implementations and the abundance of affordances revealed instead struggle with the individual engagement of other staff.

Regulations and Expectations

The formalized regulations were specified digital competence guidelines. On a municipality level, the digitalization steering document was discussed between development leaders, preschool area managers, and the head preschool manager to see how it connects pedagogical practice, budget and political directives. On a preschool level, the digitalization group was currently updating their preschool's operational plan, which concerns how they should work with digital technology and address the pedagogical work, e.g. not using words like "playing games". As for ICT educators' learning, it was usually curated by them attending the annual teacher conference event about digital technology called Scandinavian Education Technology Transformation (SETT), their meetings, lectures, and reading books, but mostly through social media where they searched for new knowledge and inspiration. They, in turn, evaluated the ongoing work at the preschool, coached, and offered workshops:

> I don't come in and control, it's about having workshops with our colleagues so that they get a sense of "what are the things we're working on? Where am I in this?".
>
> (---)
>
> It's about us making sure that all those [new staff members] who come into the preschool get the same amount of information and get a lot of knowledge and skills from what we can offer (…) That you learn (…) We also look at how we work with digital technology in each division (...) We give each other feedback (ICT educator, A5).

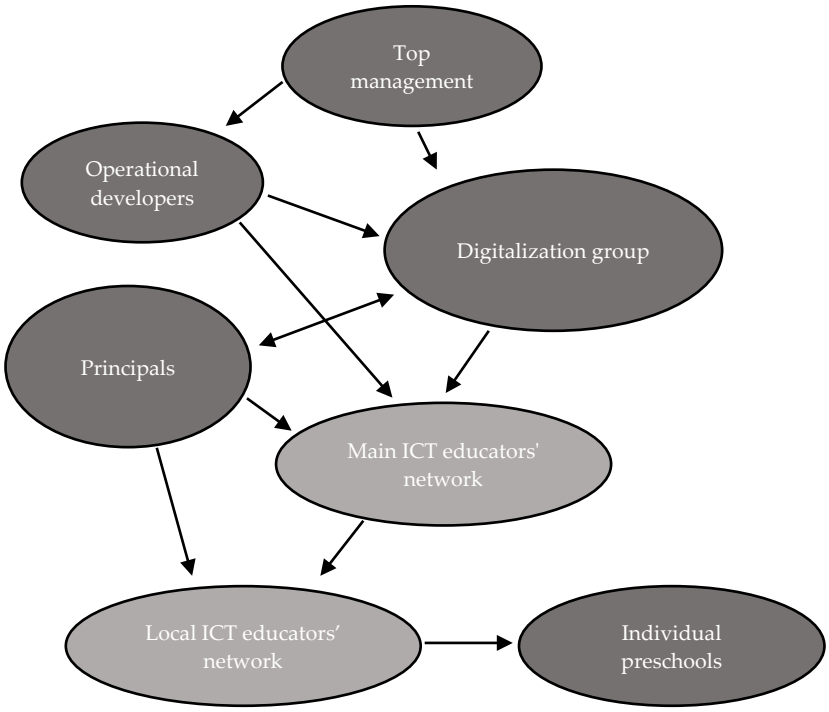
It was, however, reported that any other staff member should be able to take on the responsibility of coaching during study visits, but that had not been the case. Thus, significant reliance and expectations were placed on these ICT educators by staff, or in general, the digitalization group put efforts into

providing support, whether requested by preschool educators or top management. Yet encouraged as this aligned with the innovative vision.

Case II: The Development-oriented Municipality

Municipality B is characterized as a metropolitan area with a population of 160 000 residents. The DCD is centrally administrated, indicating a top-down approach (Figure 2). From top management, two operational managers oversee the strategic work with principals, following a digitalization plan. The operational developers take directions from top management and handle maintenance, routines, and in-between processes, including specific educator training. They provide instructions to the digitalization group and the main ICT educators' network. The digitalization group is run by top management through their coordinator of digitalization and one of the operational managers. Members are one principal representative from each of the six preschool areas. They meet regularly to discuss developmental strategic questions and share information with the other principals, who influence decisions with feedback, e.g. the digitalization action plan. Creating a more direct exchange. The group gives instructions regarding the support to the main ICT educators. The principals manage one to five preschools and oversee their ICT educators. The main ICT educators meet in their network but are also the pedagogical leaders of their local ICT educator network. After the local ICT educators receive support, they are responsible for providing DCD at their preschool.

Figure 2
Overview of the Organizational Context in Municipality B



Systematic Vision and Structure for Development and Regulation

The municipality is development-oriented and uses a systematic vision and structure for development to improve pedagogical work in education, which includes the above-mentioned divisions, teams, and roles. This approach provides them with the conditions for sharing information and regulating support, as stressed by the operational developers.

> The preschool has (…) a very good development organization. How something can come from the top [management] and then there are conditions for it to be spread to all levels because that's the challenge when you're so far away from the organizations, when changes are to be made or something new is to be implemented (operational developer, B2).

For example, the structure of the ICT educator networks. Each preschool area has two main ICT educators responsible for supporting their local ICT educators through meetings held three to four times per semester. Preschools with more than five to six divisions have two local ICT educators. The main ones meet two to three times per semester in a network led by the digitalization coordinator, working on tasks from the digitalization group, such as giving feedback on the digitalization action plan. They share updates and assign tasks in their local networks, often using materials and speech scripts from the operational developers. They offer workshops, usually only for the main ICT educators, but exceptions occur, like when all principals and ICT educators were trained on their new digital platform. The structure was to ensure and control that the same information and support were received, the operational developers explained.

Autodidactic ICT Educators and Collegial Cooperation

In the municipality, tasks and information are delegated, yet principals and main ICT educators have significant autonomy to organize workshops and meetings. This autonomy sometimes results in a perceived low agency for main ICT educators to support the local ones, as it depends on their capability. Before being officially appointed to their role, many have gained recognition by self-learning and supporting colleagues. This influenced their involvement and the training they offered. While the development-oriented structure was intended to provide similar support across the preschool areas, the reliance on these autodidactic ICT educators raised some issues:

> B3 (ICT educator): No one educates the main ICT educator.
>
> Interviewer: You are not offered any professional development?
>
> B3: Well, in some ways we get some, and in some ways, we do not (…) We have attended various workshops and then it turns out that there are main ICT educators who do not really know these things, and then maybe you should start there (…) Now we have started to make use of each other (…) it is otherwise a little strange as it would require that you have this enormous [individual] knowledge (…) Some teams have had difficulties on finding main ICT educators.

Not only tackling their formal responsibility, they also took on more self-initiatives to improve collegial cooperation and local ICT educators' digital competence and pedagogical leadership.

> We have had various kick-offs, teamwork sessions and workshops. Before, it was more that I and one other presented content. So now the last workshop (…) we said: "Today we are going to work with green screen" and then we split them into small groups. "What can we do (…) and what is the pedagogical purpose?"
>
> (---)
>
> If I ask a local ICT educator: "How's it going at your place?" I expect them to talk about their preschool, not just their division (…) They *must* keep track of the situation (…) (ICT educator, B3).

As presented above, more available learning opportunities could exist for the network members and subsequently the staff through this direct guidance.

Coaching and Resources

The role was sometimes less important. Instead, the focus was on dividing the workload between the main or local ICT educators for staff to get more individual coaching. But this option depended mostly on the principal's decision. One example is the extra workshops they offered for staff who wanted to learn more about the new documentation tool. These meetings also stimulated collegial cooperation as attendees reportedly shared their practices and ideas. Despite these resources, the professionals reported as well that the preschool educators with the greatest need did not always attend or request support. Showing different individual engagement for coaching. A principal mentioned motivating the staff.

> B5 [main ICT educator] (…) conducts a lot of training sessions (…) because many persons feel scared (…) saying: "I can't do this." Then I say: "No, but if you buy a machine at home (…) you don't just let it sit on the counter; you try to use it. And that's what you should do here (…) Because the more you use it, the more confident you'll become" (principal, B4).

Yet, spontaneous interactions or coaching requests did occasionally happen.

> Staff are working with different amounts of the documentation tool and digitally, so everyone works with that. But

> with digital tools, I feel I need to remind them. “Please use them, they're here available in boxes, and show the children.” Now, there was a preschool educator last time who said: “But I don't know how to do it. I want us to meet for an hour and you show me how (…) Where do I plug in the cable? What does the app look like?" (ICT educator, B5).

Providing coaching, hence, was an important affordance offered by the ICT educators, but it was also described by the interviewees that preschool educators valued the support differently. This led to previous or current difficulties in attendance in the local network, with colleagues commenting such as: “Are you going away again?”.

Communication and Work Culture

The municipality’s intended development happened through group exchanges and as the trust strengthened between involved staff. The importance of relationship building and communication for learning was evident in how it was needed for information and knowledge sharing to occur and to create this development-oriented structure and vision of support. In the beginning, individuals kept the information for themselves, hindering development and staff learning. This can still be an issue, for example, when ICT educators change.

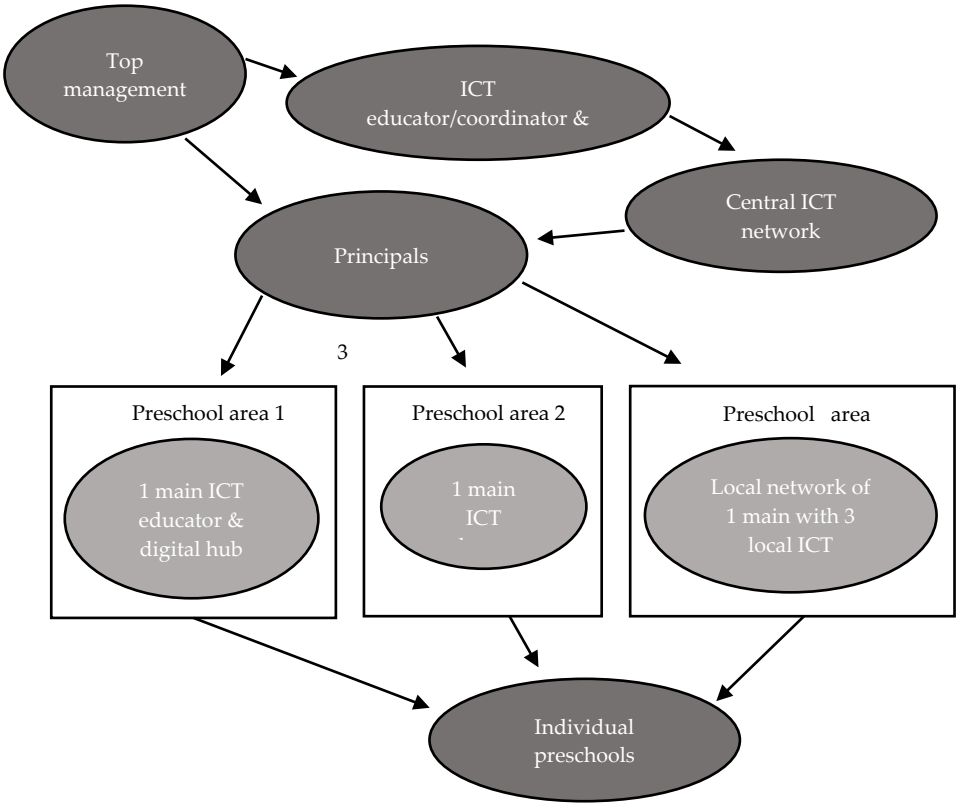
> The biggest challenge (…) is getting the information out (…) when you are such a large organization (…) It doesn't happen in a week, it may take two or three weeks before the educator at the farthest end gets it because it is so complex. Even though we have our development organization, which still partially works (…) It has recently gained new momentum because they are starting to realize that it is a good organization to get information and learning out (operational developer, B1).

Establishing this change to a cooperative work culture in the municipality had taken years to develop. However, this approach was utilized by the professionals to ensure accessibility to learning and to eventually reach all staff.

Case III: The Hub-based Learning Municipality

Municipality C is medium-sized with 102 000 residents and uses a semi-centralized approach for DCD to preschool educators (Figure 3). Top management gives directions to the principals and their full-time ICT educator/coordinator. The latter works alongside two "pedagogistas", experts in using materials, and one "atelierista", an expert in art expression. They are in charge of a central hub, which is an atelier and workspace for creative work, including workshops regarding various subjects and digital technology. The coordinator runs a central ICT network consisting of a system engineer and 13 main ICT educators, one from each area. They meet monthly. The network aims to support and inspire members, facilitating information sharing, knowledge development, and regulation of educator training. Principals meet with top management, get input from the network, and facilitate educator training by allocating time for workshops. Despite organizational differences in each preschool area, participation in workshops is centrally and locally prioritized for staff, with some preschools having their digital hub (workspace for digital tools), only one ICT educator, or local ICT networks.

Figure 3
Overview of the Organizational Context in Municipality C



Hub-based Learning as Vision and Approach

The municipality employs this "hub-based learning" vision and approach to develop and regulate staff learning by arranging various hub-based meetings. The coordinator explains:

> We've structured it so that we, the ICT network, are like a cogwheel with a plan (…) technicians (…) principals and operations manager (…) We are like three cogwheels interlocking, with me as the hub in the middle to coordinate (…) We have 13 preschool areas, where some areas have seven preschools, and some just one preschool but with twelve divisions. The situation varies greatly, and that's why we believe it's important (…) to interlock [all] so that everyone has the same access to information and opportunities (ICT educator and coordinator, C1).

The coordinator decides on the content for the central ICT network by considering members' suggestions, scheduling study visits, and occasionally inviting external professionals. Each preschool area presents its methods and activity tips. Members view the network as the hub of learning while stressing collegial cooperation and individual interest for this learning to occur.

> I haven't taught myself. Instead, you have to have an *interest* in digitalization to learn, I think, and that I had before [getting the role]. But then we have this ICT network in the municipality (…) That way, we have gotten a lot of professional development. Like new [stuff] all the time that we try to convey to our colleagues (ICT educator, C5).

As for regulations, this network created an action plan for pedagogical work with digital technology in the municipality, indirectly defining the basic level of digital competence required by preschool staff. For example, they use portable microscopes for magnification and deeper knowledge and Puppet Pals (app) for language development by creating stories. Each principal still has the autonomy to organize pedagogical work while considering these specified digital competence guidelines. Political debates have sparked discussions on guideline changes in the network, such as not using tablet screens for children under two and instead using projectors. This change is already underway in at least the preschool area 2, where vice principal C4 works.

Planned Workshops and Resources

Aside from the network, other hub-based meetings were the workshops. The municipality had a schedule for workshops to enable staff to visit the central hub, but local workshops were also scheduled in the preschool areas. ICT educators presented a list of available workshops for the central hub, and staff signed up if interested. For example, some preschool staff visited with children to try out iMovie, a film editing app. Staff might be asked to present what they learned during an all-staff meeting. The local workshops were, for example, held in preschool area 2 every sixth Friday based on staff requests. Preschool area 1 had regular visits from their seven preschools with child groups to their digital hub, a workspace for digital technology activities, and workshops that only staff attended. In preschool area 3, the content and structure were decided in monthly local network meetings as the ICT educators offered support at their respective preschools. Using workshops was described as an effective approach to provide staff with coaching but also stimulate collegial cooperation and learning:

> After this workshop [when working as an ICT educator], I haven't gotten any questions about this app and they use it (…) That's why we plan workshops, it seems to be something that works in our organization, so we can keep doing it, to enable development amongst the staff regarding ICT and teaching in ICT.
>
> (---)
>
> We check also who they are, that they do not work in the same division (…) It's a puzzle [to organize it], but it works (C4, vice principal).

However, the preschool arrangement was affected by the principal's granted time for the ICT educators. The local ICT educators typically had less time (e.g. 1-2 hours) for this role compared to the main one (e.g. 1-2 workdays), who also worked more closely with the principal and visited the preschools if needed.

Coaching and Values

Besides hands-on workshops, the professionals emphasized individual coaching as it addressed the specific needs of preschool educators. The principal of the digital hub explained that their ICT educator, who also handles administrative tasks instead of working with child groups, could tailor coaching sessions once she had more time for this role. She explored how the preschools operated, conducted visits, kept contact, and provided activities at the digital hub relevant to ongoing pedagogical work.

> [Before] it became more like a "happening" [single event]. That you [staff] came to the digital hub and worked there, but that it might not be transferred to the context that you worked with in your preschool or your division (principal, C2).

Here, the principal raised awareness of how the workshops needed to be aligned with the wants of staff for practical change to occur. Yet, the available coaching was not always desired by staff, colliding with their values or understanding of their needed knowledge and the learning demands from the management.

> C3 (ICT educator): You meet some resistance. But it has become less (…) It sounds awful to say: "You have no choice". But it's a bit like that. It's in the curriculum.
>
> (---)
>
> Interviewer: Do you make sure that all the staff have a meeting with you at some point?
>
> C3: Yes, as for now, with this "Book Creator" [app]. It [the workshop] was for everyone. Someone said: "Ah, but I can [this already]". "Nah," I said. "I want you to come anyway because you might learn something new." And they have done that.

Despite this negotiation or conflict of interest, this hub-based learning was described as working well in the municipality, ensuring digital competence development, according to the interviewees. For example, new workshops could also be suddenly suggested, and staff could participate:

> Let's say a work team (…) does not contact me often. Then I can contact them: "Oh my, I hear you work with this. Would you like me to visit you and show you how the microscope works so you can use it in your project?" Someone

rarely says "No" (ICT educator, C5).

The ICT educators overseeing the pedagogical work and creating a psychologically safe environment and good communication were thus important for new learning to happen, as it could make staff participate more actively.

Conclusion and Discussion

The study aimed to contribute to the understanding of how digital competence development is integrated into preschool educators' everyday work based on the experiences of involved professionals, through three cases. By using a workplace learning theoretical lens (Billett, 2002, 2011), the results revealed recurring components across all cases, each with different significance in their context. The identified workplace affordances were *collegial cooperation and coaching*, *availability of resources* and *specified digital competence guidelines*. When it comes to individual engagement, it was distinguished as influenced and led by *variations in vision and values*, *communication strategies* and *autodidactic professionals*. The interdependency of these will be presented and discussed here to address the commonalities and variations between the cases, and the implications it has for preschool educators' workplace learning.

Workplace Affordances for the Development of Digital Competence

Collegial cooperation and coaching were key workplace affordances across the municipalities and occurred regularly in different settings. Dedicated groups and networks were considered avenues for DCD, with ICT educators offering coaching and workshops. These interactions and coaching practices provided many opportunities for staff to learn in everyday work through support and guidance (cf. Billett, 2002, 2023; Billett et al., 2004). Many preschool educators were directly involved in DCD by taking on ICT educator roles. Similar to a recent study (Schachter et al., 2024), they stressed learning through the support of fellow coaches. Although investment in these roles varied, only municipality C had a full-time ICT educator/coordinator and one dedicated to a digital hub. The others had workdays or hours for the role. They arranged activities to promote collegial learning among staff and reportedly facilitated learning by also considering their needs and prior knowledge. However, critical reflection with staff was less mentioned compared to with group/network members, though it can enhance practices (Chen & Chang, 2006; Elek & Page, 2019). Coaching the staff in their daily practices was desirable by ICT educators, but not necessarily done unless requested. Most support was through prearranged meetings and workshops.

The *availability of resources* such as access to digital tools and funding was fundamental for DCD and expressed as basic affordances in all three cases. As shown in other studies (Cowan, 2019; Magnusson, 2023), the workshops offered were hands-on experiences and discussions, like the activities in municipality C's central hub and municipality A's makerspace and digital atelier. The municipalities' organizing of resources followed a combination of what Pettersson (2018) names a "goal-and-structure-oriented school" and a "culture-oriented school" approach. For example, the first approach occurred through the formalized groups, roles and meetings, like the study visits held by the digitalization group in municipality A and the ICT educator networks in municipality B. Still, some investments were more culture-oriented such as the hubs in municipality C, functioning for staff to meet and cooperate more freely. Municipality A reported, though, difficulties in creating their makerspace into a learning community for the preschools. Considering how workplace affordances are bound by social context (Billett, 2002, 2011), for staff to get involved in such practices, the resources are important but not enough. The preschool culture needs to change and make learning communities the norm, like how workshops (hub-based learning) are prioritized in municipality C. Otherwise, it becomes a limited affordance for the majority of staff, as in the case of information not being shared right away in municipality B. In municipality A, preschool Aster struggled, in general, to make other preschools interested in their learning activities without their previous formalized and centralized structure. Underlining the effects municipal priorities can also have on staff's use of resources (cf. Billett, 2002, 2023).

The differences in organizing support in the municipalities primarily stemmed from how the management team exercised control of the resources. In municipality A, experimentation was highly

valued and digital tool use was less regulated compared to the other municipality. In municipality B, it was more centralized, with even speech scripts being provided to ICT educators, and in municipality C, the ICT coordinator oversaw the pedagogical work on a central level but the principals were in charge of their areas while considering central guidelines. All municipalities had *specified digital competence guidelines*, like action plans or directions, to regulate, steer and evaluate developmental support for preschool educators and digital use. For instance, the content in municipality C's guidelines included activities with tablets, but was going through potential policy changes impacted by the political climate on screen time. Although screen-based technology was only one form of digital technology used in their preschools (cf. Undheim, 2022). The guidelines acted hence as procedures to ensure and restrict some learning and practices (cf. Billett, 2002, 2023; Le et al., 2023). Foremost by specifying which digital technologies preschool children should explore and indirectly what staff need to learn to use. However, it did not address how it translates into preschool educators' learning. Instead, the principals in the study had a crucial role in executing the digitalization strategies and supporting educators (cf. Liu et al., 2014; SNAE, 2018). This became evident in how they arranged the resources like time. ICT educators' capacity to provide support depended on their prioritization, but the principals also had top management support, which may not always be the case in municipalities (cf. Ng, 2015).

Affordances Influencing Individuals' Engagement in the Support

The results showed *variations in the vision and values* of DCD between preschool educators and top management. The municipal visions for the pedagogical work and support raised expectations on the engagement of staff, e.g. to work innovatively in municipality A, inform and spread knowledge amongst colleagues for the development-oriented organization to work in municipality B, and participate in hub-based learning by signing up and joining offered workshops in municipality C. While a systematic approach can enhance workplace learning, clear visions are also important (Wadel & Knaben, 2022). The vision was not explicitly addressed with staff but mainly between management and ICT educators, e.g. in the group and network meetings. Workplace hierarchies can naturally restrict insight into certain practices, like management decisions, which can affect employees' engagement with available affordances (Billett et al., 2004). The municipalities' visions and learning objectives were reported to collide sometimes with staff's as they valued the development practices differently. There were accounts of preschool educators' resistance or lack of interest in the support, e.g. how staff in municipality C did not want to attend some workshops. Another example is how local ICT educators, in municipality B, improved their attendance in their network meetings once their colleagues found it valuable for them to go. As Billett (2002) stresses, organizational factors and personal relations influence participation in learning opportunities. Management needs to consider various forms of support for employees' preferred learning styles, but also assess the current practices, resources, and organizations before introducing more support (Le et al., 2023).

The findings show that the amount of support depended on requests from preschool educators, but those needing it most often requested less. Still, some instances were recounted when preschool educators took the initiative to get coaching, requiring cooperation with their wishes. Direct guidance happened this way (Billett, 2004, 2010). Seeking individual support and advice can be difficult without close relationships and psychological safety, which are essential for new practices and learning (Cramer et al., 2022; Douglass, 2019). The engagement in the support was reported to be affected by the *communication strategies*. Professionals improved relationships by communicating ideas and promoting the municipality's vision indirectly, often during resistance, to encourage certain "learning behaviors", such as valuing experimentation, educator training, information dissemination and knowledge sharing. ICT educators or principals were the closest advocates. In municipality B, a principal described motivating the staff to try out practices and arranging for the ICT educator to have workshops for them to experiment. In municipality C, the principal mentioned that staff started developing practices after the ICT educator from the digital hub began visiting and maintaining contact with them while considering their specific practice. An ICT educator from another preschool area mentioned being able to contact staff to offer support

spontaneously. In line with previous research, the communication and relationships between ICT educators and preschool staff were important for practice change (Colmer, 2017; El-Hamamsy et al., 2021).

The ICT educators had significant freedom to design workshops, giving them high agency. They gained their position and mandate through prior self-learning and motivation to help colleagues. Organizing for DCD relied, thus, on *autodidactic professionals* and their commitment. Those already interested in digital technology often pursue self-education using online resources and networking (Dwyer et al., 2019; Marklund, 2015, 2022), like these cases. Similar to previous studies (Nehez et al., 2022; Rönnerman et al., 2017), the middle position of ICT educators offered unique possibilities. The findings suggest that their leadership knowledge and organizational knowledge were as important as their pedagogical knowledge of digital technology for creating good conditions for preschool educators' learning (cf. Avidov-Ungar & Shamir-Inbal, 2017). Not considering all three aspects lowered workplace affordances for staff, like in municipality B, how local ICT educators sometimes needed to be reminded by the main ICT educators to oversee the learning progress of all staff and not only their division. Having ICT educators was described as central for DCD to the degree that for example, other educators would not take on the duties of doing workshops in municipality A or how, despite knowledge differences among main ICT educators in municipality B, there was a pressure to be this "expert" without necessarily getting a formal education. Expertise is expressed in social practices and not individual competence, according to Billett (2010), which is why learning in everyday work should not only fall on individuals (experts) and without the consideration of the relational aspects of their role and coaching.

In conclusion, DCD was available through collegial cooperation and coaching through dedicated groups and networks, with differences being in the municipal vision and the control of resources. This impacted support arrangements along with principal prioritization, affecting ICT educators' capability to offer support. The values of preschool educators did not always align with the municipalities' visions and thus influenced their agency to try new practices, impacting learning opportunities. Psychological safety and good communication were important for providing staff with coaching and for them to seek support, meaning individual engagement did not occur only by offering workshops or even individual coaching. In addition, despite the municipalities offering resources and regulating content through, e.g. policy documents and workshops, the workplace learning context was based mostly on ICT educators' motivation and commitment, as much of the support depended on their knowledge, communication skills, and relationship-building with staff.

Limitations and Strengths

A limitation of this study was that only interviews were conducted without observations of the educator training in the municipalities and the perceptions of the preschool educators receiving the support. This could have provided more contextual knowledge of workplace affordances and individuals' engagement in practice. However, the interviews provided an exploration of the experiences of organizing DCD from involved professionals in different municipalities, especially insights into the real-world setting, which is lacking in previous research. Most ICT educators also had this role as part of their preschool educator position.

Practical Implications and Future Research

The findings of this study contribute to increased knowledge of DCD in preschools and how it is organized. The study has the potential to support decision-makers, principals, ICT educators and preschool teachers in developing current practices. Not least, the findings highlight the importance of recognizing workplace learning as an effective tool to improve preschool educators' digital competence and to provide opportunities for children to develop their digital competence. In this study, the organizing of support for the pedagogical use of digital technology in Swedish preschools is depicted alongside the diverse municipal regulations governing its use. The empirical accounts can hence provide another discussion in the debate on "screen time" (cf. Government Offices of Sweden, 2023a, 2023b), showing how digital tool use is more planned and restricted than may be understood in these public debates and the significance of DCD for preschool educators to use digital tools as "teaching tools" (cf. SNAE, 2024). The results also

confirm previous research on issues with the integration of digital technology in preschool and its relation to staff's interests (cf. Marklund, 2015, 2022). This could highlight how educators' agency concerning workplace affordances needs to be more problematized in ECEC professional development research (cf. Aspbury-Miyanishi, 2022). In summary, the findings demonstrate the variability in organizing support and conditions for workplace learning. To effectively facilitate such learning among preschool educators, management at both the municipality and preschool levels must consider the interdependence between available resources and staff engagement in the workplace. This includes specifically addressing practical aspects:

- To foster greater collegial interactions and cooperation, thereby enhancing opportunities for workplace learning, it is essential to create learning communities, e.g. through networks and groups. However, DCD should not solely rely on these meetings or group members. Rather, the learning communities should function as a way to encourage experimentation both in the use of digital tools and the format of support and in creating a sharing culture in preschool.
- Attention should also be directed toward cultivating psychological safety, building relationships, and improving communication between ICT educators and preschool educators. These efforts can facilitate more spontaneous exchanges and incite educators to seek advice.
- Lessen reliance on autodidactic ICT educators and lower implicit work demands by offering more support and education for the ICT educator role. Especially, before recruitment.
- Create open discussions on management expectations for preschool educators' learning to address agency, values, and engagement of affordances. Formulate together a vision and action plan at preschool.

The author recommends that future research expand on these findings by examining everyday workplace learning micro-processes through preschool observations and preschool educator interviews, focusing on their perceptions and individual engagement. By introducing workplace learning theories in ECEC research, the author hopes to broaden the research field of teacher professional development and learning.

Declarations

Authors' Declarations

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Research Article

The difference childhood makes: Uniqueness, accommodation, and the ethics of otherness

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Abstract: This article examines how the concept of childhood shapes understandings of social difference in education, with a focus on the intersections of ability, disability, and pedagogy. Through an exploration of childhood objects, teacher candidates' reflections revealed three recurring ways to approach difference: as an expression of individual uniqueness, as requiring accommodation, and as an irreconcilable disruption. We draw on Lauren Berlant to show how narratives of uniqueness and accommodation tended to reaffirm the 'cruel optimism' of normative developmental frameworks and ideals of assimilation. We further show how moments of disruptive difference unsettled and inconvenienced these paradigms, creating openings to reflect on educators' own ways of embodying alterity to create a space for criticality. By centering the ethical possibilities inherent in disruptive differences, this work invites educators to imagine education not as a site of management or resolution, but as a space of relational interdependence, where coexistence depends on valuing the inconvenience of difference. Our findings call for a reimagining of pedagogy as an ethical encounter that embraces the complexity of living with and through difference.

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Introduction

The field of education continues to raise – and fail to raise – questions about the meaning and importance of social difference in teaching and learning relationships. Over three decades ago, Harper (1997) offered a historical overview of the role of educational policy and practices in the construction of difference beginning with the inception of the common school in Canada. Harper surfaces four orientations – suppression, segregation, denial, and celebration – and shows how each one operates to safeguard white supremacy that sits at the core of the nation. A fifth orientation, which she calls critical, offers a framework to examine how differences are produced through structures of unequal power and, in turn, how schools are implicated in reproducing those inequities. More recently, Kerr and Andreotti (2020) examine how difference continues to be produced through educational discourse and practice. Drawing on the works of Jacques Derrida, Linda Alcoff, Walter Mignolo and Ramón Grosfoguel, Kerr and Andreotti (2020) theorize three dispositions – autoimmunity, willful ignorance, and Enlightenment epistemology – that uphold hierarchical ideologies and colonial legacies. They show how these positions work together to preserve "dominant narratives and frames of reference of the nation-state that exclude consideration of the racial or cultural 'other'" (p. 653).

Discussions of difference and belonging in the field of education are also deeply entangled with the construction of childhood. At the very same time that childhood was used to chart the ascension of the modern human subject from lower to higher forms of thought, this same progressive construction was taken as proof of the inferiority of racially minoritized, Indigenous, disabled, poor, queer, and transgender peoples and justified the 'need' of education to assimilate, control, and ultimately destroy (Burman, 2017, 2024; Rollo, 2018). Critical scholars of childhood have long shown how the discourse of child development upholds normative notions of being and belonging that, in turn, reinstall inequities and hierarchies (see for

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instance, Burman, 2017; Stockton, 2009). Precisely because childhood has been and continues to be used to make selfhood legible within normative structures of being and belonging, childhood has also been used to construct all that is not legible within dominant frameworks as deficiency: i.e., what grows that 'should not' or what fails to grow within an imagined linearity of being (Stockton, 2009; Taylor, 2013). The trope of the child as a developing being, then, carries difficult knowledge about systems of normalcy and oppression, and is the reason Burman (2024) turns to childhood "as method" to identify and deconstruct these entanglements.

In this article, we consider how the construct of childhood is utilized to "make" difference, with particular attention to the difference childhood makes in thinking about the meaning and experience of ability and disability in education. In relation to this last point, the title of our paper is inspired by Michalko's (2002) book, *The Difference that Disability Makes*, in which he analyzes how environments produce disabilities as "other" to humanity and what constitutes a good life. For Michalko (2002), disability is an identity and a method that makes ablest constructions of difference apparent. Disability therefore exposes socially produced exclusions, but Michalko also shows us how disability can be used to rethink the very terms of humanity. The difference disability makes, then, is its reconfiguration of humanity as grounded in dynamics of relation, vulnerability, and interdependency. Mirroring Michalko's discussion, Goodley et al. (2016) offer the notion of the "dishuman child" that recognizes the humanity of children with disabilities while also "celebrating the ways in which disabled children reframe what it means to be human" (p. 770). Together, Michalko, Goodley, Runswick-Cole, and Liddiard theorize disability as manifesting a deeply relational and ethical quality of humanity precisely because disability exposes and disrupts normative frames of development that limit and even harm children as much as or more often than they enable growth.

The Problem with "Better" and the Promise of Inconvenience

We take as our entry point the idea that childhood is not necessarily or always about the experiences of children. We are not alone in this idea. Levander (2006), Gill-Peterson (2018) and Webster (2021) turn to history to show how, from the late 18th Century through to the early 20th Century within North America, childhood has been a discursive tool in the making of selfhood as tied to broader discourses of nation, capitalism, and Western imperialism. In this context, children were viewed as a window into earlier versions of humanity that were then used to measure and track development to higher forms of existence, ending in the achievement of rationality undergirding modern civilization. Within this same framework, differences were cast as deviations from development and humanity itself (Levander, 2006). Ironically, at the very same time that children were made to uphold progress narratives of being and belonging, racialized children and communities were cast in opposite terms: as uncivilized, irrational, and not human at all (Rollo, 2018). All this adds up to the use of childhood to justify a colonial agenda that was and continues to be used to harm children and communities not thought to exist within this construct.

Childhood continues to be a portal for inquiries about the meaning of selfhood and social difference. Within education, differences that appear as disability have been taken up as a deficiency. As Parekh (2023) argues, "Students identified through special education or who identify as disabled often feel that the classroom can be a hostile or challenging environment" (p. 118). Even when teachers use accommodations that seek to adapt classroom environments to engage multiple modalities of learning, identified students or students who identify as disabled can feel marginalized by those efforts because, as Parekh (2023) writes, "the stigma often associated with visible accommodations in school can produce a threat to students' self-identity" (p. 120). Parekh (2023) further reminds us that schools construct "ability" in hierarchical terms, such that certain abilities are thought to be more desirable than others (p. 6): an idea that can reproduce ableist ideologies bent on assimilation to normative outcomes. Thus while accommodations can productively forge multiple entry points to knowledge, they may at the same time leave unchanged normative learning outcomes operating underneath such inclusive efforts.

In her study of parent memoirs of disabled children, Apgar (2023) makes a similar point in surfacing a recurring motif that she calls, "a narrative of achievement of normality in childhood" (p. 1). As Apgar

(2023) found, while parental narratives describe concerns about their children having to "navigate an ableist world" and thereby "gesture to a more political way to think about disability as a social experience," they also focused on "establishing their disabled child's inherent right to belong to that same ableist social world" (pp. 5-6). However, in "writ[ing] children into the realms of 'normality,'" Apgar (2023) also highlights a proclivity to overlook "the entanglement of normativity and privilege that position disabled children outside these same realms" (p. 6). For Apgar (2023), and for us, the idea that disability can and should "achieve" something called "normality" repeats a neoliberal "narrative of overcoming" that leaves intact structural inequities and ultimately means having to be reinscribed into "the very same domains that stigmatize, debilitate, and exclude people with disabilities from full inclusion in all aspects of life" (p. 6). Also referred to as "the neoliberalization of inclusion" (p. 6), this logic repeats a violent narrative that disability can and should ultimately be disappeared through assimilation to ableist formations that are upheld as 'normal' and that go unchallenged as ableist.

This "achievement of normality" is much like McGuire's (2016) argument that "under the rule of normal human development, the only possible way for the autistic subject to be read as a good or at least nearly developed human is to learn, approximate, and perform normalcy" (p. 102). Returning to the context of education, practices of accommodation can carry traces of this normative logic. While diversifying modes of pedagogical address, practices of accommodation can also leave intact educational outcomes seeking to adapt disabled children to normative ways of being, relating, and living that may or may not be attainable or desirable for them. In this sense, disability remains a problem to socialize into a pre-set developmental trajectory and ultimately, a future constructed as 'better' (Burman, 2024).

The problem with "better" is that it "imports apparatuses of normativity and regulation" in the name of progress and development that uphold practices of exclusion and oppression (Burman, 2024, p. 10). This idea underlies Berlant's (2011) notion of "cruel optimism," a term they use to describe the promise, and pressure to pursue, a seemingly better future that is, in fact, not available, and certainly not to all. Indeed, optimism is cruel because it upholds conditions that also thwart possibility. As Berlant (2011) explains, cruel optimism refers to an,

> affective attachment to what we call "the good life," which is for so many a bad life that wears out the subjects who nonetheless, and at the same time, find their conditions of possibility within it. (p. 27)

The optimistic promise of a good life is "bad for so many" because it operates by structural inequities that already refuse access, especially to those already marginalized by the normative ideations of capital ownership, economic productivity, and heteronormativity to name a few, driving what constitutes a good life. Not unlike the discourse of "betterment," optimism is cruel because it idealizes normative aims and outcomes that uphold the very inequities that the promised future is said to alleviate. Within education, cruel optimism can be said to drive the promise of achieving within and/or fitting into systems and structures that reward normativity while at the same time reproducing exclusionary and disabling environments and ideologies. Ironically, cruel optimism propels our drive to achieve the "good life" even while it remains inaccessible and even "bad" for all those who are marginalized by its idealization of normativity. From the vantage of cruel optimism, disability is constructed as lacking and as requiring socialization in a "better" direction, which, in actual fact, means disappearing disability in the name of achieving "the good life." Developmental narratives therefore risk reproducing cruel optimism when they exclude disability from everyday life (Goodley et al., 2022).

By contrast, the framing of disability as a generative reimagination of humanity invites new ways to conceptualize our common and uncommon co-existence. At issue here is a valuation of difference precisely because it resists assimilation into pre-existing formations. In this sense, difference signifies as an "otherness" that manifests what Lévinas (1985,1998) describes as "alterity" that demands an ethical response other than what can be predicted, expected, or known. As Lévinas (1985) writes, alterity arrives via the exposure of an Other that "cannot become a content [that] your thought would embrace" (pp. 86-87); quite the contrary, "it is uncontainable; it leads you beyond" (p. 87). This "leading beyond" is not, however, an escape from the troubles weighing down on the ego; quite the contrary, it refers to a weighty

responsibility that "*puts into question* the proud independence of beings" and requires that I "give" over myself to the call of the Other (p. 116, original emphasis). Berlant (2022) gets at a similar quality of otherness in their later work, where they examine the value of *inconvenience* as a surprising resource because it agitates ego boundaries that otherwise defend against the obligations of living in the world with others[1]. Through the construct of inconvenience, Berlant (2022) calls attention to how being bothered can interrupt the smooth-running engine of normativity and demand a different sort of response. When we are inconvenienced, we are charged with the question of "how to create other kinds of social relation" beyond what we may already think we know (Berlant 2022, p. 11). Framing difference as an inconvenient, rather than as deficient, may catalyze new ways to conceptualize relationships, provided we can welcome the disruption it invites. The inconvenience of difference is not a negative quality that teachers must grasp and correct, but a generative reminder that interruption and interdependence – and not proud independence and individualism – sit at the core of coexistence.

Against this theoretical backdrop, we examine how educators represented and sometimes assumed the meaning of difference through their discussion of childhood objects. Interestingly, our analysis surfaced an arc of difference that mirrors Berlant's (2011; 2022) notions of optimism and inconvenience. While educators overwhelmingly framed difference as something that could be socialized to achieve "the good life," far less common, but still nascent within our data, were constructions of difference that refused assimilation into normative outcomes and that inconveniently demanded different conceptions of what, then, education and childhood can mean. We observe how power dynamics within inclusive practices shape who "gets to include whom and into what" (Bourassa, 2021, p. 254). Such power dynamics are enmeshed with normative educational goals for productivity and that haunt participants' decisions about which differences are deemed unique and thus valuable and which differences provoke the impulse to change, erase, and develop towards the 'good life.' In what follows, we show how differences were constructed as desirable when they reflected and/or could be adapted to fit into normative frameworks of being and development. We further underscore the value of times when emerging teachers used objects and metaphors that reached to the elusive – and inconvenient – aspects of difference that exceeded existing categories and that gestured toward the reimagination of teaching, education, and childhood itself.

Method

Research Context

This article is part of a larger three-year project that examined the role of childhood memory in teachers' conceptualizations of teaching and childhood. The overall aim of the research was to understand how educators use childhood memories and objects to represent key ideas, concerns, and assumptions about the children they would one day meet in classrooms and other places of learning[2]. Our participants were undergraduate students enrolled in teacher education and childhood studies courses at four university sites in Montreal, Ottawa, Toronto, and New York City. Research assistants at each site conducted focus groups consisting of three to five participants, totalling 15 participants overall[3]. The first and second authors of this article were Research Assistants on the project, which was led by the third author as Principal Investigator. Focus group prompts were designed to invite participants to consider links between their own childhoods and broader social meanings, or how social and political contexts may have affected – shaped, privileged, marginalized – their own experiences as children. At each site, participants were invited to share their motivations for choosing their object, personal attachments or uses of the object, and relationships to other objects in the focus group. They were also asked to consider the broader social meanings of their object, such as the modalities, capacities, and qualities of being presumed or required for its use.

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[1] Berlant's (2022) concept of "inconvenience" also informs a forthcoming paper by Farley and Kennedy (in press).

[2] Previous analyses of the data surfaced themes of children's nuisance-making (Farley et al., 2020), childhood innocence (Garlen et al., 2020), children's agencies (Garlen et al., 2022), nostalgia (Farley et al., 2024), teachers' memories of parents (Chang-Kredl et al., 2021) and getting sick at school (Sonu et al., 2022), as well as the status of dreamwork (Sonu et al., 2020) and transitional objects in narratives of learning to teach (Chang-Kredl et al., 2024).

[3] Focus group discussions were held and recorded using Zoom technology.

We were struck by how participants used their objects to represent the meaning and experience of difference in childhood, and specifically, differences in children's learning, access, and modes of representing knowledge. We further noted how participants used their narratives of difference to think about teaching practices that may be used to respond to differences, with a focus on how these constructions both repeated and opened new ways of conceptualizing the meaning and work of education. We therefore begin with the idea that childhood objects do not simply carry pre-set meanings, but that those who carry, keep, and share such objects project meanings into them. Such meanings may be literal, such as in describing how a child may use a certain object (i.e., reading a book), but they may also be implied (i.e., ideas of adventure and freedom projected onto a bicycle or binoculars). In attempting to surface implied meanings, we recognized the risk of ourselves projecting our own meanings onto the data. To ensure reliability and validity across the data, we each read and coded focus group discussions individually and then met as a group to share findings.

Important to our discussion of difference, focus group leaders asked participants to share the limits of their object to invite discussion about the qualities of childhood it did *not* represent. The participants of our study themselves embodied diverse social positions in terms of race, sexuality, age, and to a lesser extent, gender (Table 1, reproduced from Farley et al., 2024, p. 578).

Table 1
Description of Participants

City	Pseudonym	Preferred Age	Gender	Race	Sexuality	Age	Artefact
Montreal	Couscous	4-6 yrs	Female	Egyptian White	Female	22	Stuffed animal
	Rebecca	5-7 yrs	Female	Japanese Canadian	Heterosexual	27	Binoculars
	Kassandra	4-12 yrs	Female	White	Female	44	Bike
	Tam	8 yrs	Female	Indian Canadian	Heterosexual	31	Stuffed animal
Toronto	MJ	12-18 yrs	Female	Filipino	Heterosexual	21	Stuffed animal
	Kelsey	7-11 yrs	Female	White	Not straight	21	Bead maze
	Shelby	4-10 yrs	Female	South Asian	Bisexual	22	Dr. Suess book
	Denise	14-18 yrs	Female	Vietnamese	Heterosexual	24	Drawing
	Liza	9-16 yrs	Female	Asian	Bisexual (not out)	21	Pencil sharpener
Ottawa	Valerie	5-12 yrs	Female	Jewish	LGBTQA+ Pansexual	20	Watering can
	Thelma	5-12 yrs	Female	Black	Heterosexual	19	Beaded structure
	Sky	10-16 yrs	Non-binary	Filipino	Pansexual	18	Notebook
New York	Reina	6-12 yrs	Female	Asian Chinese	Straight	23	Animé characters
	Sarah	7-11 yrs	Female	Hispanic	--	21	Stuffed animal
	Michael	6-8 yrs	Male	White	Gay	21	Bag of flour

The 15 participants of our study referenced a broad range of positions of sexuality, from pansexual to gay to "not straight." Just four identified as White. We note this diversity of social identities as a backdrop to our focus on difference in this article and to keep in mind the many experiences, contexts, intersections, and positions that the participants of our study occupied in relationship to each other, the researchers, and the contexts that surrounded, and sometimes stifled them as children. As researchers, we identify across a range of positions in relation to sexuality, age, and to a lesser extent gender and race as three White, cisgender women. The third author of this paper has previously engaged in self-reflection about how the researcher's childhood becomes implicated in the research process, especially when the topic of research addresses childhood (Chang-Kredl et al., 2024).

Findings

Difference: Three Ways

Our analysis surfaced three main themes: 1) difference as individual uniqueness; 2) difference as a departure from social norms requiring accommodation and inclusion; and 3) difference as inconvenient otherness and alterity. We further identified sub-themes at work within each (Table 2). First, when difference was described as an experience of individual uniqueness, participants also tended to refer to

universalized themes of childhood including comfort, protection, adventure, and freedom. Second, when participants referred to differences as a departure from expected educational outcomes and social norms, they tended to consider how their objects could be changed or revised to widen points of access. This second theme was further linked to a desire for inclusion, but also socialization in that there was a tendency to frame teaching and learning in terms of accommodating children's diverse styles of learning, with the ultimate aim (to achieve) extant educational outcomes. Here, difference was understood as a call to change teaching practices, but not the outcomes of education itself. Third, participants described difference as an experience of disruption that could not easily be reconciled or interpellated. This third theme differed from both uniqueness and accommodation in that it conveyed "killjoy" qualities that disrupt the aims of schooling and thus suggest the need to reimagine what education itself can and should mean (Ahmed, 2001).

Table 2
Themes and Sub-themes

Meaning of Difference	**Sub-theme**	**Sub-theme**
Uniqueness	Comfort/Protection	Adventure/Discovery
Departure from norms	Accommodation	Socialization
Inconvenience	Disruption	Alterity

Desirable Differences: Individual Uniqueness

Most participants described their objects as reflections of their own individual and unique differences as children. Sometimes the object itself was described as unique and at other times, the object was used to narrate the uniqueness of a special relationship, event, or feeling that was formative to their childhood experiences. That is, their objects came to represent an internal experience made from a special time of life affected by significant others. Within narratives of individual uniqueness, participants also invoked notions of child development. Specifically, they spoke about their uniqueness as a forerunner to experiences that supported their growth, such as the security provided by a stuffed toy, or the independence and industry made possible through adventure. In these narratives, difference was ironically constructed as something that could not be replaced, even as it supported a universal idea of growing up.

Stuffies appeared at each research site and were described similarly by the participants who brought them as irreplaceable and comforting, but also utilitarian within a larger narrative of emotional development. Commonly, stuffies were introduced as useful for children to develop emotional regulation skills through providing comfort as an item used to self-soothe. For example, one participant, Sarah described her stuffie as a judgment-free friend sounding board for emotion in times of difficulty, while another from another site similarly admitted holding onto her object because, no matter what happens in the uncertainties of life, "that stuffed animal is gonna be ok with it." Both participants also spoke to the fact that stuffies were irreplaceable, indeed special, even while they had been changed by time, such as a broken ear or cycle through the washing machine. Here, the stuffies' imperfections became yet another quality marking of their uniqueness and that made them especially their own. For instance, one participant reflected on the uniqueness of their toy amid the simulacra of many others: "I could go and buy another exact same one at *Toys-R-Us*, but it would not be MY [wolfie]."[4]

This theme of comfort was also represented by Michael, who chose baking flour as his object. Michael, who was the only participant identifying as a cisgender man, used his object to recall times of baking and the pleasure of eating the fruits of his labour. While Michael acknowledged that his choice of object may reflect a common activity experienced by many children, he also underlined the special significance of his object by recalling memories of baking with his grandmother who had recently passed away. For Michael, these grand-maternal memories manifested a form of comfort that was also linked to

[4] Toys-R-Us is a toy retailer in North America.

development, not unlike the stuffies described above. Specifically, he narrated the comfort of his early experiences with his grandmother as the foundation that allowed him to engage with grief and loss with some measure of security. Still today, Michael bakes to feel connected to his grandmother and his childhood memories.

Objects of comfort tended to be self-referential, in that they were directly linked to participants' personal experiences. As a function of the focus group, however, such narratives were also shaped and shifted in correspondence with others. On this point, it is notable that while participants initially introduced their stuffies with tenderness, they also expressed self-conscious feelings of shame or embarrassment about their continued use and need for them as adults. This affective shift changed the meaning of their comfort items, which were then used as measures by which to judge appropriate or inappropriate attachments based on age and gender. As Sarah put it, "no one judges a kid for having their comfort item they think it's cute," a fact she compared to the developmental assumption that, in adulthood, "they're not going to have it." Here, Sarah's ambivalence signaled the friction between inconvenience and progress narratives, where persisting emotional attachments to comfort objects were cast as an inconvenience tainting the fantasy of arriving in adulthood fully and completely, as an independent subject living a 'good life' (see also Chang-Kredl et al., 2024). Michael's flour also seemed to occupy a similar tension between progress and inconvenience. On the one hand, his comfort item did not carry the vulnerability of those carrying stuffies into adulthood, possibly due to cooking/baking being an adult activity, thereby planting itself as developmentally appropriate. On the other hand, Michael's choice of a comfort item was an outlier in the group. Not only was it not cuddly, his object disrupted gender norms that might otherwise push boys out of the kitchen and away from their grandmothers.

In addition to comfort items, participants also turned to other objects to assert other dominant tropes of childhood to assert their experiences as both unique and developmentally rich. For instance, Rebecca and Kassandra brought a bicycle and binoculars respectively to represent childhood as a special time of life involving the freedom of adventuring. The bike in particular was described fondly with memories of playing without supervision in the forest with friends. This type of adventurous play was described to be foundational in developing resilience, problem solving, adaptability, fitness, and curiosity. Further, Tam situated her childhood memories of adventuring in juxtaposition with her nephew's childhood, which she viewed as lacking such experiences due to fears of risk and increasingly digital attachments. She framed her thoughts on the matter in the form of a plea: "Let the kid go out! Like he needs to explore, like he needs to find things! He doesn't need you!"

For these participants, childhood experiences of adventure and industry were constructed as formative to the development of independence and agency, repeating historically produced ideas that link children to nature and nature to 'good' childhoods. Participants' positive constructions of adventure and autonomy were particularly powerful in a world that values individualism over dependency. Significant to this last point, Kassandra noted her pride when she "graduated up to a banana seat bicycle" adding that it "was the coolest thing because I didn't have training wheels [anymore]". This pride-filled memory was infused with developmentalism and specifically, the idea that increasingly advanced forms of activity (should) replace earlier ones that were constructed as lesser or formative. This trope of children's exploration of the world - such as in the examples of the bike and binoculars - were repeatedly described within frameworks of progress towards independence. For example, when expanding on her memory, Kassandra added, "I remember one of my parents just running along behind me, because I was a little older. Um, and finally I just made it on my own." In this narrative, the uniqueness of a child's adventuring was linked to movement away from earlier stages, including one's former self who had yet to develop out of their reliance on training wheels, and perhaps more symbolically, their dependency on others.

Similarly, Shelby brought the book *Oh the Places You'll Go!* by Dr. Seuss. For Shelby, the value of the book and why she chose it was intimately tied to the critical importance of literacy development from the perspective of a teacher. However, on a more personal note, Shelby also explained that this book was the first book she owned herself, noting that owning books was not readily available for her family. Further,

this was a book Shelby read with her family at home and that found its way into her life across time. In this sense, Shelby's book represented more than skills development in that it also symbolized her personal and emotional connections with family. Yet, Shelby found herself leaning back onto her teacher role by justifying the selection of the book for its uses in literacy development in reflecting on how her object " serves…a different purpose to a child" in that "reading serves…the literacy in the storytelling" and then, gesturing to other objects brought to the focus group, such as toys, could "help them engage motor skills and development." When discussing how her object did or did not represent all childhoods, Shelby considered accommodations by discussing how her book could be adapted for children who prefer to read oral histories and verbal sharing. Interestingly, the book's plot, which Shelby did not explicitly address, rests on a developmental arc of becoming as a matter of overcoming obstacles to arrive at a 'good life' made from a future of endless possibilities.

All these items – the stuffies, flour, bike, binoculars, and book – point to an irony that we suggest may invite new teachers into critical reflection and thought: that is, while narratives of uniqueness reflect the inimitable ways children experience and act on their worlds, so too might the idea of uniqueness feed into a universalized conception of what counts as a 'good' childhood, including notions about which developmentally-appropriate objects can cultivate good ways of being unique. In framing childhood as a unique quality of individuals, participants tended to overlook how this idea upheld a normative construction of childhood. Returning to Berlant (2011), uniqueness discourse may be read as a "cruel optimism" insofar as it holds out a notion of preferable differences that are not accessible to or even desired by all children, while positioning differences falling outside the normative bounds of childhood as deficits requiring uninvited management, socialization, and accommodation, an idea we turn to next.

Accommodating Differences: Getting it Right

Teaching is a complex negotiation that inherits dominant discourses of childhood and development, even while teachers themselves grapple with notions of difference, including their own, to complicate these very ideas. In relation to this last point, Britzman (2003) positions teaching as a site of psychic and social conflict, where teachers negotiate contradictory discourses, unresolved identifications, and the anxieties of becoming. In her classic text, *Practice Makes Practice: A Critical Study of Learning to Teach*, Britzman (2003) examines learning to teach as a process fraught with tensions between the public narratives of what a teacher ought to be and the private struggles of teachers reckoning with the child they once were and the teacher they might become: a notion we address more deeply in an another article (Mirkovic et al., 2023.) This tension between dominant discourse and social and emotional conflict can be prone to eclipse within contexts of early childhood education in the search for "fun" strategies and effective solutions over critical engagements with and theories about teaching, childhood, and difference (Vintimilla, 2014, p. 79). Here, the idea of 'good' teaching may look more like compliance, and teachers may unintentionally reinforce dominant discourses of learning and development rather than challenging or deconstructing them (Grumet, 1988).

A good number of participants in our study tucked themselves inside both sides of this tension, and in this way, generated narratives of difference as an important part of childhood even as they upheld dominant notions of development as a progressive attainment. In these narratives, participants tended to construct differences as something to be met with a solution that could set children on a predictable (and preferable) path to learning. This solutions-focused perspective seemed to manifest in participant concerns about children's learning that departed from normative development and in their imagination of teaching practices that could right their detours. However, in these efforts to include students within a trajectory of development, teachers may be repeating underlying constructions of normativity. In contrast, we underscore the value of times when teachers engage with the alterity of others, and in so doing, engage the labour of continually adapting to the (ongoing) inconvenience that differences do bring. Unlike the narratives of uniqueness discussed in the previous section, participants who speculated about learning departures also flagged the social and political structures that act on and order children unequally within

hierarchies of difference. Importantly, in these narratives, participants most often pointed to the limits of their objects, rather than children themselves.

For instance, Kelsey's bead maze was initially presented through a developmental lens, emphasizing its relevance in cultivating what Kelsey refers to as children's "developmental repertoires." However, Kelsey also noted the exclusion implied in the brightly coloured beads adorning her object, and specifically the implied assumption of its utility to and for sighted children. Thinking further, Kelsey contemplated the value of changing her object so that it could address a greater diversity, including blind children, by incorporating different textures and sizes of beads. As Kelsey put it, "there might be other ways to make it more stimulating like by adding different textures instead of having all the beads feel the same and kind of have the same shape." Here, Kelsey used her object to imagine an accommodation that might "encapsulate development for all children who aren't just relying on the same senses." Despite this accommodation, however, the underlying aim to develop children's motor skills, and the related idea of children progressing developmental stages, remained relatively intact.

Like Kelsey, Denise articulated a similar logic of accommodation through her object: a children's drawing. Specifically, Denise suggested all children should "engage in the activity of drawing" as a means of cultivating "important skills" that contribute to their development, but she also applied a class-based analysis to note that not all children have access to art supplies. This discussion led her to conceptualize different forms of access to drawing, including digital drawing, as a way to accommodate greater numbers of children. Still, while noting different points of access, Denise nonetheless held onto the view that drawing is and ought to remain an important part of childhood. Once again like Kelsey, Denise used her object to speak about accommodating children's varying points of access, while at the same time retaining the importance of drawing to children's development.

In both cases, Kelsey and Denise discussed how their objects fell short in supporting a child's developmental progress, without questioning development itself as an exclusionary construct. That is, in adapting their objects to imagine inclusive practices, they also held onto a solutions-focused idea of accommodation, ironically mirroring the promise of developmental ascension away from trouble to the triumph of understanding. It is not that drawing isn't important for many children. Indeed, re-imagining drawing to include different modalities, as Denise did, represents an important intervention insofar as teachers *do* have an obligation to organize learning environments that open points of access to greater possibilities. At the same time, the developmental assumptions underlying practices of accommodation may overlook how difficulty is itself a generative aspect of both teaching and learning, provided we can welcome and work through its significance. Even more difficult is the idea that, even within models of universal design, not all children will arrive at the same developmental outcome, and nor should this be the only way to conceptualize a meaningful education.

Still, participants most often proposed accommodations to better suit children's learning needs, without questioning how accommodations themselves can fall short and into a notion of universalism. For instance, Kassandra presented three different photographs of children's bicycles, offering suggestions like training wheels and power handles to support the use of the object for children with physical differences. While responsive to the different ways children move, her narrative left intact the idea that childhood is defined by adventuring in nature, also explored in the previous section. Indeed, Kassandra described her commitment to accommodation as also a commitment to preserve for all children "a sense of freedom too." Another participant, Rebecca, went further to suggest that her object (binoculars) underlined the importance of "movement" among "trees" and "going outside," was "pretty accessible" and even "universal." Unimaginable within both narratives is the idea that some children may never ride a bike or scramble around in the trees. Unimaginable within both narratives is the idea that children adventure on different terms, and in so doing, upset the universalized notion that equates freedom with physical movement in nature, and perhaps even the idea that accommodations should be geared towards the attainment of this aim.

Rebecca and Kassandra's connection of freedom with wilderness holds deep significance, not just in its support of idealized notions of childhood innocence, but also in the assumptions it makes about who is deserving of such freedom. As these aspiring teachers cling to universalized concepts of childhood, they seem challenged to embrace alternative ideas about what it means to explore, adventure, or play. Their approach to accommodating differences appeared primarily focused on adjusting the object to fit predefined developmental objectives. This notion of accommodation suggested an inclination to conform to conventional views, as evidenced by their preference for standardized choices to encapsulate childhood experiences. Interestingly, some participants admitted that, if they were to repeat this exercise in the future, they would opt for more "standardized" objects that better aligned with normative constructions of childhood, just as the accommodations they described were deemed acceptable mostly if they supported children's achievement of established developmental norms.

At play in these discussions was also an assumption that accommodations apply only to individuals with disabilities, rather than recognizing their relevance for all individuals – both children and adults – across various contexts. For instance, when Rebecca and Kassandra framed "training wheels," they did not frame these tools as accommodations when the imagined user was non-disabled. Rather, training wheels were considered "developmentally appropriate" based on the twin assumptions that the need for them should be expected for children of a certain age and they would eventually move beyond these supports. In other words, accommodation was *not* raised when normative development was assumed, even when the technology described was used for precisely this purpose. In this way, disabled subjectivities were constructed as requiring special accommodation on the way to a good life, and the very meaning of a good life was cast in opposition to disability unless accommodations could change the course of a child's future to meet normative ends. Here we are reminded again of Berlant's (2011) "cruel optimism" as orienting attachments to the future that, while accessible to greater numbers of children, are still harnessed to exclusionary assumptions of what counts as having a liveable life.

Thinking further about accommodations, participants also looked to tenets of universal design and inclusive policies to amend their objects and move them into more accessible options, with the goal of supporting all children in development. Still, they drew on a linear model of development to inform the necessary accommodations for their objects. However, in some instances, they confronted assumed developmental goals and redefined the purpose of an object in more creative ways. In some examples, like that of the bike and binoculars, difference was an inconvenience to be accommodated, and successful accommodation replaced that difference with a discourse of overcoming (Apgar, 2023). The implication of these amendments was that some differences do not qualify as valued uniqueness, but rather a nuisance to others, to linear development, and to the purpose of childhood. In these ways, differences in children's capacities to engage with an "important part of childhood" like that of exploring on the bike, were cast as deficits either in the child, or their environment, rather than the model itself.

In the next section, we turn to a third construction of difference that interrupts and inconveniences the language of uniqueness and accommodation. Here, we explore times when participants articulated the disruptive qualities of difference that, while often difficult to describe, were enacted in ordinary and everyday relationships. This disruptive quality of difference opened onto the elusive aspects of being in relation and called participants to reimagine the terms of those relations. Much more than uniqueness and accommodation, we suggest that difference as disruption opens onto the ethical ground of childhood representation and education itself.

Inconvenient Differences: The Alterity of Otherness

In our ongoing inquiry into the interface between childhood and difference, notions of alterity and otherness emerged on the horizon of focus group discussions. These articulations were fewer in quantity and frequency across the research sites, perhaps indicative of their marginal status in relation to conceptualizations of difference within education, which, as shown above, tended to gather around themes of uniqueness and accommodations discourse. Because of their minor status in relation to the overall data set, we initially experienced the two narratives of this section as inconvenient to our analytic process and

even wondered if they warranted inclusion. Upon deeper reflection, however, and returning to Berlant's (2022) discussion of the potential of inconvenience, we decided to contemplate their significance precisely because they disrupted the categorical efforts of our analysis.

Thelma described the many differences of her beaded box as manifesting multiple forms and sizes to nuance the otherwise blanket assumption of childhood innocence. As she explained, the "different shapes, different sizes, and different colours" of her beaded box represented layered experiences and uneven access to innocence. As she described each bead, "some of them are kind of fragile or safe, others are strong, and some of them easily break, and some don't." To this she also added, "people don't really even look at the individual beads, they just look at the general picture, like this is a handbag or this thing." In this reflection, Thelma seemed to recognize each bead's value not just in and for its individual attributes, but how, collectively, each bead represented something larger than their individual distinctiveness. Indeed, for Thelma, the beads collectively gestured toward a quality of existence exceeding any singular modality or category. Also interesting to note is that Thelma originally intended to share a different object. Reflecting on this initial choice, she explained that "snowflakes show…the uniqueness of childhood," however she then shared her decision to change her mind about repeating this common trope because "you can't really link it to…how to see the world differently." Thelma's change of mind seemed to hinge on her desire to complicate uniqueness discourse with a more complex construction of how, through difference, we may reimagine the world.

Similarly, Sky redefined the significance of their object, which they initially presented as a standard school notebook. Soon thereafter, however, Sky explained to the group that they stole the notebook from school and reused it for their own purposes to explore their emerging gender identity and expression. In so doing, Sky not only reframed the purpose of writing from that of skills development to creative growth, but they also showed how development itself may happen through a productive defiance of two kinds of norms: the gender binary and linear temporality. In describing their object, for instance, Sky offered a metaphor of growth as a trail of breadcrumbs only to be discovered in retrospect and thereby posited a theory of development not as a forward-moving climb through predictive stages, but as a backward glance and belated construction made from traces of earlier experiences. In this sense, Sky's notebook mirrors what Britzman and Gilbert (2007) describe as the future anterior of becoming: a theory they use to frame identity not as an innate core unfolding into a linear future, but a narrative we make and remake belatedly from experiences that could not be known at the time of their unfolding. At play here is a theory of subjectivity that is mysterious even to the one creating the path because it is felt before knowing, and is thus driven by alterity – a quality of surprise and inconvenience – that irritates frameworks otherwise pinning identity to lockstep stages of becoming. This understanding of subjectivity as unfolding through belated meaning-making resonates once again with Britzman's (2003) study of learning to teach, where teachers' narratives may disrupt fantasies of linear or coherent development and, instead, represent ongoing impressions of childhood conflicts, uncertainties, and differences in their contemporary understandings of themselves as teachers.

Both Sky and Thelma's constructions of difference seemed to reside in this space of difference in that they used their objects to open new metaphors and unforeseen possibilities of meaning beyond dominant constructions of uniqueness and accommodation. Inconvenient narratives of alterity emerged in how participants described their objects, in both cases, with a sense of flux, uncertainty, and ambiguity as a quality of difference. Participants described this quality of difference by foregrounding the complex and shifting qualities of their objects themselves and by sharing their own changes of mind in undertaking the task of choosing an object that represented childhood. In highlighting the uncertain qualities of their objects and object-choices, both participants gave us pause to think about a quality of difference that does not easily slide into categories to be championed or corrected but can be said to be inconvenient to those very frames.

Conclusion

The Difference Childhood Memory Makes

Across the four sites of our study, we found that discussions of childhood are not literally about oneself having been a child, but rather symbolic of much larger questions about the meaning of difference, why differences matter, and how to work ethically across differences in the classroom and beyond. In our study, the difference childhood makes was very often one that foregrounded a story of individual uniqueness that was also ironically universally assumed. In this construction, childhood concealed how unequal power relations order differences differently within hierarchies of school success and livable futures. Even when childhood was used to speculate about difference as a disruption of given expectations and conditions to accommodate, we found a tendency among our participants to uphold normative frames of development that took aim at the same learning outcomes for all. For us, the smallest grouping of narratives in our study were the most potent. As discussed, these narratives constructed differences as irreconcilable and affecting experience of being in the world with others beyond presumed or given understandings. Unlike discourses of uniqueness and accommodation, narratives of irreconcilable differences grappled with the challenge of representing the elusive qualities of difference and the value of dwelling with the discomfort of not knowing. In centering not knowing, these narratives opened onto conflicts, contradictions, and complexities of existence and in so doing, created space to engage and welcome alterity. Precisely because they grappled with the unknown qualities of difference, these narratives provided a means to disrupt the "desirable difference" of uniqueness, and instead to imagine alternate avenues to the future as both possible and preferable.

We hope our paper can be read as an invitation for aspiring, emerging, and experienced teachers to recognize times when they implicate themselves in the dominant discourse of uniqueness and to notice how this implication may foreclose more critical ways of theorizing difference. While the drive to see oneself as unique is not inherently negative, it may also uphold a discourse of individualism that conceals how social contexts produce difference along axes of inequity. We further challenge teachers to consider the ethical significance of differences that, returning to Berlant (2022) once more, inconvenience efforts to understand and categorize them – for instance, as desirable or lacking – and that instead arrive as a question requiring a response beyond what can be known for sure. We go as far as to encourage teachers to flip the script of uniqueness discourse and to repurpose memories of their own desirable differences as children to consider times when they disrupted, irritated, or otherwise troubled normative expectations, whether inside or outside the walls of the school (Farley et al., 2024). Such repurposing may open critical questions about how to reframe children's nuisance-making less as individual acts of defiance, and more as indices of social and political inequities that differently shape educators' responses to them. Analyzing childhood memories as connected to relations of unequal power may productively inconvenience discourses of innocence that advantage only the most privileged children. Doing so may also become the ground from which to welcome children's alterity as the ground of ethics precisely because it disrupts efforts to capture the most unruly qualities of existence in normative frameworks. Attending to the inconvenience of difference may well change the very meaning of both childhood and education, but only if we can be bothered.

Declarations

Authors' Declarations

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Research Article

The post-earthquake pedagogical implementations of the earthquake victim pre-school teachers

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Abstract: The main aim of this study is to investigate the pedagogical approaches of earthquake-affected teachers after the earthquake that caused great destruction and loss of life in Kahramanmaras on the February 6. Teachers have crucial roles in revitalising education settings in the post-disaster phase. Based on this point, this study was organised as a qualitative research within the case study. Thirty participant teachers were selected from schools in the areas affected by the deadly earthquake in Osmaniye, Hatay, and Kilis. Semi-structured interviews were employed to gather data, and a descriptive content analysis method was used to analyse the data. The findings were explained through five main themes: activities pre-earthquake, the changes made in the educational settings, indoor activities in post-earthquake, outdoor activities in post-earthquake, and children and teachers' attitudes towards activities in post-earthquake. The teachers placed importance on outdoor activities after the earthquake and stated that they fully understand what children experienced; therefore, they behave more considerately when compared to before and after the earthquake. This research aimed to help shape policies and professional development programmes that equip educators to address post-disaster education challenges.

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Introduction

Disasters are events that occur due to adverse weather conditions or other natural or human-made causes. These natural, technological, or human-induced formations cause social and economic losses in society, disrupting the simple lives of people (Ergünay, 2008). Earthquakes are one of the disasters that frequently occur in Türkiye, causing large-scale destruction (Şahin, 1991). Earthquakes and the intensity of their occurrence are natural disasters that are not fully known and have devastating consequences (Selçuk & Erem, 2022). The existence of this natural disaster cannot be predicted, and it is necessary to prepare various resources to prevent it from posing a danger to people's life safety. The education system related to earthquakes is at the forefront of these implementations. Earthquake education encompasses information that should be imparted throughout life, beginning in early childhood (Karakuş, 2013). Schools are the best place to provide a solid earthquake education in society. It is noted that 23 major earthquakes have been recorded in Türkiye over the last hundred years. Finally, the Kahramanmaraş earthquake, which occurred on February 6, 2023, at 04:17 with magnitudes of 7.8 and 7.5, is considered one of the century's most devastating disasters. Following the earthquake, thousands of aftershocks occurred, and according to official figures, at least 53,537 people lost their lives and more than 122,000 people were injured in Türkiye. According to the report by Istanbul Technical University (ITU), more than 300,000 buildings were identified as collapsed, heavily damaged, or in need of urgent demolition (ITU, 2023).

This devastating toll was reflected in the education system in various ways, and education was suspended for approximately two months in the 10 provinces affected by the earthquake. Children and adults may react differently to an earthquake disaster. While some children experience behavioural and emotional changes immediately after the earthquake, some children may exhibit problematic behaviours long after the earthquake (Kazak Berument et al., 1999). The reactions that children show to the trauma

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they experience may cause them to face problems such as concentration, fear, and memory difficulties. It has been determined that preschool children exhibit more regression, behavioural disorders, and aggressive behaviours in response to the traumas they encounter (Erol & Öner, 1999).

Paudel and Ryu (2018) examined the educational consequences of the 6.9-magnitude earthquake in Nepal in 1988. Their results showed that attendance to education decreased in the earthquake region. Similarly, the effects of the 7.8-magnitude earthquake in Tangshan, China in 1976 were examined by Wang et al. (2017). It was determined that the earthquake significantly reduced access to education. In addition, it was found that children who experienced the earthquake faced emotional difficulties (Kazak Berument et al., 1999). Children may experience psychological problems such as stress, anxiety disorder, dyspnea, pediatric tremor, sweating, and sleep disorders after the earthquake (Aydoğdu & Fofana, 2023; Gürbüz & Koyuncu, 2023). At this point, the most common and accessible area where children affected by an earthquake or any natural disaster struggle with the adverse situations they encounter is educational institutions. All these negative situations caused by the earthquake bring problems in the teaching and learning cycle (Yıldız, 2000). Explaining natural disasters and the activities that occur during and after natural disasters should be carried out by schools (Turhan, 2022). The roles of schools and teachers have a huge importance to explain students what natural disasters are, and what people can do to protect themselves during disasters.

When the literature is reviewed, several studies are found that examine various aspects of earthquakes and their effects on individuals. For instance, Budak and Kandil (2023) investigated undergraduate students' knowledge levels regarding earthquakes, while Genç et al. (2023) focused on the professional satisfaction of teachers in earthquake-prone areas, considering demographic and institutional variables. These studies highlight the broader psychological and educational impacts of earthquakes across different populations. Focusing more specifically on children, Karabulut and Bekler (2019) explored the effects of natural disasters on children and adolescents, and Akman and Yıldırım (2022) examined preschool children's understanding of natural disaster-related concepts. These findings emphasise that young children are also significantly affected by such traumatic events and that their level of understanding plays a role in how they cope with these experiences. Additionally, research has begun to address the experiences of educators. For example, Polat and Sarıçam (2024) identified the challenges faced by teachers in Hatay after the February 6 earthquake. Özoruç and Dikici Sığırtmaç (2024) found that both teachers and children were negatively affected, and that preschool teachers experienced high levels of earthquake anxiety, which in turn influenced their teaching processes. Despite these contributions, there is still a need for more detailed investigation into how preschool teachers manage educational practices in the aftermath of such disasters, especially in regions directly affected by earthquakes.

It has been demonstrated that earthquake education provided in early childhood can be effective in mitigating the long-term impact of earthquakes on young children (Aydoğdu & Fofana, 2023; Seiden et al., 2021). However, Aslanderen and Berkant (2023) revealed a lack of knowledge and skills among teachers regarding earthquake education in their study, which obtained opinions from preschool teachers working outside the earthquake area on earthquake education. Although some studies have explored changes in educational settings following natural disasters in various contexts (Turkoglu, 2023; Aydos et.al, 2025), there is still a notable gap in the literature regarding how preschool teachers in Türkiye, specifically those working with children affected by the Kahramanmaraş earthquake—described as the disaster of the century—adapted their classroom practices and learning environments. To date, no study has systematically examined the specific activities implemented by preschool teachers in this context. Therefore, this study aims to investigate why and what differences preschool teachers made in the activities they designed after the earthquake. Another feature of this study is that it is one of the limited pedagogical studies conducted in the area affected by the earthquake centred in Kahramanmaraş on February 6, 2023. The primary objective of this research is to examine the pedagogical implementations made by earthquake-affected preschool teachers in their educational activities. Within the scope of this general purpose, this study aimed to understand teachers' attitudes and their pedagogical applications in both indoor and outdoor activities. In this perspective, these questions are also acknowledged:

- Was there any application or activity before the earthquake?
- Was there any change in educational settings in the post-earthquake period?
- What were the indoor activities in the post-earthquake process?
- What were the outdoor activities in the post-earthquake process?
- How were the teachers' and children's attitudes towards pedagogical applications?

Method

This study was designed as a qualitative foundation within the case study. Qualitative research examines how people interpret their lives and experiences related to an event (Merriam & Tisdell, 2015). This study aimed to investigate in detail the views of preschool teachers affected by the February 6 earthquake regarding the situations they encountered in the post-earthquake educational environment. Case studies are important data collection methods that examine one or more situations in depth over a specific period, considering the situation under various themes that reveal it (Creswell, 2017). In this context, this study employed the case study method, as it aimed to address the experiences of preschool teachers affected by the earthquake and the changes and problems they encountered in their school practices.

Participants

In this study, purposive sampling was used to make the process more practical. At the same time, in purposive sampling, it is considered that the participants are directly related to the subject of the study (Neuman, 2012). In light of the initiative of purposive sampling, 30 preschool teachers who were working in schools within the Osmaniye Provincial and District National Education, Hatay Erzin District National Education and Kilis Provincial National Education, which are easy to reach to the researchers, from 10 provinces affected by the major earthquake and who were affected by the February 6, 2023 Kahramanmaraş earthquakes were included in the study. The demographic information of these teachers, along with their damages from the earthquake, is presented in Table 1.

Table 1
Participants' Demographic Information and Their Damages

Participants	Age	Gender	Education Background	Work Experience	Whether any detriments to the participants in the earthquake (house, relative)	Whether any detriments to the participants' students (house, relative)
T1	40	F	Undergraduate	18	-	-
T2	40	F	Undergraduate	14	-	-
T3	46	F	Undergraduate	23	Her brother passed away	There are students whose relatives passed away
T4	45	F	Master's Degree	14	Her relatives passed away	There are students whose houses collapsed
T5	50	F	Undergraduate	26	-	-
T6	48	F	Undergraduate	24	Her family's house collapsed	There are students whose houses collapsed
T7	30	F	Undergraduate	8	-	There are students whose houses collapsed
T8	33	F	Undergraduate	8	-	-
T9	38	F	Undergraduate	14	-	There are students whose relatives passed away and some children's houses collapsed
T10	37	F	Undergraduate	14	-	There are students whose houses collapsed
T11	40	F	Undergraduate	19	-	-
T12	28	F	Undergraduate	2	Her relatives passed away	-
T13	25	F	Undergraduate	2	-	-

T14	29	F	Undergraduate	2	-	There are students whose houses collapsed
T15	40	F	Undergraduate	16	Her relatives passed away	-
T16	32	F	Undergraduate	10	-	There are students whose relatives passed away
T17	40	F	Master's Degree	14	-	There are students whose houses collapsed
T18	26	M	Undergraduate	2	-	There are students whose houses collapsed
T19	36	F	Undergraduate	14	-	-
T20	28	F	Undergraduate	4	Her relatives passed away	-
T21	35	F	Undergraduate	14	-	-
T22	38	F	Undergraduate	15	-	-
T23	25	F	Undergraduate	2	Her relatives passed away	There are students whose relatives passed away and some children's houses collapsed
T24	37	F	Undergraduate	12	-	There are students whose houses collapsed
T25	30	F	Undergraduate	2	-	There are students whose houses collapsed
T26	39	F	Undergraduate	18	-	-
T27	48	F	Undergraduate	24	Her family's house collapsed	There are students whose houses collapsed
T28	25	F	Undergraduate	2	-	There are students whose houses collapsed
T29	39	F	Undergraduate	16	Her relatives passed away	There are students whose relatives passed away and some children's houses collapsed
T30	24	M	Undergraduate	2	-	-

As shown in Table 1, the ages of the participating teachers range from 24 to 50 years old. There are 2 male and 28 female earthquake victim teachers; 2 teachers hold a master's degree, and 28 are undergraduates. Their professional experience ranged from 2 to 26 years. 19 teachers suffered detriment in the earthquake, either to themselves or their students, or to both themselves and their students.

Data Collection Tool and Data Collection Process

In this study, semi-structured interview forms were used to collect data from the teachers. Interviews are a technique frequently preferred in qualitative research, used to investigate phenomena in-depth (Yüksel, 2020). The openness of some questions in semi-structured interviews provides access to more detailed data about the research conducted. Therefore, the semi-structured interview technique has a certain level of standardisation, while at the same time providing convenience in the study since its flexibility (Türnüklü, 2000). The researchers developed the semi-structured interview form used in this study. To ensure the validity and reliability of the results, changes were made to some of the questions by consulting with two different field experts. Getting expert opinions is one of the most effective methods to ensure reliability (Yıldırım & Şimşek, 2013). Afterwards, two earthquake-affected preschool teachers were interviewed to see if the questions were understandable, and a linguist made language corrections.

After the semi-structured interview forms were finalised, the data collection process began following the receipt of ethical approval. The study continued considering the volunteering of the participants. The participants were informed that their information would not be shared with anyone. During the data collection process, all interviews were conducted face-to-face, and each interview lasted approximately 30 minutes. The researcher both took notes and made audio recordings during the interview process. After the data collection process was completed, the audio recordings and participant notes were transferred to a digital environment for analysis and encrypted, allowing only the researchers to access them.

Data Analysis

The participants' answers, which were recorded in the digital environment, were analysed using the descriptive content analysis method. Descriptive content analysis is a systematic approach that examines research conducted on a specific phenomenon and reveals participants' tendencies in a descriptive dimension (Sözbilir et al., 2012). In studies where descriptive content analysis is performed, the information obtained from the collected data should be presented in a realistic and systematic manner (Ültay et al., 2021). When using this analysis, the participants' answers were frequently included to make it more realistic. The researchers and one external researcher analysed the data. At the end of the analysis, the researchers cross-checked the categories person by person.

The data received from 30 participants in this study were categorised, separated, and organised according to themes. It was systematised by visualising with figures and tables. The perspectives of teachers affected by the earthquake on the changes they made in their educational settings and activities afterwards were closely examined, incorporating direct quotes into the relevant categories.

Credibility and Transferability

To meet the criteria of credibility and transferability, we used a range of methods to present the study's context, participants, data collection environment, and working conditions. The table shows the procedures undertaken to collect and to analyse the data in consistent, transparent, and verifiable methods (Lincoln & Guba, 1985). To examine credibility and transferability more concretely, the methods used are outlined in Table 2.

Table 2
Methods and Procedures Used to Ensure Credibility and Transferability

	Method	**Procedure**
Credibility	- Professional opinion - Participants must be earthquake victims and work in the provinces affected by the earthquake	- Two professional opinions were obtained from the field before the interview form was created - Direct quotes from earthquake victims were included - Their damages are shown in Table 1.
Transferability	-Using purposeful sampling -Detailed description of the data collection process	- Teachers working in the earthquake area were contacted - The study design, sample, creation of the data collection tool, explanation of the data collection process and analysis were stated in detail

Research Ethics

The relevant permissions to conduct this study were obtained from the Agri Ibrahim Cecen University Scientific Research Ethics Committee with the decision numbered 199 dated 28.09.2023. The researchers adhered to ethical guidelines throughout the data collection process.

Findings

The findings were examined in the categories of activities carried out at school before the earthquake, activities carried out in the classroom post-earthquake, activities carried out outside the classroom post-earthquake, and attitudes of teachers and children during the activities post-earthquake.

Activities Implemented Before the Earthquake

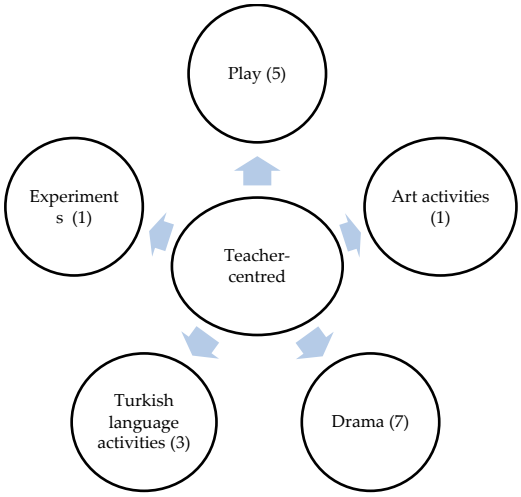
The earthquake or disaster-related activities implemented before the earthquake were categorised under two subheadings: teacher-centred and institution-centred.

Teacher-centred

Figure 1 shows the categories of activities that preschool teachers reported implementing in their classrooms specifically in relation to earthquake education prior to the February 6 earthquake. Among the thirty teachers interviewed, only five mentioned incorporating planned play activities related to natural disasters before the earthquake; seven used drama-based methods. Additionally, one teacher reported conducting science experiments, one facilitated art-based activities, and three included Turkish language activities addressing earthquake-related themes.

Figure 1

Teacher-centred Activities Before the Earthquake



T9, who said that she implemented drama activities before the earthquake, stated as follows:

> Before the earthquake, information about earthquake and fire was given. Drama activities implemented. Some planned play conducted for children about who to call and what path to follow in the house during an earthquake and fire.

T5, who said that she had implemented an art activity, explained the activity in detail, saying,

> After the earthquake drill, an art activity was conducted about the earthquake bag, which involved cutting, pasting, and painting.

T3 read children's books about natural disasters within the scope of Turkish language activities and had conversations with children about earthquakes. In this context, T30 provided experiments and gave the information during the classroom conversation about experiments they conducted in classroom conversation:

> When we covered the subject of natural disasters, we touched on earthquakes. We focused on the fact that the region we live in is an earthquake zone and what kind of precautions we should take in case of an earthquake. We talked about these and conducted experiments.

Seven teachers, who stated that they implemented drama activities, emphasised that they frequently benefited from role-playing, dramatisation and imitation techniques within the scope of drama. T9 stated that

> Before the earthquake, children were provided information about the earthquake and the fire, and then a related drama activity was implemented. A dramatic play was conducted to determine what to do in the event of a fire at home. Another dramatic play occurred about who to call and what path to follow.

T15 stated that after watching a video about the earthquake drill, she wanted the children to repeat what they saw in the video in the classroom through role-plays.

Institution-centred

All the teachers stated that the 'Drop, Cover, and Hold' earthquake drill was carried out on 12th November 2022 under the coordination of the Ministry of National Education (MoNE). At the same time,

four teachers mentioned that the Directorate of Disaster and Emergency (AFAD) organised an event at school to raise children's awareness about natural disasters during Civil Defence Week. These four teachers stated that AFAD provided brochures and video recordings about disasters. Three teachers noted that the Red Crescent team provided children with information on what to do during and after natural disasters during Red Crescent Week.

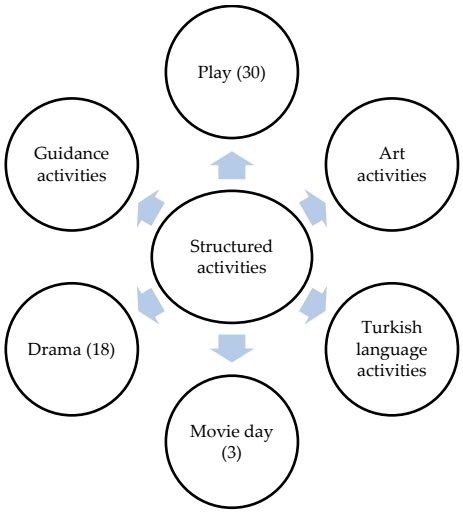
Post-Earthquake Activities Implemented Indoors

In the responses given by the teachers, the activities carried out in the classroom after the earthquake were examined under two subheadings: structured and free activities.

Structured Activities

Figure 2

Post-earthquake Structured Activites by the Teachers



All the teachers stated that they used adaptation play and play aimed at helping children accept what happened in the earthquake, after the break given to schools following the earthquake. While some teachers stated that they used play for adaptation, others stated that they incorporated play into structured activities to provide children with a freer environment and to harness the healing power of play. They stated that they wanted to give children morale and increase their motivation towards school through these activities. In this regard, T4 said,

> I mostly used adaptation to school activities after the earthquake. Children had a fear of being separated from their parents. I used more play activities while choosing and designing activities, children reflect their inner worlds while playing games.

It was observed that art activities were carried out regarding preparing earthquake bags. T11 stated,

> I used art activities and play drama; children feel excellent in these activities.

T18 stated that she implemented structured activities, such as Movie Day, track races, traditional games, and, What's in My Earthquake Bag, etc. Both teachers said that they sometimes turned on an animated movie and had a movie time to make the children feel happy. The teachers said to give children time to relax by watching their favourite cartoons. Again, as before the earthquake, drama was the most frequently used structured activity in classroom activities after the earthquake. Almost all teachers mentioned that they used drama, role-plays, and various drama techniques after the earthquake. The teachers declared that drama helps children convey their thoughts and feelings through play and role-playing, especially in the post-earthquake period.

Within the scope of Turkish language activities, it was revealed that finger plays, children's songs, and poetry activities were implemented concerning natural disasters. One of the two striking points regarding Turkish language activities was that the translation of the book "*Coping after disaster*" was read

to the children, and a conversation was held with them about what to do during and after an earthquake. The second point was that the children consistently wanted to share with their friends and teachers what they had experienced during the earthquake. To meet the children's need for self-expression, the teachers created a conversation circle and established a free environment for the children to share their thoughts. In this regard, T29 stated that

> The children truly wanted to share their experiences during the earthquake. This likely helped them relax. I listened to them with all my heart, creating an environment where they could speak comfortably. They shared at length while I listened, meeting their need to express themselves.

However, in return, T28 stated that

> We initially discussed the earthquake in the classroom. However, when the children brought up the subject, I tried to change the topic because I didn't want to dwell on the earthquake and wanted to show them that life goes on as usual.

Additionally, two participating teachers mentioned that the school counsellors (referred to as "guidance teachers" in Türkiye) conducted activities with children during scheduled guidance sessions. However, they noted that they were not informed about the content of these sessions.

Unstructured/Free Activities

Two teachers reported being caught in an earthquake during free playtime in the classroom and stated that they reminded the children of the "*drop, cover, and hold*" drill to prevent panic. The teachers provided children with opportunities to spend time in play centres and socialise with friends. According to the observations of the participating teachers, children primarily engaged in construction and building, dough play, and dramatic play during their free time. T30 said,

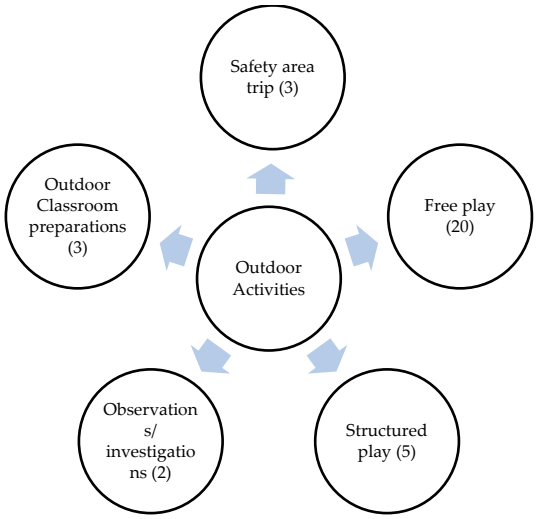
> I saw children building buildings with wooden blocks, plastic blocks, and brick blocks in the classroom, shaking them and testing their durability. I observed this and went after it. Let's design a building together. How can we make it strong enough so that it doesn't collapse easily? We have also created simple structures and observed that they collapse at the slightest shaking. We shook the sturdy ones and noticed that they were shaking but did not collapse. We conducted activities related to durability in this manner. We focused on the concept of building safety.

…and with his explanation, he encouraged children to think more critically during their free play and created an opportunity for earthquake awareness. Some teachers supported some of the free activities with outdoor play.

Post-Earthquake Activities Implemented Outdoors

Figure 3

Post-earthquake Outdoor Activites



After the earthquake, outdoor activities were categorised into five groups: safe area trips, free play, structured play, observations and inspections, and outdoor classroom preparations. Three teachers reported that they frequently visited safe areas to show children where the secure area during the

earthquake was located in the schoolyard. Twenty teachers noted that they provided free playtime outside the classroom, allowing children to play with their friends and use the schoolyard playground. Five teachers created tracks in the garden and had children engage in a competitive game with rules, enabling them to have fun. Two teachers examined the surrounding buildings, the school building, and the garden walls in the schoolyard, checking for cracks and discussing with the children how these cracks appeared. Three teachers concentrated on designing and implementing outdoor classroom preparations. T29 stated that the activities outside the classroom were positive by saying,

> I tried to do more outdoor activities in the educational environment because I observed that my children felt safer outside since they were very affected by the earthquake.

Three teachers mentioned that they decided to create an outdoor classroom during this process. T26 responded as follows:

> We focused on the outdoor classroom. We participated in numerous activities outside the classroom. We wanted materials from the parents to support us.

The teachers also emphasised that children engaged in physically active play in the garden and that they did so more willingly, finding it more enjoyable than indoor activities. The teachers stated that they felt safer outside the classroom. T28 noted that she and the children felt safer outdoors by saying,

> The children and I were terrified, so we did not go into the classroom as much as possible. We were always in the garden, as the season allowed. We carried all the materials to the garden, discussed what we would do in case of an earthquake, and talked about what we did during the earthquake.

Another striking answer belongs to T25:

> We stayed outside for months. We did not go in unless necessary; we learned to stay outside during that period. I had the opportunity to explain the importance and balance of nature.

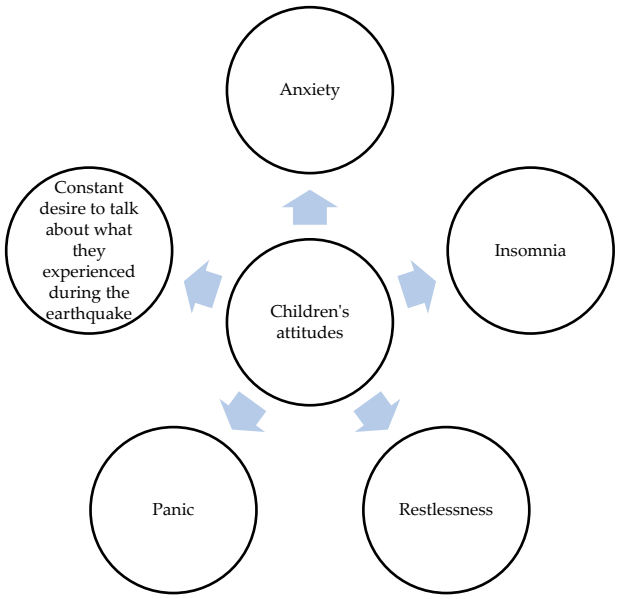
The importance of outdoor education was clearly revealed after the earthquake. While only two teachers stated that they did not engage in any activities outside the classroom after the earthquake, the remaining 28 teachers strongly emphasised that they valued outdoor activities.

Post-earthquake Attitudes

Post-earthquake attitudes are categorised under two subheadings to analyse the perspectives of teachers and children in educational settings.

Children's Attitudes

Figure 4
Children's Attitudes



In the responses from the teachers, it was stated that the children experienced anxiety after the earthquake, were sensitive to sudden and loud noises, and had sleep disorders, panic, and restlessness. Additionally, the teachers reported that the children wanted to talk about their experiences during the earthquake. T2 stated that

> I noticed that a few children in my class were affected by the earthquake more than others; they were afraid and disturbed when the earthquake was discussed. I told them not to talk about the earthquake except at certain times, especially outside of circle time, so that they would not be disturbed," and indicated how the children carried their fears into the educational environment during the earthquake.

On the other hand, T30 stated that

> The children really wanted to talk about what they experienced during the earthquake. They probably relaxed this way. I listened to them with all my heart. I created an environment that allowed them to talk comfortably. They talked at length, and I listened. I satisfied their need to talk.

and emphasised that the children met their need to talk. T28 stated that

> Two of the children had sleep problems, and according to their mothers, they did not sleep at all after the earthquake. Therefore, I tried not to dwell on it too much so as not to bother them too much. Those two students were more nervous than the others.

she stated that some children had sleep problems as a result of the information she received from their families and emphasised that those children were also nervous.

Teachers' Attitudes

Teachers who were themselves earthquake victims and who worked with earthquake-affected children frequently emphasised the importance of being cautious in the school. The responses revealed that teachers wanted to hug children, were more compassionate and more protective. Teachers also stated that they were anxious, more sensitive to children and more compassionate than before the earthquake. T28 clarified this information with the answer,

> My students who had sleep problems were more sensitive; they would even get startled when I called them. I tried to be sensitive to them.

When the teachers' pedagogical practices were examined, teachers stated that they provided the necessary environments for children to socialise more with their friends after the earthquake. At the same time, 25 teachers stated that they were more understanding and empathetic towards children's fears because they had experienced the same thing, and they also emphasised that they got less angry with children compared to before the earthquake. T22

> Little things started to seem unimportant now. My approach became calmer. I tolerated the little mischief.

She expressed that she became more tolerant towards children after the earthquake. Twenty-four of the teachers stated that they found it necessary to entertain the children and emphasised that fun activities, such as play and drama, were beneficial for the children. When the attitudes of the teachers who participated in the study were examined, it was revealed that they were more sensitive, empathetic, protective and compassionate towards the children after the earthquake because they experienced the same natural disaster. It was observed that they made an effort to socialise the children more after the earthquake and turned to activities that would entertain them, make them happy and relax.

Two teachers felt uncertain about their approach to children after the earthquake and requested support from the Provincial Directorate of National Education, to which their school was affiliated, for guidance. However, they stated that this request was unsuccessful. All the teachers were also asked if they had any information about the Psychosocial Support Earthquake Psychoeducation Program, prepared by the General Directorate of Special Education and Guidance Services of the Ministry of National Education to help teachers cope with the stress of children following the earthquake. Only one teacher reported having heard of this program but was uncertain about its content, while the other 29 teachers stated that they had never heard of it and were unaware of its existence.

Conclusion and Discussion

Upon examining the relevant literature, no study was found that examines the pedagogical activities undertaken by preschool teachers affected by earthquakes in educational settings in Türkiye. This study revealed the differences in practices made and implemented by preschool teachers of earthquake victims in educational settings before and after the earthquake. According to the responses received from the interviewed teachers, it was frequently mentioned that they were significantly affected by the earthquake and that precautions should be taken in educational settings. It was also noted that they often used play and drama activities to comfort children and facilitate their adaptation to school. The study's findings also showed that earthquake-affected teachers frequently utilised outdoor spaces to help themselves and children feel safe in the post-earthquake educational environment. While they stated that they regularly employed drama, play, Turkish language activities, and art activities in the classroom after the earthquake, they mentioned that they mostly used play outdoors. At this point, this study aligns with the finding of Özel and Ersoy (2023) that teachers predominantly preferred play activities during the post-earthquake adaptation process. Additionally, teachers noted that they understood children better because they experienced the earthquake themselves, approached them with a protective instinct, and thereby carried the emotional weight of being an earthquake victim into the educational environment. While this empathetic stance is valuable, it also highlights the need for structured pedagogical support. Solely relying on personal experience may not suffice when addressing children's complex emotional and developmental needs following a disaster. Therefore, it is essential to consider how professional training and targeted pedagogical programs could better equip teachers to support children in trauma-sensitive and developmentally appropriate ways. Özoruç and Dikici Sığırtmaç (2024) revealed elevated anxiety levels among teachers in their study, highlighting the worries of earthquake victim teachers. They stated that reopening schools had significant effects in reducing anxiety and stress in both children and teachers. In the findings of this study, teachers emphasised that the activities conducted outdoors positively impacted the reduction of children's stress.

There have also been studies indicating that children are psychologically negatively affected after an earthquake (Anderson, 2005; Bonanno et al., 2010; Marsee, 2008; Prinstein et al., 1996). Feo et al. (2014) revealed the frequency of post-traumatic stress disorder (PTSD) and anxiety in their study examining the psychological states of children and adolescents living in the Abruzzo region of Italy. They found that young children were more psychologically affected by the earthquake, highlighting the importance of age as a factor. Similarly, Fujiwara et al. conducted a study in 2017 that showed one in three children experienced PTSD even two years after natural disasters. This is supported by the finding regarding children's attitudes following the earthquake, in which it was noted that children wanted to share their experiences during the event. Likewise, Özoruç and Dikici Sığırtmaç (2024) reported similar findings in their study. Despite the teacher-centered and institution-centered activities conducted prior to the earthquake, it is typical for children, whose daily lives were disrupted and who lost relatives and homes, to want to talk about the earthquake due to what they heard from their surroundings. Furthermore, these children continued to experience the earthquake's effects through exposure to numerous aftershocks even after the initial event. In this context, the study's findings align with those of Proctor et al. (2007), who emphasised that children were affected by their families' reactions to the situation.

In this study, the participating teachers created suitable environments for the children to express themselves and relax. The teachers observed that the children primarily engaged in dramatic play corners and puzzle-building activities during their free time. Studies have also shown that earthquake victims reflect earthquakes in their play (Darga, 2023; Saylor et al., 1992). Teachers further facilitated relaxation by involving the children in play and informing them about earthquake awareness. They primarily conducted the drop, cover, and hold earthquake drill, arranged objects that made sounds to startle the children in the classrooms, and secured the cabinets. In this direction, teachers organised the educational environment to provide a safe space for children to learn and made the environment suitable for them. They mostly included play and art activities after the drill. Among the art activities, there was a focus on preparing earthquake bags. In this study, teachers not only helped children overcome earthquake anxiety after the

earthquake, but also conducted activities to raise their awareness during and after the earthquake. Thus, they set the stage for children to learn by creating an educational environment in which they thrived. This study also supports the findings of Fetihi and Gülay (2011), who revealed that children learned about earthquakes through various activities in the classroom environment during the preschool period.

In the study, the activities of teachers both indoors and outdoors who were exposed to earthquakes were closely examined, yielding a wealth of information about the pedagogical practices of teachers before and after the earthquake. It was observed that earthquake victim teachers primarily designed activities to ensure the safety of children after the earthquake and then to raise awareness of what to do during and after the earthquake. The study revealed that earthquake-affected teachers prepared activities to keep children active while raising awareness about earthquakes, and this finding is consistent with the study by Aslanderen and Berkant (2023). Activities appealing to more than one sense were designed, such as drama work, outdoor play, trips, watching videos, and engaging children in art activities to keep them active. It was determined that children relieved their anxiety and stress about the earthquake both in the classroom and during free time activities designed by the teachers.

A review of the literature revealed a significant gap in studies focusing on preschool children and teachers in the aftermath of earthquakes. This study aimed to address this gap by exploring the pedagogical approaches adopted by earthquake-affected preschool teachers. The focus was on the specific educational activities they implemented both inside and outside the classroom, and how these reflect underlying strategies such as child-centred, responsive, or trauma-informed approaches. The findings revealed that teachers became more compassionate, protective, and emotionally attuned to children after the earthquake. While these attitudes reflect a natural empathetic response, they also suggest an implicit move toward trauma-informed pedagogy. However, these adaptations were mostly intuitive, rather than grounded in formal training or structured pedagogical frameworks. Despite the existence of resources such as the Psychosocial Support Earthquake Psychoeducation Program, prepared by the General Directorate of Special Education and Guidance Services, the study showed that most teachers were unaware of its existence or had not implemented it. This points to a critical need for more accessible and widely disseminated professional learning opportunities that prepare teachers to support both children and themselves during and after natural disasters. In addition to understanding classroom practices, future research should also consider the role of families in supporting children's emotional well-being post-disaster. Evaluating how the home environment contributes to or hinders recovery could provide a more comprehensive picture of children's developmental trajectories in disaster contexts.

This study is limited to 30 teachers from three provinces in the earthquake-affected area; a larger-scale study covering other provinces in the earthquake region would provide much more detailed resources for this field.

Another conclusion drawn from the results is that teachers need in-service training to support themselves both emotionally and pedagogically. Although returning to school settings after experiencing the earthquake plays a significant role in normalising children's lives, the findings also underscore the need for guidance services to address teachers' own psychological well-being. Beyond emotional support, pedagogical preparedness is equally critical. While teachers adapted a range of indoor and outdoor activities, these were often based on intuition and lived experience rather than on theoretically informed pedagogical approaches. The study revealed limited evidence of intentional use of structured methods such as inquiry-based, project-based, or collaborative learning. This points to a gap between practice and pedagogy, suggesting that professional development should include training on how to design and implement trauma-informed educational strategies underpinned by established theories of learning and child development.

This research sheds light on education stakeholders and policymakers regarding identifying the barriers that may prevent children and teachers from experiencing the psychological effects of disasters. The findings of this research are instrumental in shaping evidence-based policies and tailored professional development programs that address the unique needs of educators in post-disaster contexts. By focusing

on critical areas such as trauma-informed teaching strategies, curriculum adaptation, and community engagement, educators can be empowered to navigate the intricate challenges of post-disaster education effectively. This targeted support not only enhances their capacities but also ultimately improves outcomes for students in these vulnerable settings.

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Research Article

Parent perspectives on digital play-based early literacy-learning in marginalized communities

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Abstract: This study examined parent perspectives on digital play-based learning for early literacy development in non-formal educational settings in Pakistan and Bangladesh, where access to quality education remains limited for marginalized communities. Drawing on neo-ecological theory as a guiding framework, we conducted a qualitative focus group study in which we analysed discussions with 40 parents whose children participated in a three-month digital play-based literacy intervention implemented through community learning centres and refugee camps. The parents reported significant improvements in their children's English language capabilities and digital literacies, often describing instances that reversed traditional knowledge hierarchies within families, with children teaching their parents English pronunciation and digital navigation. However, the parents simultaneously expressed concerns about traditional writing skill development and future educational transitions. The intervention affected parent–child engagement in education, with many parents reporting increased school visits and children showing a newfound enthusiasm for attending classes. Notable variations emerged between communities with different levels of prior educational access, with refugee parents in Bangladesh showing greater enthusiasm for digital interventions than those with previous exposure to conventional education. The study demonstrated how parents in marginalized communities carefully evaluated digital play through contextual lenses, and challenged simplistic narratives about technology adoption in resource-constrained environments. The parents' perspectives highlight both the transformative potential of digital play for early literacy and the importance of contextually responsive approaches to implementing interventions.

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Introduction

Digital play-based early-childhood education represents a promising yet understudied approach for promoting literacy-learning among young children, particularly in marginalized communities. In these resource-constrained environments, limited access to qualified teachers, educational infrastructure and learning materials create significant barriers to quality education (Jamal, 2016; Shohel, 2022). Evidence implies that digital technologies offer potential pathways to addressing these challenges by providing structured learning opportunities in places where traditional educational resources are scarce, enabling more equitable access to early literacy development (Chu et al., 2024; Patel et al., 2018; Pereira et al., 2023).

The introduction of touchscreen devices and children's interactions with digital technologies have transformed the learning landscape, with children often engaging with these technologies from an early age (Lowrie & Larkin, 2020). Recent ethnographic research by Lewis et al. (2024) demonstrates how children's digital experiences at home are situated within complex social and cultural contexts, and that children show a natural inclination to interact playfully with digital technologies despite varying levels of access and parental mediation. These interactions seem to naturally become playful, regardless of the intent.

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As the lives of young children become more deeply intertwined with digital technologies, the value and methods of safely and meaningfully integrating these technologies into early-childhood learning environments are becoming a significant topic of discussion (Ihmeideh & Al-Maadadi, 2018; Pereira et al., 2023). Children generally hold favourable views of digital play, and exposure to educational digital games enhances their tendency to endorse play-based learning (Xie et al., 2021). However, literacy teachers, although recognizing the potential of digital play to boost student motivation and engagement, often face challenges due to a lack of practical skills and training in effectively integrating digital play into their pedagogy (Von Gillern et al., 2022).

Recent systematic reviews have highlighted the complex relationship between children and digital technologies in different learning contexts, including homes. Liu et al. (2024) found that digital play most effectively promoted language acquisition and literacy development when technological interventions included strategic features and appropriate adult mediation – a role often fulfilled by parents in home environments. The findings of Liu et al. (2024) and Chu et al. (2024) emphasize that successful outcomes depend not only on technological design elements but also on contextual factors, including adult support and guidance. This mediating role calls for deeper examination of parental perspectives on digital play-based learning, as these viewpoints reveal the underlying beliefs, values, and contextual factors that shape children's digital learning experiences.

Parents as Digital Learning Mediators

Parents play a significant role as mediators of young children's access and engagement with digital technology (Dias et al., 2016; Soyoof et al., 2024). Their beliefs, concerns, and levels of acceptance can significantly influence the adoption, effectiveness, and sustainability of innovative educational approaches such as digital play-based learning. This educational landscape has led to differing perceptions of digital play between children and adults, particularly parents. In digital play-based learning contexts, children predominantly experience digital interactions as playful activities, whereas parents interpret these same digital engagements as learning opportunities (Sulaymani et al., 2018). This fundamental perceptual difference influences how each group approaches screen time boundaries and content selection (Slutsky & DeShetler, 2017).

In the past decade, multiple studies have explored parental perspectives on children's digital engagement. In one study, the parents generally expressed concerns about whether excessive reliance on digital play might displace time spent on traditional learning methods such as hands-on exploration, physical play and social interaction (Siskind et al., 2022). At the same time, many worry that screen time limits a child's imaginative play and opportunities for outdoor activity (Canadian Pediatric Society, 2019; Mączyńska et al., 2025; Slutsky & DeShetler, 2017).

The conflicting guidelines on appropriate screen time complicate parents' ability to set healthy boundaries for digital play (Kerai et al., 2022; Straker et al., 2018). Although there is no formal clinical evidence of digital addiction among young children (Winther, 2017), academic discourse has raised questions about potential risks (e.g. Dresp-Langley, 2020; Pekonidi, 2021), and parents frequently express concerns about their children's preference for screen-based activities (Houghton et al., 2015; Wiseman et al., 2019). This is compounded by parents finding it difficult to encourage their children to disengage from digital devices (Johnston, 2021).

In the specific context of early literacy development, these parental concerns intersect with questions of effective mediation. Soyoof et al. (2024) found that parental mediation plays a critical role in shaping young children's digital literacy practices and learning outcomes. Their narrative review reveals that effective parent mediation can enhance children's digital literacy development while mitigating potential risks, though many parents feel inadequately prepared to provide this guidance. We argue that this parental guidance-related challenge becomes even more pronounced in cases of digital play for early literacy in marginalized communities.

Despite the established importance of parental involvement in children's education (Dias et al., 2016;

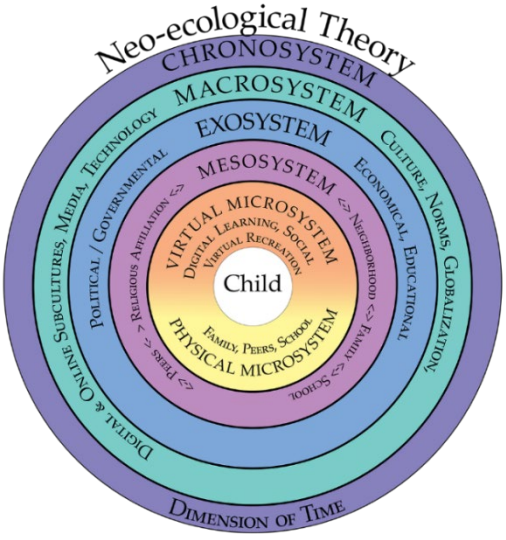
Soyoof et al., 2024), studies of parental perspectives on digital learning have predominantly focused on higher-income countries (Canadian Pediatric Society, 2019; Kerai et al., 2022; Straker et al., 2018), and research in lower-income countries and vulnerable populations has remained scarce (Ahmed et al., 2022, 2024). This research gap is particularly problematic, as parents in marginalized communities face unique challenges that shape their perspectives on educational technologies, including limited access to technological resources, varying levels of parental digital literacy, and competing priorities related to meeting basic needs (Ahmed et al., 2022). This study addresses this significant gap by asking: How do parents in marginalized communities perceive digital play-based education for early literacy-learning? By investigating parent perspectives in non-formal educational settings in Pakistan and Bangladesh, we make a novel contribution to this understudied intersection of digital education, early literacy, and marginalized contexts.

Contextualizing Digital Learning Through Neo-Ecological Theory

To help organize our analysis of parent perspectives on digital play-based literacy-learning in marginalized communities, we drew on concepts from neo-ecological theory as a guiding framework (Navarro & Tudge, 2023), using it as a heuristic tool. This approach recognizes that children's development and learning occur within interconnected environmental systems, from immediate learning experiences to broader social contexts. Rather than applying the full theoretical model, we used these specific ecological concepts as flexible analytical lenses to examine whether parents' perspectives on digital play are influenced by different contextual factors. Specifically, we employed concepts related to microsystems (the immediate settings in which children engage with digital technologies), mesosystems (the interconnections between these settings, such as home–school relationships), macrosystems (the cultural beliefs and values surrounding technology and education), and the interplay between personal characteristics (such as parents' digital literacy) and contextual features. These concepts helped us describe how parent perspectives are shaped by practical considerations, social connection and cultural values, while allowing us to remain responsive to the specific contexts represented in our data.

Figure 1

Five Ecological Systems (Bronfenbrenner, 1977), Adapted to Neo-ecological Theory



Neo-ecological theory expands on Bronfenbrenner's original ecological systems model (Bronfenbrenner, 1977) by specifically accounting for technological environments as contexts for development (Navarro & Tudge, 2023). Not dismissing the familiar nested systems (micro-, meso-, exo-, and macrosystems), neo-ecological theory introduces the critical distinction between physical and virtual microsystems, recognizing that digital contexts create unique spaces in which development occurs. Unlike traditional ecological theory, neo-ecological theory acknowledges that individuals can simultaneously

navigate multiple environmental systems and emphasizes how digital interactions reshape traditional developmental contexts. This theoretical adaptation provided a sophisticated framework for examining parental perspectives in marginalized communities, allowing us to consider how digital technologies create new ecological dynamics within resource-constrained environments, where the boundaries between physical and virtual contexts become particularly significant for understanding how parents interpret and mediate their children's early literacy experiences.

Method

This study employed a qualitative research design to examine parent perspectives on digital play-based learning in non-formal educational settings. Drawing on concepts from neo-ecological theory (Navarro & Tudge, 2023), we explored how parents in marginalized communities perceive digital play-based education for their children's early literacy-learning.

Research Design

We employed a qualitative research design, using focus group discussions with parents across Pakistan and Bangladesh to examine perceptions of digital play-based learning in marginalized communities. The constant comparative method guided our analysis through a neo-ecological theoretical lens, enabling us to systematically examine how parents' perspectives might be shaped by interactions across multiple environmental systems. This analytical approach facilitated the exploration of how immediate microsystems (both physical and virtual learning spaces), mesosystemic relationships (connections between home and educational settings), and broader macrosystemic influences (cultural values and socioeconomic constraints) potentially informed parents' evaluations of digital play interventions. By coding and categorizing data according to these ecological levels, we were able to identify patterns in how contextual factors influenced parental perspectives.

Participants

The study involved 40 parents from marginalized communities in Pakistan and Bangladesh. In Bangladesh, the participants were mothers from the urban slums in Dhaka, and Rohingya refugee women from Cox's Bazar, where children had limited access to formal early-childhood education. Only five of their five- to eight-year-old children participating in the interventions were enrolled in informal education provided by aid organizations. In Pakistan, the study was conducted in the remote areas of Sultanabad and Karabathang, and the densely populated urban slums of Karachi. The children of the interviewed parents in Pakistan had more access to formal education – approximately half of the parents reported that their children attended school.

These participants, all of them women aged between 20 and 35, were from diverse backgrounds but were united by similar socioeconomic challenges. Most of them had received limited formal education, and their educational attainment ranged from first grade to completion of high school. Their economic circumstances were characterized by limited financial resources: many were engaged in intermittent informal sector work such as tailoring or stitching. Despite these constraints, the parents demonstrated remarkable commitment to their children's education during the interventions, and many regularly visited the learning spaces to monitor their children's progress.

The digital literacy of the participants reflected their resource-constrained environments: approximately one quarter had access to smartphones and virtually none owned tablets or computers. Those with smartphone access mainly used its basic functions for calling and taking photographs, and had limited experience navigating other applications.

The 359 children (aged 5 to 8) of the study took part in a three-month play-based digital early literacy intervention implemented through community-based learning centres, after-school programmes, and educational initiatives in refugee camps. The 40 parents who participated in the focus group discussions represented 45 of these children. The digital platform used for literacy-learning was the English language

version of the Footsteps2Brilliance (F2B) application, designed to deliver educational content through interactive, engaging and playful formats (Rosenthal & Narciso, 2018).

Data Collection Tools and Process

The parent participants were organized into four distinct focus groups across two countries, and comprised 40 individuals whose children participated in the three-month digital play intervention programme. The research design incorporated four separate focus group discussions to ensure comprehensive data collection across different marginalized communities. In Karachi, Pakistan, two focus group discussions were conducted with nine and eleven Pakistani women respectively, totalling twenty participants. In Dhaka, Bangladesh, two additional focus group discussions were conducted with eight and twelve Rohingya refugee women respectively, also totalling twenty participants. This four-group structure enabled comparative analysis between different types of marginalized communities while maintaining cultural sensitivity in its data collection.

These parents were not present during the classroom interventions, but they received detailed descriptions of the interventions from supporting NGOs and observed their children's engagement in digital learning at home. Many of them visited outside the classrooms and interacted with the teachers before and after the classes. The parents were recruited during their children's initial enrolment in the intervention programme, and were all invited to participate in focus group discussions at the end of the three-month intervention period.

The four focus group discussions were conducted in parallel in both Pakistan and Bangladesh, and careful attention was paid to maintaining consistency in data collection procedures while accommodating the local contexts. These discussions were structured to last approximately twenty minutes, providing sufficient time for the participants to share their observations and experiences but remaining mindful of their other commitments. All the discussions were conducted in the participants' preferred languages – Urdu for the Pakistani participants, and Rohingya and Bengali in the Bangladesh sessions – to ensure they could express their views comfortably and authentically.

The parent protocol was designed to explore the participants' awareness and understanding of digital play-based learning, their observations of their children's engagement with the technology at home, and their perspectives on their children's learning and development. The focus group discussions followed a semi-structured format with nine primary topics: (1) awareness of the digital learning project in the school; (2) frequency of school visits and tracking children's progress; (3) familiarity with the concept of digital play-based learning; (4) use of technology at home (e.g., smartphones, tablets, computers); (5) purposes for which technology was used at home; (6) perceptions of digital play-based learning as an educational approach; (7) observed impacts of digital play-based learning on their children; (8) children's adaptation to the new methodology; and (9) perceived advantages and disadvantages of digital play-based learning.

The discussions were recorded, with the participants' consent, and subsequently transcribed verbatim to preserve the integrity of the responses. The transcripts were translated from Urdu, Rohingya and Bengali into English by translators who ensured that the educational terminology and concepts were accurately conveyed.

Analysis of Data

We employed the constant comparative method, a qualitative research technique central to grounded theory (Boeije, 2002; Glaser & Strauss, 1967), to analyse the focus group discussion data through a neo-ecological theoretical lens (Navarro & Tudge, 2023). This analytical approach began with initial coding as the focus group discussion transcripts became available. This was followed by systematic comparison of these initial codes across multiple dimensions. The analysis process was facilitated by

ATLAS.ti software, which supported the systematic organization and categorization of the qualitative dataset in accordance with the neo-ecological framework.

In practice, this involved first developing open codes that captured the parents' expressed perspectives on digital play, and then refining these into axial codes that reflected the connections between the perspectives and the contextual factors. Employing neo-ecological theory as our analytical lens, we paid particular attention to the interplay between the physical and virtual environments, recognizing how digital technologies create unique ecological dynamics within resource-constrained settings. Our coding process examined how the parents negotiated their children's simultaneous navigation of multiple ecological systems – from the immediate microsystems in which the digital learning occurred to the broader macrosystemic influences such as cultural attitudes toward technology and education. When contradictions emerged in the data, we employed negative case analysis to examine these instances, which was particularly valuable when we compared the perspectives of the refugee parents with limited prior educational access and those of the parents from communities with a more established educational infrastructure. Throughout the analysis, we systematically documented in ATLAS.ti how the parents' perspectives were shaped by the dynamic intersection of technological affordances, socioeconomic limitations, and educational aspirations specific to marginalized contexts. This structured yet adaptive approach enabled us to develop an understanding of parental perspectives while maintaining theoretical alignment with neo-ecological principles.

Results

The analysis of the four focus group discussions with 40 parents from marginalized communities revealed detailed perspectives on digital play-based early literacy-learning. The parents' views reflected complex interactions across multiple ecological levels, from immediate observations of their children's learning to broader concerns about educational futures.

Parents' Observations of Children's Learning and Development

Parents from both countries consistently reported observing significant changes in their children's language capabilities through engagement with digital play. Mothers from both rural Pakistani communities and Bangladeshi refugee settlements described pronounced improvements in their children's English language acquisition. One Pakistani mother explained with evident pride,

> My child didn't know the alphabet, but since she has started using a tablet, now she's able to read the alphabet well.

Several of the Rohingya mothers in Bangladesh noted their children's newfound ability to recite English nursery rhymes and use more English vocabulary at home.

The parents frequently described instances in which their children demonstrated English pronunciation skills that surpassed their own knowledge. As one mother from Dhaka explained,

> My child sometimes explains and corrects us that this is how it is pronounced. They correct our mistakes.

This reversal of the traditional knowledge hierarchy between parent and child emerged as a significant theme in the focus group discussions, with several parents expressing surprise at their children's rapid language acquisition.

Alongside language development, the parents observed their children developing digital competencies, despite limited previous exposure to technology. A mother from an urban slum in Dhaka expressed her astonishment:

> I was amazed when I saw my child being able to download programmes on nursery rhymes and sounds. I don't know how to do that but my daughter is able to do it.

The parents particularly valued this development in digital skills, viewing it as essential preparation for their children's futures, despite their own limited digital literacy.

However, in both countries, the parents consistently expressed concern about traditional writing skill development. One Bangladeshi mother articulated this worry:

> The advantage of this system is our children are able to learn easily and quickly. On the other hand, though, they can't learn to write.

This concern was especially pronounced among parents who anticipated that their children would eventually need to transition to conventional schools with no access to tablets.

Parents' Engagement with Educational Settings

The digital play intervention transformed how parents engaged with their children's education. Many reported increased involvements, despite socioeconomic constraints. Mothers in different settings described visiting the school more frequently, motivated by their interest in observing digital learning activities. As one mother from Karachi explained,

> [Every week] I come two or three times to the school and talk with the teacher about my child.

In Bangladesh, several mothers reported standing outside classrooms during sessions to observe their children's educational activities.

The parents consistently noted dramatic changes in their children's attitudes toward school attendance. A recurring theme across the focus group discussions was the children's newfound enthusiasm for education, with one Pakistani mother reporting,

> My son is really excited to come to school for this programme and focuses on his studies more.

This increased motivation was particularly emphasized by Bangladeshi parents: one mother explained:

> They don't want to go to coaching, but to this class they come themselves. We don't have to force them. I don't have to bring my kid to the class, he's motivated and keeps asking me when is it time to go to the class.

The intervention also created new forms of educational continuity between home and school environments. Despite limited access to technology, the parents described how their children attempted to transfer digital learning practices to their home settings. Several parents noted their children asking to use family smartphones for educational purposes, while others reported their children applying newfound digital navigation skills at home. As one mother from Dhaka shared with us:

> My child is able to open YouTube and go on to sounds and other programmes. I was amazed when I saw my child doing this.

This intergenerational knowledge transfer was particularly notable given the parents' own limited digital literacy, and many expressed surprises at their children's rapid acquisition of technological competencies.

Parents' Perspectives on Educational Systems and Resources

The parents demonstrated a sophisticated awareness of how the digital play interventions intersected with broader educational systems, particularly concerning future educational transitions. A consistent concern among the parents in both the countries was how their children would adapt to conventional educational settings after experiencing digital learning. A Bangladeshi mother articulated this directly:

> When they go to another school where they don't use this method, how will our children compete with other children?

The parents also expressed specific concerns about assessment practices and curriculum balance. Several Pakistani mothers questioned whether the digital intervention adequately prepared their children for traditional written examinations. One parent noted:

> We are all praising the tablet but not talking about other subjects. We should measure what students are doing in other subjects.

This reflected the parents' understanding of the broader educational requirements beyond the immediate digital intervention.

Resource constraints also shaped the parents' perspectives on the sustainability of digital learning. Although they valued the intervention, the parents in both countries recognized the limitations of their home environments for supporting the continuity of digital learning. One Pakistani mother suggested:

> If you let me know what the child is expected to do, we can help them at home

Which reflects the parents' desire to support educational continuity despite limited resources. Several parents requested expanded applications covering mathematics and local languages, indicating their desire for more comprehensive digital learning resources.

Parents' Cultural and Value Orientations

The parents in both countries navigated complex value orientations towards digital education, balancing traditional educational expectations with aspirations for technological advancement. One Pakistani mother captured this duality by stating:

> In today's context, this is extremely valuable for our kids and for their futures

reflecting a forward-looking perspective that was shared by many parents. Several parents explicitly connected digital literacy to future opportunities, with one mother noting:

> Yes, the coming era is one of technology.

However, these aspirational views were tempered by cultural concerns about appropriate technology use and supervision. The parents emphasized the importance of monitoring children's digital engagement, with one mother explaining:

> We shouldn't give it to them alone. We should supervise them. We should know what they're looking at, what they're listening to.

In addition to desires to monitor and observe, several parents expressed concern about children becoming overly reliant on digital devices, particularly regarding screen time and content access after, as well as during, the intervention.

The regional variations in the parent perspectives reflected different cultural and educational contexts. The Bangladeshi parents, particularly those from refugee communities with minimal prior access to education, showed greater enthusiasm for the digital intervention and fewer reservations. As one Rohingya mother explained:

> We are all aware of this, they started a very useful education system for our children. We hope that this digital learning project will help our children get better education in the future.

In contrast, the Pakistani parents, whose children had often previously been exposed to conventional education, more often evaluated the digital approach by comparing it to traditional approaches. One mother from Pakistan articulated a critical perspective:

> Students are getting weaker in written assignments, I've discussed this with the teacher as well. They were confused when it came to recognizing letters in the written test. They are young, maybe that's the reason. There should be a writing/written aspect in the programme.

This reflects how the parents in the communities with established educational traditions evaluated digital innovations against familiar learning outcomes such as writing proficiency, whereas those in more educationally marginalized settings prioritized access to any structured learning opportunity.

Despite these variations, the parents in all the communities expressed a desire for balanced educational approaches and did not completely reject digital innovations. One mother said:

> We do not want to stop the programme but do something to improve on it', reflecting the parents' nuanced approach to integrating digital learning into their cultural and educational values.

Conclusion and Discussion

Previous research on digital play in educational contexts has primarily focused on children's experiences (Lowrie & Larkin, 2020; Xie et al., 2021) and teacher perspectives (Pereira et al., 2023; Von

Gillern et al., 2022), and only a few studies have explored parents' perspectives (Johnston, 2021; Soyoof et al., 2024; Sulaymani et al., 2018). In this article, we have addressed this gap by exploring how parents from marginalized communities perceive their children's digital play-based early literacy-learning.

Our study demonstrates that parents in marginalized communities navigate complex considerations when engaging with digital play interventions for early literacy. Through a neo-ecological lens, these parent perspectives reveal dynamic interactions across multiple environmental systems, as they show sophisticated balancing of immediate educational benefits with broader cultural and practical concerns. The transformation of parent–child learning hierarchies, in which children become technological knowledge-bearers within family systems, illustrates what neo-ecological theory describes as bidirectional influences between personal characteristics and environmental contexts, creating new pathways for intergenerational knowledge exchange that transcends traditional microsystem boundaries.

In our study, the parents observed significant immediate benefits in their children's language acquisition and digital competency, but they also expressed concerns about traditional skill development, reflecting tensions between virtual and physical microsystems. The digital learning intervention created virtual microsystems in which the children engaged in complex proximal processes with educational content and symbols, while the parents observed these interactions from their physical home microsystems. These observations align with the findings of Liu et al. (2024) on the effectiveness of digital technologies for language development. However, our research reveals a critical tension specific to marginalized contexts: digital tools that effectively support new literacy skills may simultaneously challenge traditional literacy development in environments in which maintaining both learning pathways is particularly difficult. This tension highlights how technological interventions create overlapping learning environments that parents must help their children navigate, despite their limited resources.

The parents' observations of their children's increased motivation to attend school and engagement in learning expand on the previous findings of Deci & Ryan (2012) regarding the motivational impacts of educational games. The dramatic increases in the children's enthusiasm for education, reported in all the focus groups, suggest that digital play may serve as a particularly powerful motivational tool when educational opportunities have previously been limited or disrupted. This finding is especially significant given that low motivation and irregular attendance represent considerable barriers to educational success in marginalized communities (Shah et al., 2019).

Through a neo-ecological lens, the digital play intervention strengthened mesosystemic connections by creating new linkages between the virtual microsystem (digital learning platform), the physical home microsystem and the physical school microsystem. This three-way mesosystemic relationship represents a fundamental departure from the traditional two-system home–school connection. The children also engaged with virtual learning microsystems while physically present in their school microsystem, creating overlapping developmental contexts that later required the parents to mediate between virtual and physical learning environments despite their own limited experience with digital technologies.

The varying perspectives of the communities with different levels of prior access to education provide important insights into how local contexts and cultural value systems shape the reception of digital innovations. The parents in Bangladeshi refugee communities, where the children had extremely limited previous access to structured education, demonstrated notably higher enthusiasm and fewer reservations about digital learning than the Pakistani parents, whose children had prior exposure to conventional education. This is in line with the findings of Livingstone et al. (2017), as it demonstrates how marginalized communities actively negotiate between traditional educational values and perceived future needs rather than simply accepting or rejecting digital innovations.

A particularly significant finding concerns the transformation of parent–child educational interactions. Parents' descriptions of their children teaching them English pronunciation or demonstrating digital skills beyond their own capabilities represents a reversal of traditional knowledge hierarchies. This finding supplements those of Soyoof et al. (2024) on parental mediation by illustrating how digital interventions reshape family learning dynamics in resource-constrained environments, positioning

children as technological knowledge-bearers within family systems. It demonstrates how virtual microsystems can enhance personal characteristics that children then carry into physical microsystems, creating new opportunities for relational proximal processes between parents and children.

The perspectives shared by the parents in this study reveal how marginality shapes their engagement with digital play-based learning in distinct ways. Unlike parents in environments with more resources, who might primarily evaluate educational technologies on the basis of pedagogical preferences, the parents in our study navigated the practical considerations directly tied to their economic realities. Their evaluations balanced immediate learning benefits against everyday challenges – they wondered how digital skills would help their children in their educational settings, which had limited technology. The Pakistani mothers worried about their children transitioning from digital learning to traditional schools that emphasize handwriting and paper-based assessment, while Rohingya refugee mothers focused on how digital skills might create future opportunities for their children. These different concerns highlight that the parents' perspectives were influenced by their past experiences with education systems and what they believed would be valuable for their children's futures. Their careful approach shows that implementing technology in marginalized communities requires understanding the real-world constraints that families face when moving between different learning environments.

Our research ultimately reveals the sophisticated ways in which parents from marginalized communities evaluate educational technologies through multiple contextual lenses. Their perspectives transcend simple acceptance or rejection of digital innovations, instead demonstrating nuanced consideration of how these tools function within their children's broader educational ecosystems. The parents recognized both the transformative potential of digital play for early literacy and its limitations in resource-constrained environments. This balanced view challenges researchers and practitioners to move beyond technology-centred approaches towards more contextually responsive implementations that acknowledge the complex realities of marginalized communities. The insights gained from these parents suggest that successful digital literacy interventions must not only deliver engaging content; they must also address the transitional challenges that children face as they navigate between different learning environments with varying technological affordances. By understanding these parental perspectives, educators and policymakers can more effectively design interventions that bridge technological innovation with existing educational practices, creating more sustainable pathways for literacy development in marginalized contexts.

Limitations and Future Research

Several important limitations should be considered when interpreting these findings. The focus group methodology, while effective for capturing collective perspectives, may have limited the expression of minority viewpoints or concerns that the participants felt uncomfortable sharing in group settings. Although the focus on two specific cultural contexts provided rich comparative data, it may have limited transferability to other marginalized settings with different cultural and educational traditions. From a chronosystem perspective, our single time-point data collection does not quite reveal how parental perspectives evolve as digital learning technologies become more embedded within cultural contexts over historical time, representing what neo-ecological theory describes as macrotime influences on development.

To build on these findings, future research should explore several key areas. Longitudinal investigations could examine how parent perspectives evolve as digital play interventions become established within marginalized communities, and study how initial concerns and expectations align with long-term outcomes. Comparative research on parent perspectives in different types of marginalized communities would deepen our understanding of how cultural and socioeconomic factors influence the reception and implementation of digital play interventions. Investigating effective methods for addressing parent concerns about traditional skill development within digital play programmes would be particularly valuable for future implementation efforts.

Research on how parents with limited formal education can be effectively helped to mediate their

children's digital learning experiences could address a critical gap identified in this study. Such research directions could inform the development of more culturally responsive and parent-informed implementation strategies, in turn which could ultimately lead to more effective and sustainable digital play interventions in marginalized communities.

Practical Implications

The perspectives revealed in this study suggest significant practical considerations for implementing digital play interventions in marginalized communities. The parents' observations highlight the need for integrated approaches that support both digital and traditional skill development. Their specific concerns about writing skills and educational transitions underscore the importance of hybrid learning environments that maintain foundational practices while also embracing digital innovations.

The pronounced differences between the perspectives of the communities with varying levels of prior educational access suggest a need for contextually sensitive approaches to implementation. In settings in which digital play offers the first structured learning opportunity, implementation could focus on maximizing engagement and basic skills development. In contexts in which children have previously been exposed to conventional education, greater attention may need to be paid to ensuring a smooth integration into existing educational practices and to preparing for future transitions.

The parents' limited digital literacy, alongside their strong aspirations for their children's technological competence, indicates the importance of creating support mechanisms for parent engagement with digital learning. Simple guidance materials, regular opportunities for parents to observe, and clear communication about educational objectives could help bridge the gap between limited parental digital experience and their desire to support their children's learning.

Despite significant contextual challenges, the predominantly positive reception of digital play for early literacy-learning suggests substantial potential for carefully designed pedagogies based on digital play-based learning. By addressing parent concerns across multiple dimensions and remaining responsive to local contexts, digital play approaches can make meaningful contributions to early literacy development in some of the world's most challenging educational environments.

Declarations

Authors' Declarations

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Authors' contributions: All authors collaboratively designed the overall study framework and methodology. Lasse Lipponen identified neo-ecological theory as the relevant theoretical framework for the study. Lauri Pynnönen conducted the literature review, prepared the focus group discussion protocols and consent forms for parent participants in the intervention, and applied the constant comparative method for data analysis. All authors contributed to the data analysis process, with Lasse Lipponen and Kristiina Kumpulainen providing significant analytical contributions to develop the thematic narrative and theoretical interpretation of findings. Lauri Pynnönen served as the primary author of the manuscript, while Lasse Lipponen and Kristiina Kumpulainen provided substantial guidance, critical feedback, and editorial contributions throughout the writing process. All authors reviewed and approved the final manuscript.

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Informed consent was obtained from all the participants through a process that emphasized voluntary participation and the right to withdraw at any time without any consequences. As regards the parents in the refugee communities and urban slums, we took particular care to explain the purpose, process, and potential implications of the research in culturally appropriate ways and in their preferred languages (Urdu, Rohingya and Bengali). This approach acknowledged the power dynamics inherent in research in marginalized communities and we sought to create equitable, respectful relationships throughout the research process.

All the data were anonymized during transcription, and all identifying information was removed and pseudonyms used in the

reporting of the results. The data were securely stored and access was limited to the research team, in accordance with the data protection protocols established by the University of Helsinki Confidentiality was maintained throughout the research process and in all subsequent publications.

Our research embraced an 'ethics-in-action' approach (Hilppö et al., 2019), which recognized that ethical considerations extend beyond procedural compliance to include ongoing reflexivity and responsiveness to participants' needs and cultural contexts. This approach included regular reflection on our positionality as researchers and the potential impact of our presence in these communities.

Following data collection, we shared the preliminary findings with the participating communities in accessible formats and languages to provide opportunities to give feedback and to ensure that the representation of their perspectives was faithful. Throughout the process, we remained attentive to the specific vulnerabilities of the participants in resource-constrained environments and adapted our ethical protocols accordingly.

Publisher's Declarations

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Research Article

Fostering inclusive learning through bilingual drama-based storytime and UDL for young emergent multilinguals with disabilities

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Abstract: This study explores how drama-based storytime lesson activities in two dual-language bilingual education (DLBE) developmental preschool classrooms serving emergent multilinguals with disabilities (EMwDs) align with Universal Design for Learning (UDL) principles. Traditional, one-size-fits-all educational practices often create barriers for diverse learners, including young EMwDs, by designing lessons for an "average" student. Drama-Based Pedagogy (DBP), which integrates drama strategies into academic instruction, has been shown to support young children's language, literacy, and socioemotional development, particularly in early childhood settings. Similarly, UDL focuses on removing barriers to learning by designing instruction that accounts for learner variability through three key principles: representation, engagement, and action and expression. We argue that DBP and UDL offer complementary approaches that embrace learner diversity and promote inclusive, responsive, and accessible learning environments. This study was conducted as part of a larger professional development program designed to prepare early childhood teachers to integrate drama strategies into literacy instruction in DLBE classrooms. We analyzed drama-based storytime activities led by a drama teaching artist and a preschool educator in morning and afternoon developmental preschool DLBE classrooms, serving ten EMwDs. Using Vosaic software, we deductively analyzed 18 videotaped drama lessons. Findings revealed that drama-based storytime lessons align with UDL's principles of representation, engagement, and action and expression, while also creating unique opportunities for EMwDs to have their abilities recognized and to actively participate through multiple modalities in English and Spanish storytime lessons.

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Introduction

One-size-fits-all educational practices design learning activities for an "average" student and create barriers to learning for many students, including young emergent multilinguals with disabilities (EMwDs: We use the term "emergent multilinguals with disabilities" to (1) acknowledge the cultural and linguistic knowledge that students already bring across different language forms, including verbal and sign languages, and (2) draw attention to the socially constructed nature of disability). To address these barriers, bilingual drama-based pedagogy (DBP) and universal design for learning (UDL) offer complementary approaches that embrace learner variability and foster inclusive, responsive, and accessible learning environments for all learners. Although Glass et al. (2013) called for research on the intersections of the arts, including DBP, and UDL to support all learners, no studies have empirically examined these connections yet. Therefore, in this study, we examine how drama-based storytime lesson activities conducted in two dual language bilingual education (DLBE) developmental preschool classrooms align with UDL principles.

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Universal Design for Learning

UDL is grounded in neuroscience and existing research, such as disability studies, inclusive education, and culturally sustaining education (Center for Applied Special Technology [CAST], 2018; 2024). It aims to dismantle barriers to learning, such as curricular, environmental, and attitudinal, by intentionally designing curricula that consider learner variability and needs from the start (Waitoller & King Thorious, 2016). Crucially, the UDL 3.0 guidelines, developed by CAST (2024), aim to put UDL in conversation with other asset-based pedagogies by emphasizing learner identity as an aspect of learner variability and recognizing bias as a barrier to learning (Tucker-Smith, 2023). This is especially salient for young EMwDs, whose disability and language-related identities must be honored and sustained through instructional practices. Three UDL principles—multiple means of representation, engagement, and action and expression—guide the design and implementation of flexible curriculum objectives, methods, and assessments.

Multiple means of representation target the "what" of learning by ensuring students have multiple options to perceive, comprehend, and understand the content, focusing on 12 key considerations (CAST, 2024). This principle takes as its premise that all learners take in information differently. By targeting the "recognition" brain network (Glass et al., 2013), the principle of multiple means of representation involves presenting information in a variety of multisensory means and formats (CAST, 2024; Haley-Mize & Reeves, 2013). The guidelines for the principle of multiple means of representation include providing: (a) "flexible content that offers multiple modalities and perspectives," such as using props and manipulatives, pairing visuals with verbal instructions, and offering large-print or oversized books (CAST, 2024; Fundelius et al., 2023; Gauvreau et al., 2019, 2023; Haley-Mize & Reeves, 2013); (b) multiple options for "language and symbols," such as pre-teaching key vocabulary and incorporating translanguaging; and (c) multiple ways for learners to "construct meaning and generate new understandings," such as connecting instruction with prior knowledge and incorporating multiple ways of knowing (CAST, 2024).

Multiple means of engagement address the "why" of learning by considering the varied ways learners become interested and stay engaged in a lesson, targeting the brain's affective network (CAST, 2024; Gauvreau et al., 2023; Lohmann et al., 2023). Focusing on 13 key considerations, it includes: (a) "welcoming students' identities and interests," such as offering choices and using culturally and linguistically responsive instructional materials (CAST, 2024; Donegan-Ritter, 2017; Gauvreau et al., 2023; Lohmann et al., 2018); (b) providing options to support "sustaining effort and persistence," such as fostering collaboration and belonging; and (c) designing options for "emotional capacity," such as cultivating empathy (CAST, 2024). The updated 3.0 considerations of "optimiz[ing] relevance, value, and authenticity," "nurtur[ing] joy and play," address[ing] bias, threats, and distractions," and "foster[ing] collaboration, interdependence, and collective learning"—are especially relevant for young EMwDs as they support responding to and sustaining their language- and disability-related identities in classroom settings.

Finally, multiple means of action and expression target the "how" of learning by providing options for students to demonstrate their knowledge, focusing on 11 key considerations related to the "strategic learning network" (CAST, 2024; Glass et al., 2013). It includes designing: (a) "options for interaction," such as allowing students multiple ways to demonstrate their understanding (e.g., physical, verbal, pointing); (b) "options for expression and communication," such as using various media to express knowledge (e.g., drawing, movement, video) without hierarchy or bias; and (c) "options for strategy development," such as setting meaningful goals (CAST, 2024).

Previous Research on UDL

We conducted a literature review to explore how UDL has been used and described in early childhood and elementary years and identified six empirical articles (Craig et al., 2022; Katz, 2013; Lieber et al., 2008; Mavrou et al., 2013; Ostrosky et al., 2024; Smith Canter et al., 2017) and one systematic literature review (Ewe & Galvin, 2023).

Ewe and Galvin's (2023) systematic review of empirical UDL studies conducted in Europe focused

on school-age children, revealing positive improvements in the learning process, including increased motivation and engagement, improved student attitudes toward specific subject areas, and enhanced learning outcomes. Intervention studies based on UDL (Katz, 2013; Lieber et al., 2008; Ostrosky et al., 2024; Mavrou et al., 2013) also demonstrated significant positive learning outcomes. These gains included significant improvements in literacy (e.g., rhyming, letter-word identification, emergent writing, and picture naming), as well as in math and social skills (Lieber et al., 2008), active engagement, motor skills (e.g., jumping, kicking, and throwing), and social development (Ostrosky et al., 2024), and active student engagement (Katz, 2013). Additionally, Mavrou et al. (2013) found that early learners aged 3.5 to 5 generated more questions when provided with both symbols and words compared to words alone, indicating that multiple means of representation (i.e., words and pictures) were beneficial to young learners in developing their ability to generate questions.

Two studies (Craig et al., 2022; Smith Canter et al., 2017) designed professional development (PD) programs on UDL for K-12 teachers. The results indicated that teachers increased their use of technology and implementation of UDL practices. Additionally, teachers in the PD programs reported feeling more successful in designing accessible lessons for diverse students.

In conclusion, while there are few empirical studies on Universal Design for Learning (UDL)'s effectiveness across grade levels, no empirical research to date has examined its connection to drama-based instruction. Among these empirical studies, students with disabilities were included as participants (e.g., Mavrou et al., 2013), but no study included multilingual learners. This may be due in part to the siloed approach to educating EMLWDs, which often focuses on *either* disability *or* language-related needs. This study aims to contribute to this limited field of research by examining how drama-based storytime aligns with UDL principles.

Drama-based Pedagogy

Drama-based Pedagogy (DBP) involves integrating drama strategies into academic areas. Through improvisation, imagination, movement, and physical embodiment, learners engage in drama-based activities to bring the curriculum to life in the classroom. Crucially, DBP brings together the mind and the body through "active and dramatic approaches" (Dawson & Lee, 2018, p. 17) to support "academic, affective, and aesthetic learning" (p. 21). DBP is process-oriented rather than product-oriented and works toward social or academic goals for students.

Dawson and Lee (2018) identified characteristics of DBP, including (1) ensemble, or a community where learners feel belonging and acceptance; (2) imagination, or opportunities for students to explore new perspectives and opinions; (3) embodiment, or movement of the body to explore "new or imagined viewpoints" (p. 20); and (4) a narrative, or an opportunity for the teacher to structure these imaginative activities.

Previous Literature on Drama-based Pedagogy

The previous literature reveals the effectiveness of DBP on students' learning (e.g., Kilinc et al., 2023; Lee et al., 2015). Lee et al.'s (2015) meta-analysis encompassing 47 studies testing the effectiveness of DBP from 1985-2012 demonstrated DBP to be a broadly effective strategy for learners across age ranges, as a positive effect was shown across measures including 21st-century skills, attitudes toward the subject matter, attitudes toward others, motivation, drama skills, and absenteeism. Although all age ranges were included in the meta-synthesis, Lee et al. (2015) emphasize that a greater effect was found on early childhood and lower elementary-aged students. Studies specific to early childhood and primary grades emphasize academic benefits of DBP, particularly in the areas of literacy (Bernstein et al., 2024; Bucholz, 2015; Karaolis, 2023; Kilinc et al., 2023; van Huisstede et al., 2024), understanding of science concepts (Andersen, 2004; Walan & Enochsson, 2019), and foreign language acquisition (Mede & Vardar, 2021).

DBP has also demonstrated a positive impact on students' literacy learning, such as comprehension, vocabulary, and embodied behavior at story retelling (Bernstein et al., 2024; Deeg et al., 2020; Kilinc et al., 2017; van Huisstede et al., 2024). For example, Bernstein et al. (2024) found that preschoolers in the drama-

based storytime demonstrated twice as many embodied behaviors during story retelling, contributing to greater story comprehension as they recalled more story elements, compared to preschoolers in the typical storytime group. Similarly, DBP has been shown to enhance vocabulary development (Deeg et al., 2020; Karaolis, 2023; Kilinc et al., 2017; Mede & Vardar, 2021; Podlozny, 2000). For example, van Huisstede et al. (2024) found that DBP enhanced preschoolers' ability to recall vocabulary related to character emotions compared to the control group, attributing this improvement to the embodiment of these emotion words. These vocabulary gains may be in part because of the language-rich nature of drama contexts in which vocabulary is used in authentic contexts (Karaolis, 2023).

DBP has been shown to enhance early learners' science knowledge (Andersen, 2004; Walan & Enochsson, 2019). Walan and Enochsson (2019) used a pre-posttest design to analyze preschoolers' understanding of how the common cold is transmitted. While the students demonstrated varying degrees of understanding following the story without drama, they were more able to name vocabulary related to immune cells following the story with drama, as measured by drawings and interviews. Andersen (2004) utilized a DBP and Inquiry approach in which students role-played as scientists, finding that those using these strategies were significantly more able to label snail anatomy and describe proper snail care. Andersen (2004) attributes these gains to the situated learning provided by the DBP through its use of "as-if worlds."

DBP has also been shown to have non-academic impacts on early learners, including increasing problem-solving skills (Kayılı & Erdal, 2021), emotional development (Gao et al., 2022), and social inclusion (Karaolis, 2023; Kilinc et al., 2017; Mede & Vardar, 2021). For example, young learners in Kayılı and Erdal's (2021) study showed moderate gains in problem-solving ability with drama storytelling compared to non-DBP problem-solving instruction. Gao et al. (2022) found that DBP enhanced preschoolers' emotion management, social engagement, and confidence in their social interaction. Additionally, several studies highlighted how DBP creates engaging, playful contexts for young learners to interact with academic contexts (Bucholz, 2015; Karaolis, 2023; Mages, 2018; Mede & Vardar, 2021). These socioemotional benefits, taken with the academic benefits, position DBP as a valuable addition to the early childhood classroom.

Finally, DBP has been demonstrated to be a powerful tool for furthering inclusive practices (Karaolis, 2023; Kilinc et al., 2016; 2017) and allowing all students, particularly those who have been labeled with disability, to position themselves as capable and competent. Robinson (2013) found that only DBP was demonstrated to have positive academic and linguistic outcomes for students with disability labels. DBP demonstrated the importance of embodiment in providing students who do not always succeed in traditional (i.e., written or spoken) measures of competence with alternative means to participate (Bernstein et al., 2024; Karaolis, 2023; Kilinc et al., 2016; 2017). Kilinc et al. (2017) theorizes this may be due to the open-ended and embodied nature of the DBP instruction, in which there is no "right" answer, and students are free to demonstrate their learning through movement, words, or a combination of both. Crucially, when students are allowed this freedom in the ways they engage in the learning context, both students (Karaolis, 2023; Kilinc et al., 2017) and teachers (Kilinc et al., 2016) see competence in both themselves and each other.

Glass et al. (2013) argue that drama and UDL are natural partners, as both take learner variability as their premise. UDL can enhance DBP by promoting inclusivity and accessibility through thoughtful planning, while DBP inherently incorporates key UDL principles, such as physical expression (Glass et al., 2013). For example, DBP focuses on ensemble building, including various drama activities, such as warm-ups, circle exercises, drama games, and improvisation activities, to build community, facilitate collaboration, recruit interest, and enhance engagement (Glass et al., 2013). However, no empirical studies were found in our review to show how DBP and UDL align and contribute to each other. Exploring the intersection of DBP and UDL is important, as both approaches can address the needs of diverse learners, including those with and without disabilities. DBP offers an embodied, imaginative, and interactive learning experience that can enhance the accessibility of lessons when intentionally designed with UDL principles. At the same time, UDL can benefit from DBP activities, as they can offer specific strategies to implement UDL principles in practice. Together, these approaches can foster more inclusive, responsive,

and engaging learning environments for all children. The current study contributes to the growing body of qualitative research on DBP in early childhood contexts and empirical research utilizing UDL, aiming to expand the theorization of DBP to include explicit connections to UDL, thereby demonstrating its value when used with a wide range of learners. The following research question guided us: "How do drama-based storytime lesson activities conducted in two dual language bilingual education developmental preschool classrooms align with Universal Design for Learning principles?"

Method

Early Years Educators at Play (EYEPlay) Dual Language (Spanish/English) Learning Professional Development Program

The Early Years Educators at Play (EYEPlay) Dual Language (Spanish/English) Learning (DLL) Professional Development (PD) Program aimed to prepare preschool teachers to integrate drama strategies into their bilingual literacy contexts over a year. A professional theatre teaching artist (TA) knowledgeable in drama was paired with a preschool teacher. Using an apprenticeship model, the TA first modeled a lesson ("I do"), then co-taught a lesson with the preschool teacher ("we do"), and finally, the preschool teacher taught a lesson independently ("you do"); this process was part of a drama unit (Rogoff, 1995; 2003). The language of instruction alternated with each lesson. For example, if a model lesson was implemented in English, the team lesson was conducted in Spanish.

Each drama unit also included an in-service session during which all participating preschool teachers were taught the targeted drama strategy and collaborated with their TAs to plan the team lesson. After the team lesson, the TA and preschool teachers held a planning meeting to prepare for the solo lesson. Following the solo lesson, the TA and preschool teachers had a reflection session to discuss the drama lesson, focusing on the overall implementation, student participation, and responses.

Five drama units were completed over the year, each lasting one to two months. Each unit focused on a primary drama strategy: pantomime, traveling pantomime, magic bag, teacher in role, and group story building. These drama strategies were paired with language objectives (e.g., receptive and expressive language), curricular goals (e.g., problem-solving), or Classroom Assessment Scoring System (CLASS) instructional support dimensions (e.g., language modeling and concept development). In particular, the pairings were as follows: Unit 1) pantomime and language modeling; Unit 2) magic bag and concept development; Unit 3) teacher in role and expressive language; Unit 4) traveling pantomime and teacher in role with language modeling; and Unit 5) group story building and problem-solving.

Overall, 26 preschool educators participated in the larger professional development program, including 13 classroom preschool teachers and their 13 paraprofessionals. The study was approved by the Institutional Review Board. We obtained written consent from teachers, TAs, paraprofessionals, and parents for the children's participation and for videotaping the drama lessons. At the start of the activities, the TAs and researchers introduced themselves to the children in an age-appropriate manner. For example, in the classrooms described below, the TA and researchers shared their names and explained that the TA would be doing drama activities with the children, while the researcher would be watching and taking videos to learn more about what they were doing. The researcher also asked the children if it was okay for her to observe and record. No children refused to participate in the drama activities for the study below. To maintain confidentiality, pseudonyms were used for all participants, and all data were stored on a password-protected external hard drive.

Setting

As part of the larger EYEPlay DLL PD program, this study was conducted in two developmental preschool (developmental preschool serves children who are eligible for early intervention or special education services) DLBE classrooms, specifically the morning and afternoon classrooms, serving EMwDs in an urban public elementary school district in the Southwestern United States. These classrooms were selected because they served emergent multilingual preschool students with developmental delays and

were part of the larger EYEPlay study. The same preschool teacher and paraprofessionals taught in both classes. The classrooms followed a 50/50 Spanish-English DLBE model, alternating the language of instruction each day.

Participants

One English-Spanish bilingual early childhood special education lead teacher (Sofia-all names are pseudonyms) was sampled in this PD program, while two paraprofessionals (Rebecca and Elena) participated in the drama activities in the classroom. Sofia was a first-year DLBE early childhood special education teacher in her early twenties with no training in DBP. She self-identified as Latina, speaking Spanish as a first language. Rebecca was a paraprofessional in her early fifties with 17 years of experience working with students with disabilities. She self-identified as a mixed-race female. She did not have any formal training in teaching. Elena was also a paraprofessional in her mid-fifties with 15 years of experience. She identified herself as a Hispanic immigrant who spoke Spanish as a first language. She held a high school degree without any formal training in teaching. None of the teachers had a background in DBP or UDL.

Additionally, one TA (Martha), who self-identified as white, was bilingual in Spanish and English, and had eight years of experience teaching drama, participated in this study. She did not have a formal teacher education degree.

Ten culturally-, linguistically-, and ability-diverse students eligible for special education services participated in this study with parental consent. There were six children in the morning and four in the afternoon. Two students were female, and eight were male. Their race and ethnicity were reported as Hispanic or Latino (n = 6), White (n = 3), and Native American (i.e., Navajo) (n = 1). The students' primary languages were reported as English (n = 6), Spanish (n = 3), and English and Spanish (n = 1). Students' age ranges were 4.0 to 4.8 (n = 5) and 3.0 to 3.8 (n = 5). All students had developmental delay labels and were eligible for free and reduced lunch.

Data Collection

The first author videotaped 18 drama lessons throughout the year using a flip cam and a tripod. During the videotaping, the first author did not participate in the drama activities; instead, she stayed behind the camera as an observer to minimize disruption. To ensure high-quality recordings, the camera was positioned strategically to capture the entire activity, including teacher and student interactions. Eight lessons were conducted in Spanish, and ten lessons were conducted in English, each lasting approximately 15 to 30 minutes. Overall, the TA led five model lessons, the TA and the teacher co-taught eight team lessons, and the teacher led five solo lessons. Only three of the 18 from the first drama unit were conducted in the afternoon classroom.

Data Analysis

The transcripts of the videos were added as subtitles before the coding process began. The first author coded the 18 drama videos using a deductive approach (Creswell, 2013). UDL principles—engagement, representation, and action and expression—and their associated considerations (e.g., "nurture joy and play" and "support multiple ways to perceive information" [CAST, 2024]) were coded whenever a specific part of the video or section aligned with them. For instance, the drama song was coded as: "Drama songs: Engagement—welcoming interests and identities; nurture joy and play." In some cases, a specific activity was aligned with multiple UDL principles. For example, songs used to represent content were coded under both "UDL Representation—design options for perception; support multiple ways to perceive information" and "UDL Engagement—welcoming interests and identities; nurture joy and play." The first and second authors discussed the first author's codes during their weekly meetings to reach agreement and enhance the trustworthiness of the analysis. Specifically, the first author shared each section of the drama (e.g., the anticipatory set) along with a representative transcript and the associated codes. The second author then shared her perspectives, indicating agreement or disagreement, and offered additional codes when relevant. The authors used the UDL guidelines to inform their discussion and to resolve any

disagreements.

The Vosaic online tool (https://vosaic.com) was utilized to organize the codes and categories systematically. To better contextualize the findings, we represent the data based on a typical drama lesson structure.

Findings

Each drama lesson started with an anticipatory set, followed by a transition to the book or the activity, engagement with the text, a transition through a Magic portal (e.g., bag, dust, door) into the drama, the drama activity, exiting the drama through a Magic portal, and a closing activity.

We unpack these key drama components in sequence, demonstrating how they align with UDL principles by providing examples from various drama lessons.

Anticipatory Set

To prepare students for a drama activity, the anticipatory set started with a song in English or Spanish, depending on the language of the day, and continued with introducing new vocabulary and concepts related to the storybook or content. Multimodal and sensory elements, such as word cards, puppets, pictures, and sounds related to the lesson, were used for representation and engagement.

Songs

Songs were used to recruit students' interests, aligning with the UDL principle of "welcoming interests and identities" by designing "multiple means of engagement." Each drama activity began and ended with a drama song in English or Spanish to engage and prepare learners for drama time. Physical movements accompanied the lyrics, helping students engage with and remember the song. The TA and educators used two different drama songs, allowing students to become familiar with the songs while still providing them with choice regarding which song they wanted to sing for that day. For example:

> [Children were sitting cross-legged on the carpet, facing the theatre teaching artist (TA), who was also seated cross-legged on the floor directly in front of them.]
>
> TA: You guys get to choose a song today. We have two songs, don't we? We have one that says, "We're ready for drama time." [tapping her legs in rhythm with the song.] Or we have this one. "One pinky, two pinky." [Raising the right pinky finger, then the left pinky finger, in rhythm with the song].
>
> David: Yeah, yeah. [nodding his head excitedly].
>
> TA: That one? [pointing her finger towards him] You like that one?
>
> David: Yeah.
>
> TA: Okay, ready? One pinky, two pinky pointing at my brain, making curly swirlies. It's the imagination game. [While singing, she simultaneously raised her right pinky finger, then her left pinky finger, in rhythm with the song. She pointed both pinky fingers to her head and demonstrated curly swirlies. Then, she raised both hands to the top and lowered them to her sides in rhythm with the song].
>
> [Children were singing and simultaneously demonstrating the movements together with her]
>
> David: Again! [excitedly]
>
> TA: [without a pause, she started to sing the song again]. One pinky two, pinky pointing at my brain, making curly swirlies. It's the imagination game.
>
> [Children were singing and simultaneously demonstrating the movements together with her].

Here, the TA recruited the children's interest by offering a choice of age-appropriate songs to sing that nurtured joy (i.e., UDL engagement), which they demonstrated through their verbal and kinesthetic participation and engagement, including requests to sing the song again. Moreover, having the songs in English and Spanish embraced all students' linguistic backgrounds, aligning with the UDL representation consideration of cultivating "understanding and respect across languages and dialects." Furthermore, participation through movement also affirmed both linguistic and disability-related identities, as while some students could not verbally sing the song, they were still able to participate through their movement

(i.e., UDL Action and Expression). This affirmed their disability-related identities (i.e., communication modes) by honoring the non-verbal communication rather than insisting on verbal speech.

Introducing Key Words

In the anticipatory set, keywords in English and Spanish were introduced using multiple modalities, such as auditory, visual, and tactile, to enable each learner to access and understand the information. We identified that educators' ways of introducing keywords were aligned with "multiple means of representation," specifically by providing "options for perception" and "options for language and symbols." Providing "options for perception" involves representing information in multiple modalities to ensure all learners can access and understand it, while providing "options for language and symbols" entails clarifying vocabulary and symbols to enhance the accessibility of a lesson for everyone. Before reading the Spanish book "Monstruo Rosa" (Pink Monster) (de Dios, 2019), the TA introduced key vocabulary through facial expressions, gestures, repetition, segmenting exercises, and written words.

> TA: Vamos a read the story, pero primero vamos a aprender una palabra. (We're going to read the story, but first, we're going to learn a word). [making a surprised face].
>
> Children: Oh, oh.
>
> TA: Oh, oh. That's right.
>
> TA: La palabra es, di-fe-ren-te. Di-fe-ren-te. (The word is, di-ffe-rent. Di-ffe-rent).
>
> TA: Digan. [She placed her left hand on her ear, mimicking listening ears].
>
> Children: di-fe-ren-te.
>
> TA: Aquí es como se escribe. Sí, mira. Di-fe-ren-te. (Here's how it's written. Yes, look. Dif-fer-rent.) [Held a paper with "diferente" written on it and pointed to the syllabus while verbally saying it]. Contamos sílabas, ¿quieres? A ver. Di-fe-ren-te. (Let's count syllables, okay? Let's see. Dif-fer-rent). [Placing the paper on the board where the children could see it, and clapping her hands on her legs while counting the syllables].
>
> Children: Di-fe-ren-te [clapping their hands on their legs while counting the syllables].
>
> TA: Exacto. (Exactly)
>
> …
>
> TA: Son dos monstruos. (There are two monsters). [Showing the children a picture of the monsters from the book]. Dos. Uno y dos. (Two. One and two). [Pointing to each monster in the picture].
>
> TA: Son diferentes. Este monstruo. (They are different. This monster.)
>
> TA: ¿Es grande o pequeño? (Is it big or small?) [Holding her arms up to demonstrate "big," and then she made her body small and used her left fingers to show "tiny" to demonstrate small].
>
> Maria: Grande. (Big). [holding her arms up to demonstrate big].
>
> Everyone: Grande. (Big). [holding their arms up to demonstrate big].
>
> TA: Sí. Muy bien. ¿Este monstruo es pequeño o grande? (Big, yes. Very good. Is this monster small or big?) [Pointing to the small monster in the picture, she made a "tiny" movement and then held her arms up to demonstrate "big"].
>
> Maria: Pequeño. (Small).
>
> TA: Pequeño, sí. (Small, yes).
>
> Children: Pequeño. (Small).
>
> TA: Exactamente. Son diferentes. (Exactly. They are different).

This Spanish lesson, along with the English ones, followed a similar structure, aligning with the three UDL principles. The TA pre-taught the key vocabulary needed for the book (i.e., UDL representation: "clarifying vocabulary, symbols, and language structures") through multiple modalities (i.e., UDL representation: "supporting multiple ways to perceive information") (CAST, 2024). She demonstrated the meaning of *differente* by providing pictures of different monsters, using gestures, and allowing the students to say and segment the word. The Spanish lessons also provided unique opportunities to use and sustain Spanish-dominant EMwDs' home languages through UDL representation considerations, such as

"represent[ing] a diversity of perspectives and identities in authentic ways" and "cultivat[ing] understanding and respect across languages and dialects" (CAST, 2024). For instance, Maria, a Spanish-dominant EMwD, was highly engaged and responded to the TA's questions first as the Spanish lessons were culturally and linguistically responsive (i.e., UDL Engagement: "optimizing relevance, value, and authenticity") and possibly fostered her sense of belonging, as she saw her language represented in a substantial way through its inclusion in a read-aloud (i.e., UDL engagement: "foster belonging and community") (CAST, 2024). Furthermore, UDL Action and Expression— "varying and honoring the methods for response, navigation, and movement"—were simultaneously present as all students demonstrated their understanding both verbally and nonverbally through movement-based participation. Pairing words with movement has also been effective in language learning (e.g., total physical response practice) (Inciman Celik et al., 2021).

Engaging with the Text

After the anticipatory set, including the introduction of keywords, the educators transition to the storybook read-aloud. For example, in the anticipatory set of the book "Hiding Phil," (Barclay, 2013), the TA focused on the keywords about elephants, such as *big*, *huge, gigantic*, and *enormous*, and asked students where elephants lived, with the responses of zoo and jungle. She also used an elephant sound, pretending that the elephant was outside the classroom, to increase student engagement.

TA: Let's read the book first. It says, Hiding Phil. What does that mean to hide something?

Maria: [going down to the ground to demonstrate hide].

Sofia: Maria is going down [while bending to the ground, she demonstrated Maria's movement to hide].

TA: Oh, going down. [demonstrating going down].

Ryan: Elephant is making sound.

Ryan: Elephant is said "brr" [making an elephant sound].

TA: Sure did. I wonder if he's out there still. We'll find out soon enough. Hiding Phil.

…

TA: …That's very wonderful. Hiding Phil, look at this picture. [showing the picture to children].

Izaac: It's a picture of a bus.

Sofia: Picture of a bus.

TA: Picture of a bus? What's on that bus? Ryan, look at this picture. [showing the picture to Ryan].

Brian: An elephant. [pointing to the elephant in the picture].

TA: What's on that bus?

Ryan: People and [an] elephant. [pointing to the people and the elephant in the picture].

TA: An elephant on a bus? [with a high-pitched voice].

Ryan: Yeah!

TA: That's crazy. [with a surprised voice].

Isaac: That's crazy.

TA: Look, an elephant. An elephant… [with a surprised voice]. Look at his face. What does his face look like? [showing a surprised face].

Isaac: Surprise.

TA: Surprise, exactly. Let me see your surprised faces. [pointing to each child].

Children: [making a surprised face].

TA: [making a surprised face with children].

TA: It's an elephant. Oh, my goodness. Oh, ho ho! His name is Phil.

Isaac: Let's play with Phil. This is a town. There is a bus. [coming to the center and pointing to the pictures].

TA: That's totally right. Oh, my goodness, it does say, "Come play with us, Phil."

…

TA: [continue reading] Mom and Dad, we love Phil. [with an excited voice]. Oh, my goodness, look at their faces. [pointing to the picture].

Isaac: He's happy.

TA: He's happy. How do you know he's happy?

Ryan: Elephant is holding a doggy. [explaining what he saw in the picture].

TA: That's right, there is a doggy. The elephant is holding the doggy. [pointing to the picture]. How do you know he's happy?

Maria: The face.

TA: By his face.

Ryan: Excuse me, excuse me.

TA: Yes.

Ryan: Boys and girls, is said, "Mom, dad." [with a high volume].

TA: They did say that. [continue reading] Oh, oh. [with a surprised face].

Isaac: Oh, oh, there's a ducky in the bubble bath. [pointing to the pictures].

TA: There's a ducky in the bubble bath. Look at their faces. [pointing to the picture with a surprised face]. Oh, oh.

Children: Oh, oh. [demonstrating a surprised face].

…

TA: Do you think Mom and Dad are going to want--? [elephant sound coming from the classroom]. What is that noise?

Children: [making excited sounds, some close their ears, some turn around to see the elephant with surprised faces].

TA: …Wait a minute. Let me go see. There might be an elephant outside. [standing up].

Isaac: I want to come with you.

TA: You do?

Isaac: Yes.

TA: Let's go very quietly…Let's see if there's an elephant. Let me go first…Quietly, quietly. Do you see any--? Look. I see an elephant out there. [pointing to the window of the classroom door].

David: I want to see.

TA: [with a surprised and excited tone]. Oh my Gosh. It's a very big elephant.

David: I want to see.

TA: Look. Can you see him? He's right there. [pointing outside].

David: No.

TA: Yes, use your imagination. He's right there.

Max: I want to see.

Isaac: That's one pinky, two pinky. [started the drama song].

TA: Keep pointing at my brain. Making curly swirlies. It's the imagination game…

Children: [sing the drama song].

TA: I imagine an elephant right out there… Use your imagination. What should we do?

…

TA: Should we take him to breakfast with us?

Children: Yeah.

This example illustrates a clear alignment with the UDL principles by fostering engagement,

providing multiple means of representation, and acknowledging diverse forms of action and expression. The TA used dramatic expressions during the read-aloud to enhance engagement, sustain interest, and nurture joy. Children demonstrated their knowledge in diverse ways, such as Maria's movement to illustrate hiding, which the educators acknowledged, exemplifying the UDL consideration of "vary and honor the methods for response, navigation, and movement." This acknowledgment was particularly significant for Maria, a Spanish-dominant EMwD, as it validated her nonverbal participation during English drama time and fostered her sense of belonging. Additionally, children were allowed to move to point to the pictures to express their understanding. The elephant sound increased student engagement, evident in their excited facial expressions. These activities allowed children to transition to the "imagined worlds" central to DBP. When some children expected to see a real elephant, Isaac initiated the drama song, "One pinky, two picky," which can be interpreted as differentiating between real and imagination/drama time.

Magic Portal (Bag, Chalk, or Dust)

After the anticipatory set involving drama and engaging with the text, the TA and the teacher used a magic portal—a magic bag, dust, or chalk—to transform into characters from a story. The magic portal is a drama technique designed to help children formally enter the imaginary world of the story, either by becoming a specific character (magic bag or dust) or entering into a specific environment (magic chalk/door). In each instance, the children deepen their understanding by either assuming the physical elements and movements of their character (becoming bears and moving like a bear) or experiencing the sensory differences of the new environment (seeing ice on the door, opening it, and feeling a blast of cold air).

In the magic bag activity, children's attention was drawn to an imaginary bag on the ceiling containing all the materials needed to become a character. The class worked together to pull the bag down to the ground, and everyone took a piece of the magic bag to open it collectively. Educators scaffolded the students' brainstorming process, guiding them to identify what they need to become the characters. For instance, after reading the "Building a House" book (Barton, 1990), students became construction workers using a magic bag.

> TA: So now we know how to build a house. Oh, excellent. Now we're going to enter the magical world of imagination and become construction workers, right, Ms. Sofia?
>
> Sofia: Yes! We are going to be construction workers. Are you guys ready?
>
> Children: Yes.
>
> Sofia: First, we need to stand up.
>
> [everyone standing up in a circle].
>
> TA: Stand up.
>
> Sofia: Now, we need to get our magic bag. It's up there. [Looking up at the ceiling and holding her arms up].
>
> Sofia: Are you ready?
>
> Luis: I can't. [Jumping to try to reach the ceiling].
>
> Sofia: So, we need to pull on the rope. Are you ready? [Looking up at the ceiling and pretending to hold the rope of a magic bag].
>
> Sofia: One, two, three. Pull. [Pretending to pull a heavy magic bag, using expressive facial and body movements].
>
> [Everyone reaching the ceiling holding the rope pulls the magic bag down].
>
> …
>
> TA: All right, everyone. Let's open our bag. See it?
>
> [Everyone reaches for the bag, grabs a piece of it, and opens it together].
>
> Sofia: Wow, what do we have in here? We have a lot of [stuff]. [with a surprised face] We'll be construction workers…I see something that construction workers wear.

Gabriel: I got a hammer. [showing her hand to Sofia].

Sofia: You got a hammer. Let's get a hammer.

[Everyone pretending to take a hammer out of the magic bag].

…

Sofia: Let's put it on our--

TA: In our belts.

Sofia: In our belts.

TA: Yes, we got construction worker belts on.

Sofia: All right…What else do construction workers have?

Luis: [jumping with his finger up]. A hat. A hat.

Sofia: A hard hat. Let's get--

TA: Excellent idea.

Sofia: Let's get a hard hat.

[Everyone pretending to take a hard hat out of the magic bag].

TA: Why do we need a hard hat, you guys? Why do we need a hat? Why?

Luis: Because we need to build this house. [Walked to the board, opened the book, and pointed to the house].

…

TA: So, so far, we have our hammer in our belt, and our hard hat.

Gabriel: [is on the ground demonstrating a sawing movement].

TA: Oh, look. It looks like you're doing-- What is it?

Luis: We need the saw.

TA: Oh, well, we better get our saw. Get your saw, but be very careful because it's sharp.

[Everyone pretending to take a saw out of the magic bag carefully].

TA: I think we should put our saw behind us, just to be safe. We need to be safe. Safety first, okay? [demonstrating a movement of placing the saw behind themselves].

[Children pretending to place their saws behind themselves carefully].

…

Sofia: Now…I think we're ready to build our house. Are you guys ready?

…

TA: Okay. …but wait, we've got to close up our bags first. Close it up.

[Everyone pretending to close the magic bag].

TA: Now that nothing's in it, it doesn't weigh very much, does it? That means it's not heavy, right? Let's pull it up. Ready? One, two, three. Oh, there it goes. Excellent. [everyone pretending to pull it up to the ceiling].

In the magic bag activity, we identified connections to UDL principles of engagement, representation, and action and expression. The imagination aspect of the activity aligned with the UDL engagement consideration of "nurtur[ing] joy and play," as students were pretending to dress themselves in construction gear. Additionally, the cooperative nature of the activity fostered "collaboration, interdependence, and collective learning" as well as a sense of "belonging and community." Students built on each other's responses to collectively dress themselves. Regarding action and expression, the children demonstrated various ways of participating and expressing their ideas—such as demonstrating the use of a saw through body movements—which honored the principle of "varying and honoring the methods for response, navigation, and movement." This is critical, as Sofia and the TA did not privilege only the verbal answers but instead modeled multimodal forms of communication. The students took notice of this, as Luis built on Gabriel's sawing motion to state, "We need the saw," indicating he valued and understood

Gabriel's communication. Finally, this activity utilized multiple means of representation through "clarify[ing] vocabulary, symbols, and language structures,"; "cultivat[ing] language and respect across languages and dialects," and "connect[ing] prior knowledge to new learning." The TA clarified the vocabulary *hard hat* by asking students, "Why do we need a hard hat?" This functioned to differentiate a hard hat from other types of hats, like baseball caps or top hats. The collaborative nature of the activity also allowed students to use what they already knew about tools and construction (i.e., their prior knowledge) to the new vocabulary present in "Building A House."

Drama Part

The final drama unit utilized the technique of "group story building," where the book was read up to the point where a problem arose in the story. Then, the group stepped into the story through a magic portal (door, dust, or door) and worked together to solve the problem by brainstorming and acting out ideas. The last book, "The Gigantic Turnip," was about a turnip that grew to an enormous size, needing the grandfather and his family, including the grandmother, the dog, and the cat, to work together to pull it out (Tolstoy, 2005). The TA read the story up to the point when the grandfather and grandmother tried to pull the turnip together. Then, using the magic door, the TA guided the students to draw a magic door using magic chalk. The students suggested adding a door handle and a key to their door. Through this magic door, they entered the imaginary world of the magic garden, where they saw the enormous turnip and aimed to solve the problem together.

TA: Let's think about this. [pointing to the imaginary turnip on the ground]. We want to eat this turnip. We have to get it out of the ground so we can eat it [pretending to pull it out and to eat the turnip], and that's what? [showing her biceps with both arms raised, demonstrating her muscles].

Maria: Muscles. [showing her muscles with arms up].

TA: Muscles and our strength. [With an acknowledging tone, showing her muscles with arms up].

Brian: I can pull it out by myself.

TA: Do you think you could pull it out by yourself? Let's try, everyone. Let's grab the turnip, and on the count of three… [pretending to hold the turnip with both hands on the ground].

[Children pretending to hold the turnip with both hands on the ground].

David: No, one hand.

TA: Okay, you use one hand. Let's try to pull one, two, three. [Pretending to pull the enormous turnip up, using body and facial expressions to show struggles. Then, she fell to the ground]. Don't come out. Oh, my goodness, it stuck on the ground.

TA: What we're going to do?

…

TA: Let's think about it. Everyone, have a seat. I need your ideas to help me…. We're working on getting our turnip out of the ground… let's concentrate. Let's think: how can we get this turnip out of the ground?... It's just so big. We can't get it out with one hand or with two hands. [demonstrating pulling the turnip out with one hand and then both hands].

…

TA: Let's talk to our partners…Let's try bridges up. [holding her hands up].

…

Isaac: I want to try.

TA: You wanna try it? Okay, Isaac is trying. [Isaac, holding his hands up, touched his hands to the TA's hands as if forming a bridge].

[Everyone paired up and formed a bridge].

TA: Okay, so let's think about it. What can we do? Our question is, I wonder how we can get that turnip out of the ground. Okay, bridges down, now. What can we do? Let's think about. [pointing to her head to demonstrate thinking].

…

Brian: How about the rope?

TA: A rope? Brian, what will we do with the rope?

Brian: [coming to the center on his knees] I want [unintelligible] [pointing with his fingers to the imaginary turnip and making a small circle with his hand]- to the turnip when we pull it out.

TA: We would put the rope on the turnip and pull it out. Ahhh [Making a surprised and acknowledging facial expression] …I think that's a good idea now. Let's try that. Shall we try it?

Brian: Yeah.

…

TA: Alright, everyone, [looking behind and trying to find the rope] look behind you; there's a big rope [pretending to grab the big rope]. Let's grab our rope.

[Everyone grabbing their ropes from behind].

[David pretending to hold his hands up, showing he was holding something].

TA: [pointing at David's hands]. That's your big, thick rope?

David: Yes.

TA: Okay, grab it. Let's try it on the turnip's stem. Very carefully, tying on.

[Everyone pretending to tie their ropes to the turnip's stem carefully].

TA: Okay, is it strong?

David: No.

Isaac: Yes.

TA: Make it stronger. [David, on the ground, pretending to tie the rope stronger].

TA: Okay. All right, everybody, let's stand back over here.

TA: Let's grab some rope, everyone.

[Everyone in a circle around the imaginary turnip, pretending to hold the rope to pull].

TA: You guys ready? Okay, now, on the count of three, we're going to pull the rope and see if the turnip comes out. Ready? One, two, three pull. [Pretending to pull harder while staggering backward; speaking with a high tone of voice]. It came off the stem.

David: Oh, no.

TA: The rope slipped out the -

…

TA: You guys, listen. Today, we didn't get the turnip out of the ground…we can try that tomorrow because this turnip is stuck in here…. next time we're going to try again, okay?... What did we try? We tried to tie the rope, didn't we?

Brian: Yes.

TA: And what happened?

Brian: The stem came off.

TA: The stem came off, so next time we're going to think about another idea to get the turnip out of the ground.

TA: For now, we go to go back inside our magic door, right? Because it's time…Okay, get inside. Open your magic door.

Sofia: Open your door.

TA: We're going to go back into the classroom. Open, go inside.

David: No, stay aquí (here).

TA: Close the door.

David: No, stay aquí (here).

TA: Now you want to stay aquí? (here) [laugh].

David: Yes. Let's go.

TA: We'll come back now to the classroom. We'll come back to the magic garden another day, okay? We'll be thinking about that turnip because we need to eat it to get what?

The next day, the TA read the Spanish version of "The Gigantic Turnip" until reaching the same problem as in the English version, introducing the words "fuerza" (strength) and "nabo" (turnip) during the anticipatory set. Then, they entered the imaginary garden through a magic door activity and continued brainstorming how to solve the problem of pulling the enormous turnip out. David had an idea:

David: [putting his index fingers to his head]. Horns.

Sofia: ¿Lo vas a poner en el carro para que lo jale? (Will you put it in the car so it can pull it?)

David: Aquí. (Here).

[David moved toward the imaginary enormous turnip, pretending to be a cow by lowering his head to the ground and pushing the turnip with his head].

All educators: Ohh. [Showing a facial and verbal expression demonstrating an understanding of his movement].

Elena: Muy buena idea. (Excellent idea).

Sofia: Lo vas a querer sacar con los cuernos. (You'll want to take it out with the horns) …Esa es muy buena idea (That's a very good idea).

…

Sofia: Vamos a usar los cuernos, así como dijo David, vamos a usar nuestros cuernos para tratar de agarrar el nabo. (We're going to use the horns, just like David said; we're going to use our horns to try to grab the turnip). [Pretending to be a cow by holding her index fingers next to her head, pointing forward to mimic horns].

TA: Vamos a transformarnos en toros y yo sé cómo. (We will transform ourselves into bulls, and I know how). [making circles with left arm to increase excitement].

TA: Porque Ms Martha siempre tiene polvo mágico en el bolsillo, es verdad. (Because Martha always has magic dust in her pocket, it's true). [Putting her right hand in her pocket and quickly taking the magic dust out].

TA: …Cuando echo polvo mágico encima de tu cabeza, serás un toro con cuernos muy afilados. ¿Listo Sofia? Tú eres la primera. (When I sprinkle magic dust on your head, you will be a bull with very sharp horns. Ready, Sofia? You're the first one). [Pretending to hold magic dust onto her right hand] [Martha pretending to take a small amount of magic dust from her left hand and sprinkle it on Sofia's head]. Klinglinglingling [with a playful expression while sprinkling].

Sofia: Mira mis cuernos. (Look at my horns). [Sofia placing her index fingers on her head to show that she had become a bull.]

…

TA: Toro. Es eso él. ¿Quién más quiere ser toro? (Bull. That's him. Who else wants to be a bull?)

[Martha sprinkling magic dust onto all the children's heads, transforming them into bulls].

TA: Listos toros. A la de tres vamos a meter nuestros cuernos en el nabo. (Ready, bulls. On the count of three, we're going to stick our horns in the turnip).

[Being in the role of a bull, everyone pushed the turnip with their strength].

Sofia: ¿Estás lista? (Are you ready?)

TA: A ver toro, échate. (Let's see, bull, lie down).

[Their horns got stuck to the turnip, and they couldn't pull them out].

TA: ¿Ahora qué hacemos? (What do we do now?)

Sofia: ¿qué hacemos? (What do we do now?).

TA: No puedo. (I can't)

Sofia: No se puede. (It can't be done).

Elena: Ayúdanos., ayúdanos. (Help us, help us).

Sofia: No puedo sacar- (I can't get-).

TA: Estoy enganchada, no puedo sacar mis cuernos. Nuestros cuernos están enganchados. ¿Qué hacemos? A la de tres sacamos cuernos. Uno, dos, tres. (I'm hooked; I can't get my horns out. Our horns are hooked. What do we do?

On the count of three, we get the horns out: one, two, three).

[Everyone pulling their horns out of the turnip with struggling voices and body movements].

Sofia: No se salió el nabo. (The turnip didn't come out).

TA: No salió y ahora tiene muchos agujeros. (It didn't come out and now has many holes).

…

Everyone sat in a circle, and Marta pretended to blow magic dust from her hand onto the children to transform them back into children in the classroom. The second attempt was also unsuccessful, so they decided to try again the next day.

The next day, Sofia led the drama time as a solo lesson and brainstormed again how to pull the turnip.

Sofia: Can you guys tell me your ideas? How can we take out the turnip?

Issac: Together.

Sofia: Together?

Isaac: Yes.

Sofia: Yes?

David: Muscle.

Sofia: Then we use our muscles?

…

Sofia: How will you pull it together? Can you show me how you would pull it?

…

Sofia: …So, you'll go behind and pull and pull?

Elena: That's what he was saying. Yes.

David: Pull hard.

Sofia: All right, you know what? We're going to try that... Come on, Brian, behind David. Ven Maria. Aquí, atrás de él. (Come, Maria. Here, behind him). I'm right behind you.

…

Sofia: [To David] You want to be first? Okay. Go ahead. Brian, behind David. All right, show me how to pull it. Ready? You're going to pull it. Everybody, use your strength. Ready? Pull it. Ready? Show me. I'll be back, David, pull it. Pull. Everybody, let's go. Keep pulling, keep pulling. [Pretending to pull it together with struggling facial expressions and movements].

…

Sofia: Did it work?

Isaac: No.

Brian: No.

Sofia: No. [laughs].

Elena: What else to do?

Then, they tried the same thing a second time with more strength, and it worked. They pretended to eat the turnip to gain more strength. They used magic dust to transform back into students in the classroom.

These three-day drama lessons focused on group story-building activities aligned with UDL principles of engagement, representation, and action and expression. Representation, specifically "support[ing] multiple ways to perceive information" was evident when the TA and the teacher used physical representation to convey ideas and concepts, enhancing students' understanding, engagement, and participation. For instance, Maria, a Spanish-dominant EMwD, was able to verbally participate by saying "muscles" after the TA raised both arms to show her biceps, representing muscles and strength. This physical gesture provided Maria with the context she needed to understand the English word

"muscle." UDL engagement principles, particularly "nurtu[ing] joy and play," "optimiz[ing] choice and autonomy," "clarif[ing] the meaning and purpose of goals," "foster[ing] collaboration, interdependence, and collective learning," and "offer[ing] action-oriented feedback" was also evident throughout the drama activities. Through collective brainstorming of possible solutions to the problem—how to pull the enormous turnip out—and acting out the students' suggestions, the activity not only nurtured joy and play but also fostered collaboration, interdependence, and collective learning. Students were autonomous in their solutions, and the educators provided fun and age-appropriate feedback. For example, when acting out the suggestion of pulling the turnip out using a cow's horns, the TA said, "It didn't come out and now has many holes." Throughout the drama lesson, students' physical movements to participate and share their ideas, such as David's physical movement to suggest using horns to pull the turnip out, exemplified UDL's action and expression of consideration of var[ing] and honor the methods for response, navigation, and movement.

Using the Spanish language also supported "cultivate[ing] understanding and respect across languages and dialects" (UDL representation) and "foster[ing] belonging and community," particularly for Spanish-dominant EMwDs (UDL engagement).

Conclusion and Discussion

This qualitative study examined the connections between bilingual DBP and UDL by analyzing 18 drama-based lesson videos in two DLBE preschool classrooms serving only EMwDs. While Glass et al. (2013) argued for the alignment between UDL and drama using theoretical connections, this study empirically demonstrated that alignment. We found that the bilingual drama lessons, led by the teaching artist and teacher, incorporated all three UDL principles—multiple means of engagement, representation, and action and expression—as well as several considerations, making learning more inclusive, engaging, and accessible to all EMwDs. While UDL has been shown to enhance engagement and learning in the early childhood setting (e.g., Ewe & Galvin, 2023; Ostrosky et al., 2024), and DBP has been demonstrated to increase literacy skills, engagement, inclusion, and problem-solving (e.g., Lee et al., 2015; Kilinc et al., 2016; 2017), there is no empirical discussion of how they contribute to each other to fully include and teach all learners.

Bilingual drama-based storytime lessons incorporated UDL representation guidelines by: a) explicitly presenting information through multiple modalities, including visuals, body movements, gestures, facial expressions, real items, and pairing gestures with keywords; b) pre-teaching key vocabulary for the lesson; and (c) using bilingual instruction to represent and sustain EMwDs' linguistic backgrounds while cultivating understanding and respecting across languages. Through these lessons, all EMwDs, especially for linguistically minoritized students—Spanish-dominant EMwDs—had opportunities to engage with content in their home languages (i.e., UDL representation), making learning more meaningful and authentic, fostering their sense of belonging (i.e., UDL engagement), and allowing them to demonstrate their knowledge through multiple modalities, such as gesture, verbally, and pointing (i.e., UDL action and expression).

Bilingual drama-based storytime incorporated the UDL action and expression consideration of "vary[ing] methods of response, navigation, and movement," enabling EMwDs to participate through both verbal and nonverbal modes. For example, while Maria, the Spanish-dominant EMwD, was able to verbally participate during the Spanish drama lesson, she was *still* able to participate during English drama lessons through gesture and movement, which not only allowed her to communicate her ideas but also expanded her understanding of English vocabulary. Importantly, both her verbal and nonverbal contributions in both languages were acknowledged by the teaching artists and the teacher, fostering Maria's competence. If Maria had been in either an English-only or DLBE context without DBP, it is possible that her competence would not have been recognized, or she may not have been able to demonstrate her knowledge. This finding echoes other studies on DBP in early childhood contexts, which found increased gesture use and embodied learning in DBP lessons (Bernstein et al., 2024; Deeg et al., 2020; Kilinc et al., 2016, 2017). In turn, students' embodied behaviors not only enhanced their story recall, ultimately supporting comprehension

(Bernstein et al., 2024) but also allowed teachers to see their students as competent (Kilinc et al., 2016; Farrand, 2015).

EMwDs' multimodal participation further contributed to their competence, as other EMwDs acknowledged specific students' nonverbal contributions. For instance, Gabriel demonstrated a sawing movement to suggest that a saw was needed to become a construction worker in the magic bag activity. Luis, a classmate, recognized and verbalized the idea, positioning Gabriel as competent despite not sharing his idea verbally. The multimodal participation inherent in drama structures facilitated his competence. In alignment with this finding, Farrand (2015) also found that drama allowed students to communicate in diverse ways (e.g., acting out), contributing to their confidence, and that they were positioned as capable by their peers and the teacher.

The UDL-infused bilingual DBP lessons moved beyond translating English lessons into Spanish and vice versa to provide authentic representation and engagement with students' home languages. Karaolis (2023) demonstrated the ways DBP created a language-rich environment for students to play and experiment with the English language, a finding echoed in our study. However, the DLBE context of this study extends these findings to speakers of English and Spanish. We observed students playing with language in both Spanish and English, particularly students who were not dominant in those languages. For example, as previously mentioned, the Spanish drama lessons were culturally and linguistically responsive (i.e., UDL Engagement: "optimizing relevance, value, and authenticity") and fostered Spanish-dominant EMwDs' sense of belonging, as they saw their language represented in the content (i.e., UDL engagement: "foster belonging and community"). This was facilitated through the multiple ways content was presented (e.g., gesture, movement, verbally, facial expressions, interactions with real objects) and multiple ways students engaged with that content (e.g., gesture, verbally, pointing). We see the ways this benefited English and Spanish-dominant students alike, as their languaging practices and ways of being were authentically valued and taken up by their peers and teachers alike. We interpret this as an expansion of translanguaging pedagogy, which emphasizes how students use their full linguistic repertoire to make sense of the world and communicate (García, 2009). Our findings show that EMwDs engaged in multimodal translanguaging, using movement, gesture, and facial expressions to make sense of content and communicate across English and Spanish. This insight expands translanguaging theory by considering embodied multimodal communication as a critical meaning-making tool in bilingual learning contexts.

Bilingual DBP allowed EMwDs to engage in problem-solving (as demonstrated during the reading of "The Gigantic Turnip") through collaboration with peers and educators. This group story-building drama unit specifically exemplified the UDL's engagement consideration of "foster[ing] collaboration, interdependence, and collective learning," as all EMwDs contributed their ideas to solving the problem through multimodal participation, including movement and verbal expressions. This could also lead "foster[ing] belonging and community" in the classroom. Increased collaboration and belonging have been documented in previous studies on DBP, which are conceptualized as some of the components of inclusive education (Farrand, 2015; Kilinc et al., 2017).

This study's findings are particularly significant due to the DLBE preschool setting serving EMwDs. Although these two DLBE preschool classrooms were segregated self-contained classrooms that only served students with disabilities, they were able to employ linguistically and neurodiversity-affirming practices in a language-rich environment. These settings have been documented to utilize nonchallenging curricula with didactic, teacher-centered practices conducted in English (Bacon et al., 2016; Kurth et al., 2025). This is in part due to educational policy that does not accurately meet the needs of EMwDs (e.g., Cioè-Peña, 2017; de Valenzuela et al., 2016), leading to a siloed approach to education that attends to either disability or language-related labels. The bilingual drama-based lessons demonstrated that, when given engaging, linguistically affirming practices, EMwDs *can* engage with complex concepts, problem-solving, and literacy across languages. We ask ourselves, what more could these students have demonstrated if they had been exposed to instruction in an inclusive general education setting? What new ideas could have been generated with the collaboration of a more diverse group of students? Thus, we suggest that

integrating bilingual DBP into inclusive general education classrooms could provide even greater opportunities for peer modeling, collaborative problem-solving, and richer language development. Indeed, the TAs and classroom teachers utilized strategies easily replicable in general education classrooms, such as pre-teaching and segmenting vocabulary, as well as explicit instruction (Archer & Hughes, 2011) that would benefit all learners. Inclusive DBP teachers can continue to use realia to supplement the drama strategies and introduce concepts, leveraging the UDL principle of multiple means of representation (e.g., Gauvreau et al., 2019). Future research should explore how bilingual DBP can be leveraged in inclusive settings to support all students.

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Research Article

Ethical leadership: Early childhood center directors' perspectives and practices in a migrant community

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Abstract: This study explores dimensions of ethical leadership within the context of early childhood education (ECE) centers that serve families with migration experience in Florida, USA. The purpose is to understand what values and ethical principles are prioritized by the ECE center directors and how these principles are implemented. The datasets included interviews with six leaders at three centers about the directors' leadership, observations of the center's daily practices and reviews of policy documents. The data in this case study were analyzed by reflective thematic analysis. The findings indicated the directors' commitment and values regarding quality education to eliminate poverty, and their awareness of the cultural and experiential background of children in migration. However, some misalignments surfaced between the expressed values, ethical principles and the centers' daily operations, such as the limited presence of culturally responsive teaching. This research contributes to a deeper understanding of how ECE directors balance systemic policies with the holistic understanding of children in migration.

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Introduction

Ethical Leadership in Early Childhood Education

Leadership has a significant impact on the quality of early childhood education (ECE) and the implementation of pedagogy (Cheung et al., 2018; Fonsén & Lahtero, 2024; Fonsén et al., 2022). Ethical leadership can be seen as a core of leadership, as values and moral beliefs underpin all action and decision-making of leaders (Ballangrud & Aas, 2022; Sergiovanni, 1992). Various value demands challenge decision-making processes between organizational levels, which may hinder value transmission between levels of practices and administration (Fonsén et al., 2021; Leinonen & Syväjärvi, 2022).

The ethical dimension is integral to educational leadership and with this emphasis on ethics, ethical leadership can be seen as a value-based activity with a moral purpose. In practice, educational leaders are expected to adhere to ethical and moral standards in their leadership (Fullan, 2003; Murphy et al., 2017; Shazia et al., 2020). A leader's actions and values cannot be separated in ethical leadership (Goddard, 2003) which can create effective and cooperative educational communities (Strike, 2007). Therefore, it is important to consider ethical aspects at the administrative level of ECE (Fonsén et al., 2021). The centrality of leadership values and moral purpose promote the well-being and success of educational organizations (Day, 2005; Hanhimäki, 2011, 2024; Merchant et al., 2012). Ethical leadership has the same goal as educational leadership: to promote moral behavior among employees (Shazia et al., 2020). Considering the connection between ethical leadership and moral education, it is important to acknowledge that moral and

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character education have existed since people started to think about the characteristics of the next generation and its education because "societies need moral members and children to develop into moral adults" (Althof & Berkowitz, 2006, p.496)

The basis of educational leaders' professional ethics lies in their values (Hanhimäki & Tirri, 2009; Hanhimäki, 2011; Heilala et al., 2024; Husu & Tirri, 2007). However, educational leaders' practices, often contradict the values and principles they seem to hold, and this contradiction in value demands impacts decision making processes and actual organizational behavior (e.g. Castner, 2021; Fonsén et al., 2021; Hanhimäki & Risku, 2021; Leinonen & Syväjärvi, 2022). In addition, leadership in ECE predicts turnovers, many of them caused by moral stress (Heilala et al., 2024). At the same time, well-functioning leadership enables timely recognition and handling of morally stressful situations and supports the wellbeing of the whole community. Thus, both preservice and in-service ECE leaders should receive preparation for handling morally stressful situations through developing their awareness of their values and value-based leadership work (Eisenschmidt et al., 2019; Hanhimäki & Risku, 2021; Heilala et al., 2024).

Early childhood education can be perceived as a part of a wider societal and educational context where children are educated for future democratic citizenship according to global ethical guidelines and values. For example, since 2015 United Nations' Member States have followed the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) (United Nations, 2023). These goals aim to promote prosperity and protection of the planet by ending poverty, building economic growth and addressing social needs through education. One of the 17 goals is *quality education* that can contribute to ending poverty in a peaceful sustainable society. However, there are still many challenges to tackle before this goal is reached (United Nations, 2023). Ultimately, inclusive and equitable education calls for ethical leadership concerning the creation of an ethical educational community in which people "live well together and in which children learn how to live well together in the larger community" (Strike, 2007, p. 146).

Young Children in Migation[*] and ECE Service

Children in migration are defined as individuals who have moved across the country due to their caregiver's work in their childhood. In North America, many children in migration live in various rural, agricultural communities for the parents' seasonal work, and may experience poverty, language barriers, and limited access to services (Fakhari et al., 2023). For example, approximately 49% of the U.S. agricultural workforce, equating to approximately 2.5 million farmworkers, are undocumented (U.S. Department of Labor, 2022) which hinders their access to certain services due to lack of trust and fear of deportation. Common life experiences in these families and communities include a variety of familial, material, educational, cultural, mental health, and legal challenges. Research had extensively documented the needs and burdens of these families (Pulgar et al., 2016); however, less attention is given to the cultural and experiential wealth, the inner strength that these families hold (Smith & Johnson, 2022). Migrant families often exhibit a robust work ethic and high educational aspirations, imparting values of resilience and determination to their children, aiming to elevate their children's educational and career achievements (Smith, 2019).

To mitigate the challenges that families in migration face, quality ECE programs can promote sustainable societal peace and social cohesion by enhancing children's health, education, mental health, resilience to stress, and pro-social skills, with benefits extending into adulthood (ECPC, 2025). Historically, ECE for children in migration in the U.S. evolved from isolated practices (e.g. religious programs) to offer more opportunities for access (García & Frede, 2019). Research suggests that programs that build on families' cultural and experiential backgrounds have potential to contribute to children's development and well-being more effectively (Smith & Johnson, 2022). Thus, children in migration who have another tongue different from the country's main language benefit from quality multilingual programs which enhance

[*]Children living in migration contexts are human individuals living through childhood experience, first and foremost. Therefore, person-first language in this article acknowledges humanity above migration status (i.e. referring to *children in migration* instead of the common misnomer, *migrant children*).

children's cognitive flexibility and school readiness (Giambo & Szecsi, 2015; OECD, 2017). These program characteristics are aligned with UNICEF's *Agenda for Action* six priorities: protecting children from harm, ensuring access to essential services, keeping families together, preventing detention related to migration, combating discrimination, and promoting rights-based solutions (UNICEF, n.d.). Ethical educational leaders can mitigate the challenges families in migration face by providing quality programs that employ culturally responsive teaching which honors children's cultural and linguistic diversity.

Culturally Responsive Leadership and Teaching and in ECE

Culturally responsive school leadership refers to the act of school leaders engaging in and creating meaningful, valuable relationships with the learning community (Khalifa et al., 2016; Salazar Rivera, 2024). This approach suggests that family members and other actors in the community contribute to the education of children in a reciprocal and collaborative manner with schools. To achieve it, school leaders must engage in critical self-reflection to create culturally appropriate curriculum and pedagogy (Khalifa et al., 2016). In addition, culturally responsive teaching (CRT) emphasizes the importance of building teaching and learning on students' cultural characteristics, experiences, and perspectives (Gay, 2002; 2015; Howrey, 2020; Jantunen et al., 2025). From a pedagogical perspective, cultural responsiveness needs to be achieved not only by considering language and culture, but also by consideration for migration, and societal and economic status (Gay, 2015).

Early childhood professionals holding high ethical values play a vital role in supporting migrant families and their children's education in a culturally sustainable manner. While implementing the curriculum, ECE professionals can prioritize children's interests, previous knowledge and experience, and they can also integrate individuals from the local culture and actively collaborate with the community (Shih, 2022). Overall, the ethical stand which perceives diversity as an asset rather than a deficit is a key to enhancing sustainable, culturally appropriate action-oriented pedagogical practices. These pedagogical approaches consider social justice as a value that connects ethical leadership with culturally responsive school leadership and culturally responsive teaching, because ethical leadership has the potential for promoting social justice within organizations, such as early childhood centers (Chen et al., 2022; Gay, 2002; 2015, Khalifa et al., 2016; Lárusdóttir et al., 2021).

Leveraging the frameworks of ethical leadership and culturally responsive teaching in the context of education of children in migration, this study investigates ethical leadership in ECE centers in a rural migrant community in Florida. These centers serve predominantly children and families who immigrated from Latin American and who are mainly engaged in agricultural labor. To understand the ECE center directors' ethical values and practices with culturally and linguistically diverse children in migration, we aimed to answer the following research questions:

1. What are the directors' views about the values and ethical principles that drive their leadership and decision-making processes in ECE centers in a migrant community?
2. How do the ECE center directors' values and ethical principles align with centers' daily practices and the documents that regulate the centers?

Method

Participants and Context

This case study took place in three ECE centers which belonged to one non-profit organization offering education to young children in this migrant town. The three centers served 443 children aged between six-weeks and five-years old. Almost all children in these centers were Spanish-speaking children from Latin America whose parents were farmworkers. Two of the centers (Center 2 and 3) achieved national accreditation, and the third center (Center 1) which served children of teenage mothers maintained the state accreditation. Requirements for ECE in Florida are determined and enforced by the Division of Early Learning (Florida Department of Education, 2024). The town where the study took place experiences significant socio-economic challenges, including poverty rates which exceed twice the national average,

and limited infrastructure and services (e.g. no hospital in the town), and a high reliance on financial aid for ECE services (U.S. Census Bureau, 2020).

Convenience sampling was used to include professionals in leadership positions including directors, assistant directors, and curriculum directors in the three ECE centers. The participants included six ECE leaders: three center directors (Carmen, Fernanda, and Yesenia), two assistant directors (Carla, and Isabel), and one curriculum director (Jennifer) who worked with all three centers. All names are pseudonyms. Their experience as ECE leaders ranged from 6 months to 15 years. They were all Latina, bilingual in Spanish and English, except for the curriculum director (Jennifer) who was a Caucasian monolingual English speaker. All participants held bachelor's degrees in different areas including ECE, elementary education, and other fields. Two (Carmen and Fernanda - had master's degrees, and all had required credentials for a leadership position. In Florida, ECE directors must hold a current leadership credential, which requires the completion of the following: a high school diploma, a 30-hour training which includes Part 1 Department of Children and Families (DCF, 2025), Introductory Child Care Training, and eight hours of in-service training regarding children with disabilities. In addition, ECE directors must complete an approved childcare management course and possess additional experience and/or education courses focused on leadership and center management. A bachelor's degree is not mandatory but may be used to meet requirements (DCF, 2025).

Measures and Procedures

To answer the research questions, we used three sets of data: (1) focus interviews, (2) observation data, and (3) center-specific and state-required documents. The data collection took place between January and March of 2024. After the participants signed the Informed Consent forms, which were issued by the first author's university, we conducted one focus interview in each of the three daycare centers with the center directors for a total of three focus interviews. The curriculum director, Jennifer, was present for each interview. The structured interviews which lasted 45-50 minutes included seven demographic questions and 14 open-ended questions such as "What are the values you consider most important in ECE?", "To what extent and how are the pedagogical approaches that you utilize aligned with the pedagogies expected/regulated by the governing body(ies)?", "Are the expectations set by the state/governing body competing/misaligning to your values? If so, describe them." We also asked various follow-up questions, as were needed.

In addition, four weeks after the interviews, two members of the research team conducted a three-hour observation in each of the three daycare centers. This structured observation was guided by the categories and topics of the Infant/Toddler Environmental Rating Scale (ITERS) (Harms et al., 2017) and Early Childhood Environment Rating Scale (ECERS) (Harms et al., 2014), such as (1) Space and physical environment, (2) Health and safety, (3) Activities, (4) Interaction, and (5) Program structure. These ratings scales are the most current, comprehensive and validated assessment tools which are frequently used both in the USA and other countries (Betancur et al., 2021; Bjørnestad & Os, 2018). In addition, the items on the rating scales addressed areas which aligned with the interview questions regarding the participants' views on ethical values. Therefore, the interviews that focused on the participants' view regarding ethical leadership and the rating scale items allowed us to understand the relationship and alignment between their views and their practices. We did not score the specific items of ITERS and ECERS, but we used the expected features in an ECE program and took holistic descriptive notes on the features. Then, we synthesized the observation notes independently, discussed them with the other research team members, and audio-recorded the negotiated meaning of the observation notes. The focus interviews, the observation notes, and the synthesized conversations by the researchers were audiotaped and transcribed. To triangulate these datasets, we compiled documents that these centers used for operations which were handbooks for parents, daily center schedules, centers' newsletters for parents, a curriculum, and state regulations for early childhood centers and state-required learning standards.

Table 1
Summary of Data Sources

Focus interviews	Observation data	Documents
Focus interviews (N=3): Center 1: 2 directors* (Yesenia, Jennifer) Center 2: 3 directors* (Carmen, Carla, Jennifer) Center 3: 3 directors* (Fernanda, Isabel, Jennifer) *The curriculum director attended each interview Length: 45-50 minutes each and 20,450 words of the total transcript	*Three-hour observation notes in each center (N=3):* Total length of observation was 9 hours and 9,789 words, and 115 minutes of audio recording of the synthesis conversation based on the observation notes	*Center-specific documents:* Handbooks for parents Daily center schedules (N=3) Centers' Newsletters (N=3) Creative Curriculum 6th Ed. (Dodge et al., 2016) *State-required documents:* Florida regulations/ legislation for Early Childhood Centers (REF)

Research Design

In this single instrumental case study, we examined the ECE directors' views on ethical leadership and practices. ECE centers in a migrant town in Florida. This study design is meaningful to gain a deep insight into the research questions by studying the case of these three ECE centers' directors' views, and practices related to ethical leadership with three different datasets (Creswell & Poth, 2016; Stake, 1995).

For data analysis, we used reflexive thematic analysis that involves engaging with the dataset in a reflexive, recursive way to produce a robust analysis (Braun & Clarke, 2022). Usually, thematic analysis includes six stages: the creation of transcripts and familiarization with the data, identification of keywords, selection of codes, development of themes, conceptualization through the interpretation of keywords, codes, and themes, and finally, the development of a conceptual model (Naeem et al., 2023). The stages are guided by a systematic examination, interpretation, and reporting of a pattern-based analysis derived from a dataset (Braun & Clarke, 2022). First, we analyzed the focus interview data to understand the directors' views about the values and ethical principles that drive their decision-making processes in ECE centers. After reading the interviews several times, we identified seven theory-informed codes such as physical environment, interaction, activities, expected outcomes, language, culture, and decision-making which we organized into themes after interpretation of the codes. To understand the directors' views on values in practices, we cross-examined these codes and themes in the observational data. This comparative analysis between the ECE director's views and practices related to the centers' everyday operations was used to uncover both alignments and contradictions. Then, to contextualize and validate the themes from the interviews and the observational data, documents such as state regulations, center operational documents, and handbooks were examined. The robust data analysis of the three data sources resulted in three main themes as responses to the research questions: (1) Importance of a safe, nurturing, and welcoming environment, (2) Commitment to the community with limited cultural congruence, and (3) Roadblocks leading toward value contradiction. The results of this study are presented according to these main themes.

Findings

Importance of a Safe, Nurturing, and Welcoming Environment

The ECE center directors expressed the value and prioritization of a safe, nurturing, and welcoming environment to ensure quality education which would empower children and families to fight against poverty. Both the interviews and the observation data demonstrated an emphasis on physical and emotional safety in peaceful, age-appropriate spaces. The directors demonstrated care and respect towards the children, applying structured routines and procedures. "I think the most important, it's the safety of the children. I think that's a top priority", described Jennifer, the curriculum director. Similarly, Carmen reflected on how she, as the director of Center 2, had to prioritize the children first, ensuring a "healthy environment" where "everybody here is safe and prepared", including the teachers. Safety was also discussed in terms of addressing the concerns of the children and families alike and effectively managing the center. For example, Carmen described how the administrators need to ensure all children have

immunizations and their physical exams, and the overall organization of the center contributes to the safety of the children and staff. The directors reflected on treating children with respect emphasizing emotional safety as well. Carla, assistant director in Center 2 stated:

> For me, I think for the kids, my value is that we make this a positive experience, a nurturing experience, and that we help them reach their full potential in a loving, kind, you know, and helpful way for the teachers.

Fernanda and Carmen emphasized respect for children to support the relationship between the teacher and the children. Fernanda, director of Center 3, discussed

> I think that when you respect a child, you're able to engage them better…you create that bond and that connection between (the relationship).

Carla shared similar views about respect and integrity as essential values to her,

> Treat them with love, with everything they need, they know how to make a difference…

..she stated.

The interviews, observations, and document analyses revealed alignment of an emphasis and prioritization of safety and care within the classrooms and among the teachers, staff, and children. Most classrooms were welcoming environments with various age-appropriate activities and play areas, excellent organization, good lighting, and clean spaces as described by the directors. However, some observations conflicted with the emphasis on safety. For example, in Center 3 the researchers observed a cleaning solution with easy access to children and a high stack of chairs that was almost twice the size of the children. The emphasis on high-quality care, and safe, nurturing, and supportive environments was prevalent in parent handbooks, which included a specific section on health, safety, and emergency procedures. Information on physical and immunization records along with a sick child policy was also outlined with details. The daily schedules of the classrooms highlighted the importance of opportunities for children to interact with the environment in a variety of ways. For example, children in Centers 1 and 3 were given multiple "choice time" periods throughout the day that allowed for self-directed activities within the play areas. Overall, the directors' values aligned with the prioritization of safety and care as seen through some of the documents provided, and the importance of health and safety discussed during the interviews and described in the handbooks.

Commitment to the Community with Limited Cultural Congruence

The directors expressed a deep understanding of families in migration and a sincere commitment to serving the children and families of this community. All directors had lived in this town for many years, four of them grew up in a family which migrated as they harvested the crops. Some mentioned their values for education grew out of extensive direct life experiences with the reality of migrant life. Although only Jennifer, the curriculum director, could recall the mission statement which focused on eliminating poverty for children and families through education, all directors showed knowledge, empathy, and passion for serving this community. For example, Fernanda, who had been working in ECE centers for 17 years, emphasized her close connection to the children's parents:

> I grew up here in this community, so a lot of people recognize me. I run into parents…then we will start a conversation. I would probably say like 20 to 30% of my time, I am interacting with community members.

She often met with other community organizations to discuss the needs of the migrant families and collaborate on solutions, e.g. local housing, and available resources. Yesenia, who was the director of Center 1 that offered daycare for the babies of teenage mothers to allow them to graduate from high school, emphasized the importance of quality childcare programs, assistance, and education for these young mothers. Her priority was to meet children's and families' basic needs first and interact with them respectfully. Isabel, who was an assistant director in Center 3 for only 6 months, described the family's experience and her commitment to them:

> Seeing the needs with my two eyes, not on the TV, parents that work in the fields, and how they [children] probably have the last good meal… here. And knowing that probably mom or dad are going to get off from work at seven at night. And then they [children] have to go home with their Auntie or somebody else and then wait for mommy. …the

> parents are going home and keep on going, you know, just working so hard. And then seeing myself on the other side, I just felt that I had to work harder just for them, for those kids. Because the parents come from another country, they are working really hard to move forward. For the children to have a better life. So that's something that really encouraged me to continue growing.

Although these directors were aware and knowledgeable about this community's life and needs, the observations and the reviewed documents failed to indicate pedagogical approaches responsive to the nature and characteristics of this community. In this town, more than 95% of families are Spanish speaking, out of which a significant portion of the population is relatively new immigrants from Latin America and earns wages below the poverty line. Although the Creative Curriculum (Dodge et al., 2016) which all centers use as the guiding curriculum, emphasizes bilingualism and cultural diversity, the classrooms and the activities during the observation had no connection to the Spanish language or any Latin American cultures. Except for teachers in the Infant room, all teachers in other classrooms used only English for communicating with the children, though all teachers were Spanish English bilinguals.

In the interviews, Yesenia acknowledged the importance of hearing the home language at the center as a comfort for the children, but she also stated that English was the language of instruction. This showed conflict between her personal beliefs and professional practices which were mandated by higher administration. The Florida licensure documents (Department of Children and Families, 2019) which included the mandatory standards for operating a childcare program had no expectations regarding cultural or linguistic appropriateness in a program. In addition, the informational materials for the parents, such as the handbook, and the newsletters and the messages including the daily schedule on the classroom board were all in English only. During the observations, there were limited indications or references to cultures other than the mainstream American culture either in the physical environment or in the interactions and activities. Multilingual and multicultural materials, books, and activities that would harmonize with the culture of children in this community were absent. Although not observed, Carmen, the director in Center 1 narrated approaches for respecting the cultural values of the families:

> Hispanic families… love to have children with long jewelry, they are part of the culture, for example a long necklace with their names, because relatives give it to them. But we know… they can be a hazard when they go to the playground. Even if we tell the parents please take that they say no, that is that is part of the culture. The only way that we can address that, because it's also religious… We always keep the necklace inside; the teacher makes sure that the necklace doesn't go out when they go outside.

All directors expressed their strong and genuine commitment to the betterment of children and families in migration and made some attempts to navigate between the cultural contexts of the children and ECE program. However, it seemed the centers' organizational structure with the daily implementation of the mandated curriculum hindered the realization of ECE professionals' values toward a culturally and linguistically responsive approach.

Roadblocks Leading Toward Value Contradiction

A hierarchical structure with a top-down approach, which the directors described, seemed to dictate and impact their decision-making which hindered the overall alignment between the directors' values and classrooms, interactions, and activities. The directors mentioned how expectations and accreditation processes are set by outside entities, such as The Department of Children and Families (DCF) and the Early Learning Coalition, The National Association for the Education of Young Children (NAEYC), and the Florida Division of Early Learning. These mandates and standards in Florida force compliance. The directors supported the state standards because they felt these expectations ensured children's readiness for school. However, the mandated assessments and extensive testing procedures required by the state of Florida raised concerns among the directors. They understood that compliance with these assessment requirements were prerequisites to receive funding from the state; however, they all discussed the stress and loss of educational time they experienced. These directors expressed that their values, such as integrity, transparency, play-based learning, and respect and love for children and families were often jeopardized by the need for compliance with state regulations.

In addition, the upper administration - board members for the non-profit organization - made

curricular decisions which were passed to the center directors, as described by Yesenia's words:

> Every quarter our senior director meets with our board members and our administration, higher administrators, and they set some goals for the year, and we just try to stick by those and hope that we could not only achieve them, but you know, go above them.

Jennifer, the curriculum director, echoed a similar process, describing how the broader organization set the expectations for the centers, allowing for ECE center directors limited involvement. The directors seemed disconnected and excluded from the decision-making processes, which might explain why they were unable to recall the mission and vision of the organization. Jennifer shared a specific example of one board member who required the centers to use a certain alphabet book created by his/her friend. Jennifer elaborated on the inappropriateness of the book due to the lack of "real pictures of different cultures", but she added that they needed to adopt the book because their budget relied on the donor's contribution.

Despite all these external pressures, the directors stated that the curricular decisions and pedagogical approaches that partially came from the upper administration reflected their values. Regarding these pedagogical approaches, Carla described integrating a "child-guided" approach, providing opportunities for the children's interests to guide instructional activities. She also emphasized how their "curriculum is play and exploration based". Yesenia also described hands-on, sensory, and playful activities which were guided by the Creative Curriculum (Dodge et al., 2016). In addition, Fernanda discussed how the curriculum mirrors her values when she could incorporate Conscious Discipline, a social-emotional learning program (Bailey, 2021) that used rituals and focused on children's feelings.

Although the directors described alignment in values with the curricular standards, expectations, and daily operations, the observations uncovered some contradictory events and behaviors. For example, in two centers (Center 1 and Center 3), there were neither music areas nor sensory tables (i.e., water, light, sand, etc.), which hindered children's participation in sensory and artistic explorations. Although books were displayed in each room, most were Disney princess books rather than more age-, culturally-, and linguistically appropriate books. In addition, literacy skills, e.g. writing, and letter recognition were encouraged and nurtured; however, the specific activities that we observed were scripted without allowing diverse responses, ways of expression, and creativity for the children. In certain rooms, e.g. in the infant room in Center 1, the interaction between caregivers and babies was warm, supportive, age-appropriate, and mainly in Spanish. On the other hand, in a room for 4-year-olds in Center 1, the lack of vivid, scaffolded interaction between teachers, staff, and children was noticeable. An emphasis on extreme structure, and scripted activities were often seen in several rooms in all centers versus an exploratory setting with flexibility and focus on children's interests. Overall, the everyday operation and the classroom environment often did not necessarily align to the values described by the directors.

Conclusion and Discussion

This case study offers new insights into ECE directors' ethical leadership principles and their alignments with practices in a specific cultural context. No prior empirical research examined ECE directors' views related to ethical leadership in a migrant community. This unique setting allowed us to consider the interconnection of ethical leadership and the culturally responsive teaching practices in a migrant community. Overall, this study calls attention to the critical examination of micro- and macro-environments in which ECE directors work and hold certain values and ethical principles. In addition, this study points to the timeliness of the topic of exploring values and ethical principles that determine pedagogical practices in a time of rapid political changes.

In this study, directors expressed strong commitments to culturally responsive teaching (CRT); however, systemic constraints limited their ability to implement these values fully. In ethical leadership, there must be interconnection between an individual's and communities' actions and the values they uphold (Goddard, 2003). Specifically, ethical leadership is closely tied to social justice (Gay, 2015; Khalifa et al., 2016). The directors emphasized the importance of education for eliminating poverty for the families in this community. This moral principle aligned with the 2030 Agenda for Sustainable Development and

the Sustainable Development Goals (SDGs) which highlights quality education as a way eliminate the cycle of poverty (United Nations, 2023). Ethical leadership has a specific role promoting the well-being and success of educational organizations which ensure social justice and sustainability (Day, 2005; Hanhimäki, 2011, 2024). However, a conflict may emerge when leaders' values and values of external authorities such as governing boards differ, as was found in this study. This conflict between a leader's internal values and values from external sources has an impact on the whole organization's well-being (Heilala et al., 2024).

The directors in this study prioritized safe, nurturing, and inclusive environments for children, aligning with research that positions value-based leadership as central to ethical decision-making (Fonsén et al., 2022). However, directors faced institutional constraints that limited the full implementation of pedagogy that is reflective of the community. While they recognized the importance of maintaining children's linguistic and cultural identities, external decision-makers and state policy mandates and standardized assessments prioritized Englishonly instruction, reinforcing assimilationist models (Brown, 2015; Giambo & Szecsi, 2015). Moreover, directors navigated hierarchical structures where policies, funding, and accreditation requirements restricted autonomy. These constraints shaped decision-making in ways that often conflicted with directors' ethical commitments. These families which were served by a non-profit organization were predominantly Spanish speaking families with limited financial resources. The directors' awareness of the needs of families in migration and their commitment to the community in general emerged, since several of them had similar backgrounds. This existing understanding of children and their own background which is an essential criterion for cultural appropriateness could have fostered an ECE program that is reflective of the community (Gay, 2015; Howrey, 2020; Jantunen et al., 2025; Kim & Connelly, 2019). Despite directors' culturally affirming values, observations revealed limited implementation of culturally responsive practices. Research suggests that aligning leadership values with pedagogical practices requires intentional strategies (Gay, 2015; Fonsén et al., 2022). In this study, while directors emphasized inclusive education, classrooms lacked Spanish-language books, bilingual materials, and culturally reflective activities. These elements, in addition to environmental print, multilingual greeting practices, would be essential for the implementation of CRT (Gay, 2002; Jantunen et al., 2025). This misalignment may be attributed to external pressures for compliance with state mandates, limiting flexibility in instruction. The participants emphasized the need to focus on essential elements which make the center function. When leadership prioritizes compliance over culturally responsive engagement, opportunities for meaningful inclusion are diminished (Fonsén et al., 2023). In addition, as academic demands increase in younger grades, the pressure placed on center directors may trickle down to the teachers, resulting in less developmentally appropriate and culturally responsive practices in classrooms which may be hyper focused on policymakers' reforms (Brown, 2015). From an even broader view, the current political climate, which includes recent attacks on diversity, equity, and inclusion in addition to the immigration policies, parental rights bills, book bans, and censorship, may restrict educators' decision-making regarding curriculum selections, teaching approaches (Kuelzer-Eckhout et al., 2024). Overall, these factors might contribute to hidden curriculum of assimilation, reinforcing systemic inequities in education.

The limitation of the study is the inclusion of relatively few participants, although the rich data allowed us to answer the research questions in a comprehensive and meaningful way. In addition, more extensive observation might have yielded deeper insights; however, this does not undermine the validity of the current observational data. Although this case study does not offer generalizable findings due to its design, based on the findings we offer implications and recommendations that could be relevant to similar educational contexts.

The ECE directors and teachers should be given more freedom (i.e. not using a pre-packaged curriculum, less assessment through the district protocol) for making program-related pedagogical decisions based on their awareness and knowledge related to the cultural assets that migrant families possess. It is important to trust and utilize the director's cultural, linguistic and experiential backgrounds in the implementation of culturally responsive teaching, especially when they share the children's backgrounds. At the same time, limiting decision-making power in programmatic and curriculum decisions for external authorities who have no pedagogical background, might increase the quality and the

cultural responsiveness of the ECE programs. Consequently, a curriculum which is developed by the directors and teachers with consideration of the nature of the local community and population would be important. Instead of adopting a generic curriculum, a locally developed curriculum that reflects the specific community could foster children's growth and development through affirming their culture and language. Regarding changes in policy, we acknowledge that until top-down structures are in place for efficiency and accountability, it can feel daunting to revise these policies. However, small adjustments in practices, such as selecting curriculum which amplifies child participation/voices, encouraging directors to collaborate with their staff on how to personalize lessons or creating forums for parent input, can create meaningful progress without drastically changing current systems. By empowering grassroots stakeholders, it is possible to achieve compliance while also honoring the values of the communities served.

By encouraging input from the people closest to the children (i.e. parents, teachers, and directors), leaders can foster an environment of trust and shared leadership. This approach not only strengthens outcomes for children but also demonstrates a commitment to belonging and fairness. Therefore, culturally-embedded ethical leadership requires ongoing discussions and assessments which may be informal, formative and/or summative to achieve authentic ethical leadership.

For all these recommendations above, it is essential to empower directors and teachers with knowledge and competence to implement an ethical and culturally responsive program. A specific comprehensive preparation for understanding the intersection of values, ethical principles, culture, language, socio-economic status, immigration status and prior experiences could enable directors and teachers to feel confident to act according to the principle of social justice. It is vital to allow them to use these skills to advocate for culturally and linguistically responsive ECE programs. As a result of this advocacy ECE centers may be places where children feel seen, valued, and understood because of the bridge between home and school.

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