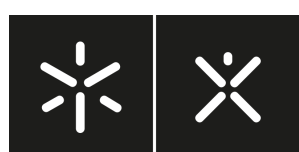


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Child Studies is an international peer-reviewed journal which publishes empirical and theoretical articles focusing on children's social contexts and relations in everyday life, taking a holistic perspective. This journal is a multidisciplinary forum for sharing and discussing issues such as children's rights, development and well-being, generational and intergenerational relations, and the broad societal, political and cultural aspects impacting children's lived realities.



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**EDITORIAL – CHILD STUDIES AS A POLYCHROME
MOSAIC OF PERSPECTIVES**

**EDITORIAL – OS ESTUDOS DA CRIANÇA COMO UM
MOSAICO POLÍCROMO DE PERSPETIVAS**

Rui Ramos

Research Centre on Child Studies, Institute of Education,
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The journal Child Studies is publishing another issue, once again comprising a diverse range of contributions from theoretical and applied perspectives. The papers included in this sixth issue illustrate the relevance of the field and its multiple and multi/interdisciplinary dimensions, in line with the multi-perspective approach of this journal. This field of study is generated from a polychrome mosaic of perspectives, unified by a common focus: the child.

The first paper of the issue presents a study that differs from the standard format of papers. It is a collaborative article exploring child-centredness as a theoretical and methodological concept. It reflects on what it means to centre children in research. Their 14 authors offer a set of complementary and questioning points of view, challenging us to rethink the way we do research and to densify our view of the object of study.

The second paper, authored by Joana Cruz, Diana Brito, Maria Catarina Pinho, Bruna Rodrigues and Irene Cadime, offers a reflection on children's reading mechanisms, with a particular focus on reading proficiency. Proficiency in reading is defined as the ability to read a text with ease, expressiveness, intonation, appropriate pauses and accuracy. The authors seek to establish a correlation between prosody, a variable that has been previously studied in other cases, with motivational variables, thereby expanding the scope of the study. The paper provides insights for educators, particularly in terms of fluency interventions.

The third paper presents an analysis of children's literature by Roberta Pinheiro Assé. Rather than focusing on literary production in isolation, the paper situates this within a broader dialogue with social scientific and comparative studies of childhood in Portuguese. This approach is informed by a commitment to listening to children's voices and to undertaking analytical readings of picture books. Furthermore, the text incorporates a comparative analysis of children's literature in

two Portuguese-speaking countries: Portugal and Brazil. This enables an intersection of perspectives.

The fourth paper, authored by Tamyris Caroline da Silva and Tania Teresinha Bruns Zimer, explores the perspectives of children from a state primary school in Brazil on the connection between play and mathematics. Rooted in qualitative methodologies, it seeks to capture children's perspectives through drawings, photographs, and group interviews. The findings yielded from this study offer significant insights into the manner in which children perceive mathematics, highlighting its interconnection with particular school environments (e.g., sports courts, playgrounds) and activities (e.g., chocolate-based fraction lessons). The paper culminates with the presentation of recommendations that advocate for the integration of play-based learning methodologies within pedagogical approaches to enhance mathematical education.

The next paper is authored by Inês Ferraz. She analyses reading issues in children with specific learning disorders. The author emphasises the role of reading skills in personal development and social integration, and points out that specific learning disorders affect a large number of school-age children, with the potential to compromise the future prospects of many of these children. The paper analyses the prevalence of this learning disorder, its possible causes, the diagnostic process, its consequences, and its warning signs for children from an early age.

Finally, the present volume includes a paper by Johanna Sjöberg. The author looks at how images of children are used, discussed and studied across different academic disciplines, in order to ascertain their relevance in research. To do so, she draws on a collection of 423 articles published between 2010 and 2023. The analysis reveals that the majority of studies do not focus on children's pictures in isolation, but rather on their appropriation for purposes that extend beyond the realm of image or artistic concerns.

As this almost telegraphic presentation suggests, the studies collected in this volume of the journal *Child Studies* show the plural and complementary perspectives that contribute to the construction of comprehensive knowledge about children today.

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N. 6, 2024

**CENTRING CHILDREN IN RESEARCH: A
COLLABORATIVE EXPLORATION INTO CHILD-
CENTREDNESS AS METHOD AND THEORY**

**CENTRAR AS CRIANÇAS NA INVESTIGAÇÃO: UMA
EXPLORAÇÃO COLABORATIVA DA CENTRALIZAÇÃO DA
CRIANÇA COMO MÉTODO E TEORIA**

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Abstract

This collaborative article explores child-centredness as a theoretical and methodological concept by asking what it means to centre children in research. The collaborative format offers a heterogeneity of voices on the concept as the contributing authors write, critically and creatively, from a range of different interdisciplinary research perspectives. Writing from the departure point of the key role of child-centred approaches within the field, including recent discussions concerning the need to decentre children/childhood, the goal is to spur and contribute to discussions on the possibilities and challenges of the concept, as well as new ways of approaching it.

Keywords: child-centredness, decentring, child research, child and childhood studies, collaborative writing

Resumo

Este artigo colaborativo explora a centralidade da criança como um conceito teórico e metodológico, perguntando o que significa centralizar as crianças na investigação. O formato colaborativo oferece uma heterogeneidade de vozes sobre o conceito, uma vez que os autores que contribuem escrevem, de forma crítica e criativa, a partir de uma série de diferentes perspectivas interdisciplinares de investigação. Escrevendo a partir do ponto de partida do papel fundamental das abordagens centradas na criança dentro do campo, incluindo discussões recentes

sobre a necessidade de descentralizar as crianças/infância, o objetivo é estimular e contribuir para discussões sobre as possibilidades e desafios do conceito, bem como novas formas de o abordar.

Palavras-chave centralidade na criança, descentração, investigação sobre a criança, estudos sobre a criança e a infância, escrita colaborativa

Introduction

Centring children in research has been a common feature of research within child and childhood studies since the 1980s as an endeavour to recognize children in their own right, not primarily as, for example, part of the family unit (cf. James & Prout, 1990; Qvortrup, 1985). This has often involved participatory methods and methods oriented around children's perspectives; for example, under the name of child-focused research (James & James, 2012). However, it can also entail centring children as the primary research concern with the help of concepts such as a child perspective (cf. Halldén, 2003) or childism (Wall, 2023). However, child-centredness is more often discussed as a feature in relation to other well-theorized concepts such as those mentioned above, rather than as a concept in itself. Recently, discussions have emerged within the field arguing for a need to move beyond child-centredness by decentring children and childhoods (Spyrou, 2017), or thinking with concepts such as after/post childhood (Kraftl, 2020) and post-child (Aitken, 2018). These discussions highlight questions about what it means to 'move beyond', and how child-centredness is understood and practised within the field.

By exploring child-centredness as both a methodological and a theoretical concept, this paper challenges the taken-for-granted status of child-centredness by engaging with a diversity of approaches to it. The goal is not to pinpoint or define what child-centredness is. Rather, it is to concretize, without aiming to unify, what it means from a diversity of research perspectives situated in an interdisciplinary research environment that has been dedicated to child-centred research for several decades.

For this article eleven authors, researchers and doctoral students, at Tema Barn, Linköping University, Sweden was invited to write a 500-word piece on the topic child-centredness. The format is inspired by the method of collaborative writing and the idea that knowledge production becomes more complex and multifaceted by thinking together (Peters et al., 2022, Tesar et al., 2021). This format, inviting many authors to shortly make their stand on a certain topic without any requirement for coherence, opens up for disparate thinking and expanded reflection. Borders and conflict surfaces between different theoretical standpoints are allowed to be visible, and differences and heterogeneities are rather encouraged (Sparrman et al.). Therefor the eleven authors approach the topic of this article from

their own theoretical or empirical angle, and without any attempt to make them more coherent or making easy transitions between different pieces. The article hopes to spur the readers curiosity and thinking of the concept child-centredness.

The introduction has been written by Alex Ormalm and Johanna Sjöberg. It serves as a starting point for the individual contributions with the aim of incite curiosity towards twisting and turning what child-centredness can mean in child research. The contributions have gone through internal collegial reviews as well as being reviewed by external reviewers; Professor Emeritus Alan Prout and two blind reviewers whose contributions are integrated last in the article. This collaborative process, including both authors and reviewers, welcomes similarities and connections as well as differences and dissonances. This turns into a conversation that demonstrates the collaborative knowledge-making. We invite you to read the article, not as one coherent piece or with the expectation of finding a streamlined argument or one cohesive method, but rather as a collection of heterogeneity that poses critical questions ahead. With this in mind, we seek to spur a discussion about the possibilities, challenges, and future of child-centredness in child and childhood research.

Centring Children's Absences: Thinking with Abandoned Playgrounds and Ghostly Participation

Alex Ormalm

Imagine for a moment an abandoned playground, decaying after years of neglect in the absence of children. The architecture is overgrown, rusty, and broken. If it were a movie, where the playground is used to convey a sense of eeriness, the swings might be creaking in the wind and the animal-shaped spring swings might have degraded into something that looks as though it belonged in a horror movie. With this image in mind, I want to push the question of 'what' can be centred in child-centred research by delving into how child-centredness can be (re)thought through the concept of 'absence'.

Children's absences can be about limiting access to what is deemed unsafe or inappropriate for children, or it can be about forgetfulness, lack of attention, the unsayable, or about what was never even considered. Absence is often slippery because it is denoted by what is not there. While the children figure somewhere, their absence figures somewhere else, telling us a story of its own. We cannot pinpoint its boundaries or a single location. While thus posing a challenge to analysis, children's absences hold the potential to push back our attempts to categorize or hold still the category of the child in our knowledge production. Instead, centring children's absences asks us to think with a shattered category in movement (cf. Hetherington, 2004).

The eeriness of an abandoned playground is created through absencing childness, not just children – their movements and sounds, traces of their activities, the maintenance of a place created for them, their presence in public spaces and, not least, the signs of (happy) childhoods. Their absence draws attention to how their absence from this place, just as their presence somewhere else, has effects (cf. Scott, 2018). Their absence haunts the space that once was for children, affecting us enough for abandoned playgrounds to become tropes for conveying what is dystopian or lost.

Centring children’s absences contributes to what child-centredness can mean by challenging approaches to child-centredness that rely on children’s verbal and physical participation or perspective. It enables an approach to child-centredness that sets ‘centring’ in movement as it does not bound the category of ‘the child’, but rather loosens it up. This expands the reach of where and when it matters to acknowledge the effects of children, because it does not require children to ‘be there’ in order for them to matter (cf. Ormalm et al., 2022). In an abandoned playground, it draws attention to how we can think of children’s ghostly participation in shaping space, as well as what kind of world becomes present in children’s absences.

“Decentring” the Child

Anna Sparrman

The call for a decentring of the child is done to show how children exist through relational enactments between human (children) and non-human entities (eg. Spyrou 2019). It is a critical act of pointing out and unpacking what the child comprises. But what do we leave unexamined when doing this? Let us consider Jill Greenberg’s photograph of a lone crying child.



Figure 1. Four more years (2006), Jill Greenberg © <https://clampart.com/2012/04/end-times/#13>

According to Greenberg, this child became hysterically upset during the photo session. Greenberg related the child's misery, anguish and hopelessness to the political despair she was feeling at the time. George W. Bush had just been re-elected as the president of the US and she anguished over the future and the suffering to which children would be exposed. Hence her title *Four more years* (Yoo 2010).

This, and the rest of the photographs in the collection, *End time* (2006), were created by mothers handing their children a lollipop (or something else they liked) and then asking for it back. The children cried in response. This created a heated debate, even hatred towards Greenberg, some accusing her of exploiting children's misery. Greenberg, however, replied that children's crying is a natural way of communicating. Creating these photographs, she argued, is neither more nor less provocative or unnatural than shooting photographs of smiling children advertising jeans (Teicher, 2013).

In different ways Greenberg and the 'haters' shared a mission. Both sides wanted to protect children; The 'haters' from the abuse of the photographer, (and the mothers?); Greenberg from the rising political fundamentalism she identified in the US. Both debaters, it could be argued, centred the children but in different ways.

Drawing on Mol's notion of "baroque heterogeneity" (2016, p. 258), we see that the photograph is enacted through multiple and at times incompatible heterogeneities: a child, photographic technologies, a mother, a photographer, tears, visual editing tools, politics, a title, emotions, hate letters, and so on. Curiously, however, this decentring takes for granted what counts as a child in the first place. Why do we even think this is a child, and what is the 'it' which is being decentred? Decentring is at risk of ignoring our unexamined reliance on what Sjöberg (2013) calls "childity", the significant details we use to indicate "child": body proportions, the large head, the chubbiness and maybe the crying. Perhaps we need to be much more careful about what we take for granted when we "decentre"?

Centring the Decentred Child

Rebecka Tiefenbacher

I understand child-centredness as the striving to situate children's experiences, voices, and perspectives at the forefront of theoretical, methodological, and/or empirical inquiry. In this way, it connects to wider efforts in childhood studies to recognize and understand children's life conditions and

situations across temporal and geographical contexts (cf. Canosa & Graham, 2020). Not all children have been at the ‘center’, however. For example, Underwood et al. (2015) state that children with disabilities are underrepresented in studies seeking to understand children’s own experiences. Children with communicative differences and difficulties are particularly excluded from research (Rabiee, Sloper, & Beresford, 2005). The consequence is that, on the whole, we lack knowledge about the everyday experiences of children with disabilities (Stafford, 2017).

In more recent years, there have been calls to decentre children and childhood. One argument for doing so has been that contemporary societal concerns cannot be captured through ‘the narrow confines of a “child-centred” field of study’ (Spyrou, 2017, p. 433). I agree with such calls on the basis that not all research enquiry can start with a childhood ‘lens’ (cf. Kraftl, 2020). In the case of children with disabilities, however, we cannot talk about ‘decentering’, because they have yet to be at the centre of childhood studies. By centring the children and childhoods that have been outside the main focus – using methods that recognize children’s many conditions for participating and ways of communicating (Tiefenbacher, 2023) – it becomes possible to challenge assumptions and ideas in the field; for example, as it concerns concepts and notions such as participation and children’s voices (cf. Tisdall, 2012). Therefore, I suggest that child-centredness still has an important role to play in childhood studies, and may even help to advance the field.

The Centring of the Child – a History of Becoming Beings

Joel Löw

The so-called new paradigm of Childhood Studies that evolved around 1990 followed several decades of studies that had centred the child, often in tandem with democratization processes. The ‘new’ was thus characterized by an effort to distance from development-oriented child psychology, with an emphasis on the socially constructed childhood and a common foundation to study children as social actors, as ‘beings’ instead of children as adults in the making, i.e. ‘becomings’ (e.g. James & Prout, 1990; Qvortrup, 1994). It is not an exaggeration to claim that the centring of the child has been linked to this position in both research and society ever since.

Nevertheless, there has been continuity along with change. The emphasis on children as social actors with rights, voices, and competences – which broadly characterizes the present – is still closely connected to socialization processes of becoming carriers of democratic values and norms. And if we focus on ‘becoming’ in this sense, the history of childhood offers much to learn and reflect upon.

At the turn of the 20th century, Ellen Key envisioned what could become The Century of the Child, with the belief that the world would only be changed for the

better if a new type of humankind arose. She saw children as drilled and tamed in a militaristic manner which led to the reproduction of yearning for power, nationalism, and wars. A new type of humankind could only be achieved through a new approach to children, thus laying the foundation for a new society. After WWI, voices were again raised against authoritarian upbringing, but now in contrast to democracy. With support from the new science of child psychology, it was argued that child-rearing needed to change in order to create the democratic child, emphasizing concepts such as freedom, individuality, and fellowship. By extension, this reflected a value struggle between authoritarian and democratic states (Löw, 2020). Even the Cold War meant a power struggle between fundamental ideologies, norms, and values. It wasn't until the fall of the Berlin Wall (1989) and the collapse of the Soviet Union (1991) that the democratic liberal system gained world hegemony. It cannot be ignored that both the UNCRC (1989) and the 'new paradigm' in Childhood Studies coincided with this shift.

Nowadays, authoritarian voices are heard loudly, both nationally and globally. Russia, like China, is striving for a new world order, with a common critique of the Western world's value base. Against this backdrop, it is simply impossible to ignore that we are fellows in a world bound by ideologies, discourses, and notions about what society can bring. The historical perspective can shed light on the interconnection between the societal development, notions of human 'becomings', and the field of Childhood Studies, but only the future holds what the centring of the child will mean.

Moving In and Out of the Centre – Child-centredness as a Relational Practice

Johanna Annerbäck

This text discusses child-centredness as a relational practice in which both human and non-human actors are involved. It begins with fieldnotes collected for a study focusing on the outdoor activities of toddlers (aged 1–3y/o) at preschools in Sweden.

It's a rainy day and the girl is dressed in outdoor clothing, gallon mittens and a high visibility vest reaching further than her knees [...] She seems interested in some small sticks and sits down to get closer to them. She tries to grab them but it seems impossible. The vest gets in the way as she stretches her arm and the mittens are too clumsy to grasp the small sticks [...] after a long struggle, the researcher can no longer resist but brings the girl a stick as she stretches out her hand [...] Holding the stick in her gallon mitten hand, she is observing the stick for a long, long time. (Fieldnotes from the girl with the sticks)

The idea was to centre the children by following them in the playgrounds, moving with them and learning through these movements (cf. Ingold, 2020). By adopting a cautious, and what we thought of as a respectful, physical distance from the toddler, this also meant decentring the researcher. By keeping a distance, to enable the toddlers to move around with as little influence from the researcher as possible, the researcher was positioned out of the centre.

As the fieldnotes indicate, this approach of centring the child created a distance from the girl that was uncomfortable for the researcher. Seeing her struggle against the vest and gallon mittens that clothed her little hands and prevented her from grasping a stick, it was difficult not to intervene and move into the centre.

As an outcome of this situation, this child-centred approach should be understood as a practice of correspondence (Ingold, 2020) situated in relations between the toddler, the researcher, and the environment, rather than as a fixed methodological approach. By moving in and out of the centre, as researchers, we attuned to the ways in which the girl, researcher, rain, place, sticks, and clothes mutually shaped each other.

When employing this approach, the question of what it means to centre children becomes entangled with the position and movements of the researcher in correspondence with a world in motion (Ingold, 2020). As a relational practice, the question of whether we centre or decentre children becomes too fixed (cf. Spyrou, 2017). Instead, questions must be asked about how to think of child-centring as an entanglement of different relations of centring, decentring, and recentring.

Centring Children in Time

Johanna Sköld

In a polemical article, historian Sarah Maza (2020) criticized the history of childhood for being descriptive and a-theoretical in its focus on children's lives and experiences. She argued that the field needs to move beyond the history of children to history through children if it is to make a substantial contribution to mainstream historical knowledge. While, arguably, many childhood historians already do this, it is worthwhile reflecting upon how a focus on children can contribute to a better understanding of societal transformations over time. For me, asking whether children influence, or are influenced by, any aspect of the world is a way of exploring the distribution of power and resources that shape societies. Child-centredness illuminates how relations between generations, genders, social classes, ethnicities, sexualities, geographical belongings, and ages intersect and change. Child-centredness can therefore function as a theoretical and methodological lens to

explain and explore issues relating to present or past societies that do not necessarily seem to allude to children.

The history of provision for the elderly, for instance, is a subject that at first glance seems to have no connection to either children or childhood. However, by centring children, it becomes obvious that their value as labourers and future security for their parents is relevant to this question. As long as children were perceived in terms of such an economic value in the rural economies of the USA and Europe, people who lacked offspring to provide for them in old age sometimes turned to orphanages and boarding-out agencies to acquire children. In a sample of 521 applications for a foster child filed at the Stockholm poor relief boarding-out bureau during the early 20th century, 20% of the applications came from people aged 60 or over (Sköld, 2006). Some were probably interested in the fee paid to foster parents, others explicitly asked for a child (girl) to take care of them in their declining years. As children's social value changed, from being economically useful assets for adults to emotionally valued beings who should be cared for with their own best interests in mind (Zelizer, 1994), such demands from elderly people were met with suspicion. The boarding-out bureau was reluctant to place children with elderly foster parents out of fear that they would pass away before the child was old enough to take care of him/herself. But the bureau deviated from its own rules if the foster care arrangement benefited the child, such as bequeathing an inheritance (Sköld, 2006).

By centring children onto the subject of provision for the elderly, we can ask how the changing social value of children has affected childless and/or elderly people's opportunities to plan for their future. Child-centredness is thus a tool for analysing societal transformations beyond the immediate concerns of children.

Centring Large Child Groups – Towards a Deeper Understanding of Young Children's Interactions

Emilia Holmbom Strid

In this piece, I ask what centring large child groups can contribute to our understanding of preschool children's interactions. After all, it is in everyday interaction that – among other things – cultures, opinions, worldviews, moral perspectives, and emotional life are formed and developed. Preschool is one place where young children interact and where peer cultures are created. Peer cultures provide an opportunity to test and develop different cognitive, emotional, and social skills. Social contexts are challenging because children constantly encounter and must learn to deal with new social situations entailing both self-selected and imposed interactions.

Even though the group situation is a common element in children's everyday lives, there seem to be few studies on children's own interactions within large groups in preschool (but see Corsaro, 1979). The idea that interactions rarely occur between an adult and child in isolation (Pursi, 2022) draws attention to the importance of considering multiparty interactions, as they require considerable interactional work from all participants. Research often focuses on teacher interventions and how adults create opportunities and involvement for children's participation (Bateman, 2022) or on the challenges faced by preschool teachers when surrounded by large groups and the teachers' lack of resources (Samuelsson, William, & Sheridan, 2015). The focus on teachers' interactions or engagement with children risks relegating the interactions between children to the background. By centring child-child interactions, one can gain knowledge about preschool children's interactions in broader and more complex contexts.

Shifting the gaze from adult interventions to children's perspectives through the study of child-child interactions draw attention to moments that are rarely addressed. For example, moments when the teachers (and other adults) are not called upon, interactions that tend to float by unnoticed because they are perceived as mundane (and perhaps uninteresting) from an adult perspective. However, to capture the complexities of everyday life in preschool, there is a need for a child-centred perspective, where children in large groups are also positioned in the foreground. This can reveal what is presented as relevant to them in their participation and how they orient themselves to the group and in group situations. This raises questions relating to how large groups of children can be centred in child research. How do we need to think, or rethink, child-centredness in this approach? How can it be achieved methodologically?

The Child at the Centre of Professional Attention

Sanna Hedrén and Lina Lago

Swedish school-age educare (SAEC) is an institution at the intersection between education and leisure. SAEC builds on ideals of a child-centred education and the curriculum emphasizes that teaching should be characterized by informal learning and be related to children's interests (SNAE, 2022). Traditional SAEC pedagogy (Gustafsson Nyckel, 2020) highlights aspects such as meaningfulness and voluntariness. It is, however, important to reflect upon this child-centred ideal. How do children become professionally centred in such practices, and what child is centred? We argue that this is a matter of when, how, and for what reason the child is centred. In some situations, the child at the centre is an actual child, the child before me, with specific wishes and needs. On other occasions it is the imagined child who is centred, based upon professionals' assumptions about children and their wishes and needs. Such assumptions build on experiences of encountering

actual children, but are also impregnated with ideals and norms of children and childhood.

In a study of SAEC staff's discursive formations of the child during collegial conversations, we found that the child was often talked about as an anonymous participant in the group (Hedrén & Lago, 2023). In this case, the child at the centre is invisible and remains within the rules and norms of the group. At the same time, children who deviate from the group, children who are 'noisy', 'questioning', or 'refusing' attract attention from professionals. These children were centred because they posed a 'problem' and were in need of special treatment. Hence, in SAEC, children are centred in two different ways: compliant children are centred as a group, and the deviant child is centred as an individual.

It is important in professional practice striving to centre the child – whether in education or research – to make visible, discuss, and reflect upon which child/children one centres, and with what consequences. Is it her/his wants and wishes that are centred? Or perhaps her/his needs or rights? Centring the child needs to be accomplished differently in different situations, but one needs to be aware of the possibilities and limitations in each of these positionings. When talking about a child-centred professional practice, it is not about one child; rather, child-centring is a scattered professional practice, and centring the child is a way to acknowledge the multitude of children, actual and imaginary, who are present in everyday educational practice.

It is necessary to maintain an awareness of the tension between centring the actual child and the imagined child, and this tension must constantly be challenged in educational practice, to be able to keep the normative child in constant flux.

Centring Children in Child Language Research

Olga Anatoli

In this text, I ask what a child-centred approach can contribute to an approach to children as social actors within linguistic research. Human language is a subject that is addressed in diverse academic disciplines, and while all speakers of a language have been or still are children, child-centredness is not a mainstream concern in research on this uniquely human capacity. Language has been mainly theorized as a system of communication with a structure that functions separately from its speakers; it has only been a recent development in linguistic research to question this separation, specifically in response to the political challenges facing multilingual children and young people in monolingual educational institutions (cf. the translanguaging argument in Otheguy et al., 2015). In relation to different paradigms about child language, it has been argued that the experiences of

language during one's early years are central to the personal sense of self (cf. Avineri, 2020). Language in a child's life is discussed as central for building social relations, achieving enskilment and knowledge transfer, and constructing identity.

At the same time, a child's language is often used by adults, particularly in institutional contexts, as an objectified tool for categorizing that child in relation to aspects such as ethnicity, neurophysiological development, or schooling. Consider institutional interactions involving three parties, such as the doctor–child–parent during medical visits or teacher–child–parent in educational settings. In these encounters, the child's ability to perform on standardized tests is used as a measure of development. The use of an objectified concept of language enables a focus on the child as becoming, and turns language development into a public health concern (e.g. Rescorla & Dale, 2013). Employing a child-centred approach, it becomes possible to recognize a holistic view on child language, demonstrating not only structural, societal constraints on the children's ability to act, but also highlighting children's linguistic and interactional skills, which may not have been validated otherwise. Methodologically, the focus on talk as a form of social action appears to be a productive approach to accessing a children's perspective on interaction, even if the child's speech is limited (e.g. Prado & Bucholtz, 2021). A child-centred approach that recognizes children as social actors (e.g. James, 1990), therefore, may offer a new perspective on child language and change the focus from an objectified, normative conceptualization of language to a situated, evolving capacity to act.

Centring Verbs

Yelyzaveta Hrechaniuk

Decentring the child in Child and Childhood Studies may appear counterintuitive, or even sacrilege of sorts. But I would like to use this short text as an opportunity for a thought experiment and to consider the terminology of child-centredness, and Child/Childhood Studies and the outcomes of focusing on nouns in these three concepts.

The idea stems partially from a common piece of advice on writing, and particularly academic writing, which encourages suspicion towards nouns in general. They tend to fall flat, remain vague and imprecise, and obscure action. In addition, action in its various shapes and forms – doings, practices, processes, and transformations – seems to be what the social sciences strive to explore. The names of several interdisciplinary fields reflect this focus on studying action and contain verbs or verb-derived nouns. For example, the emerging field of Valuation Studies takes an interest in valuation, that is social practices through which values are achieved. Drawing theoretically upon Science and Technology Studies (STS),

Valuation Studies examines a wide range of practices to determine how actors produce, contest, and dismiss what is desirable, important, meaningful, or worthy (Doganova et al., 2014). While strictly speaking a noun, 'valuation' is clearly derived from a verb and denotes a practice. Compared to the ambiguous 'child' or 'childhood' in Child/Childhood Studies, which could be an umbrella for various subjects, objects, or actions, 'valuation' appears more precise yet not too limiting of the practices in focus. This choice of an action-driven concept seems to me to give the field a push and provide momentum.

Another example of the productivity of verbs is Annemarie Mol's (2021) playful renaming of Food Studies into Eating Studies. In Mol's (2021, p. 5) empirical approach to theory, eating is not in itself the main interest, but exploring eating practices can advance our understanding of ways of being, knowing, doing, and relating. Detailed descriptions of eating practices provide food for thought and lessons for theory (ibid.).

While the names of many research fields are assembled around nouns, it is productive to reflect upon what could be gained by imagining studies of 'doing childhood' or 'childing' (cf. Woolgar, 2012). A confusion, an ontological debate, or a productive conversation about the direction of the field? In STS, 'gerundizing', or adding an -ing – as in 'childing' – is used to draw attention to the active work and practices that constitute and uphold scientific concepts and mundane notions alike (Woolgar, 2012). Such a gerundized alternative to 'the child' could perhaps be instrumental in centring children, their actions, doings, and lived experiences, as well as the work and practices that make up childhood.

Child-centredness in the 1980s: The Foundation of Interdisciplinary Child Studies

Johanna Sjöberg

There is a tendency within the field of child studies to highlight the book *Constructing and reconstructing childhood* edited by James and Prout (1990) as the starting point for child-centred research. And although this book was central in pushing research on children and childhood forward, we must remember that, even prior to it, there was child-centred research. Opie and Opie (1959), Aries (1960), and Speier (1976) are early examples of individual researchers who, without a psychological or pedagogical point of view, focused on children's own doings and living conditions. It is less well-known that entire research institutions were dedicated to child-centred research. One of the earliest was the still-existing department of Child Studies (Tema Barn) at Linköping University, Sweden.

By 1981, the Child Studies research department had already started to form. It was part of a reorganization of research within the Faculty of Arts and Sciences into broad interdisciplinary themes. Dedicating one out of five thematic departments to children, childhood, and youth meant that children were recognized as having high social and academic relevance, with permanent topicality. It was stressed that disciplinary research fail to generate knowledge about important questions concerning children and their relation to society. The new research milieu was therefore aimed at stimulating interdisciplinary research and asking novel questions about children's perspectives and voices. It should contribute new knowledge about children's relation to society and culture and develop insights into social development from children's own perspectives. This means that, even during the planning of the Child Studies department, listening to children themselves was considered crucial.

Many academics and professionals provided input, and in 1984 an edited volume was published, mapping out the academic path forward (Aronsson et. al., 1984). This publication highlights children's mundane everyday lives, and its foundation is that childhood is socially and culturally constructed, and that ethnographic/anthropological and historical methods are well suited to understanding children and childhood in different cultures and times. Research should provide critical knowledge about the taken for granted, and thus conventions on children/childhood should be problematized. In addition, children's premises and their own perspectives are emphasized as important. These are familiar ideas within the field today. Back then, they were novel, standing in contrast to a dominant focus on children's vulnerability, deviance, and problems.

The government gave Linköping University the 'go-ahead' to establish the Department of Child Studies in 1987, and the following year the first professors and doctoral students arrived. Since then, the researchers at the department have engaged in child-centred research highlighting children as worthy of study in their own right, continuously pushing the interdisciplinary study of children and their relations to and with society further.

Conclusion

Alan Prout

In their introduction to this paper Ormalm and Sjöberg set out the promises of collaborative writing to create more complex, multifaceted and heterogeneous outcomes than conventional writing practices, all the better to stimulate the curiosity of the reader. Speaking personally, after reading the paper I felt like I had just attended a very interesting symposium. The contributions are rich and invigorating. They both overlap and polarise. By turns they manage to confirm each

other but still clash in some ways. The effect is precisely the hoped for excitement of continuing thought. Just as the ethnographer continues to observe their fieldwork site long after they have physically left it, so the reader of this paper is left with numerous lines of flight to pursue or not depending, perhaps, on their stamina.

'Centring' (the verb - see Hrechaniuk above) emphasises activity in motion. But what does this entail? As a minimum we might think that in 'centring' we actively draw something (in our case children - or maybe the child or even childhood?) together. We fix it by sharpening its edges and separating it from its context, the better to make it stand out and be recognised as a legitimate noun. This means we also make decisions about what is core to it, what is peripheral and what is excluded. It both assumes a heterogeneous ontology and simultaneously effaces it. To me this kind of centring activity was the main work of the first phase of contemporary childhood studies, the stage when us participants in those early days of contemporary childhood studies were attempting to define and validate a field of study. If we achieved anything we did so, in large part, by 'centring'.

Echoes of such centring work are to be heard throughout this paper: when Tiefenbacher points to the need to recuperate occluded categories like disability as well as childhood; when Ormalm valorizes bringing the absent presence, whether disability or childhood, into view; when Sköld highlights the implications for children in changing provision for the elderly; when Strid underlines how child-centredness shifts attention from adult-child interactions to child-child ones (and calls for methodological innovation to centre children in large groups); or when Hedrén and Lago distinguish between how 'the child before me' and 'the imagined child' is centred with different consequences.

In giving these examples, I do not mean to imply that these authors neglect the importance of the decentring, which was, I think, the next main phase in the evolution of childhood studies (Prout, 2005). So, for example, when Anatoli suggests that child-centredness might create a more holistic and contextualised view for language studies, a shift of perspective is implied. It suggests that the lines of causality may be complex and run in more than one direction. Similarly, Löw points to the historical context in which child-centred childhood studies was created, particularly the mid-twentieth century revulsion against authoritarian child-rearing, reminding us just how complex, tangled and heterogeneous were the networks through which that shift came about (see also Sköld and Ormalm above). What these underlines most of all is the strategic move identified by Annerbäck: the analytical flexibility exercised by strategically moving between centring, decentring and re-centring; Re/De/Centring, if I might be allowed a neologism. Sparrman's contribution is an eloquent commentary on this, a call for caution in such a move, for it is easy as she correctly insists, to fall back into old essentialism about childhood, inadvertently re-inscribing taken-for-granted notions of the child.

As a parting shot though, I want to highlight a crucial point made by Sjöberg: an institutional home for Childhood Studies (whether of the Re/De/centring variant or not) makes a tremendous difference. Tema Barn is a testament to this. It is itself a centring practice because it brings together the material, social, financial, and intellectual resources needed for research in childhood to become more visible. However, childhood scholars have not been as successful as we might have been in creating such places. More centres and more centring of this kind is needed.

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**READING PROSODY: THE ROLE OF AUTOMATICITY
AND MOTIVATIONAL VARIABLES**

**PROSÓDIA NA LEITURA: O PAPEL DA AUTOMATICIDADE E
DAS VARIÁVEIS MOTIVACIONAIS**

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Abstract

Proficient reading goes beyond the automatic recognition of words; it involves the ability to read a text effortlessly, with expressiveness, intonation, appropriate pauses, and accuracy. Several studies support the idea that prosody is the most prominent skill in reading fluency due to its strong connection with reading comprehension. The present study sought to expand knowledge on the association of prosody with motivational variables, such as self-concept and reading enjoyment, over and above reading speed and accuracy. The study involved 189 third grade students from public schools in the North, Center, and South of Portugal. The results indicate that motivational variables, particularly self-concept, are associated to prosody performance. However, when reading speed and accuracy are included in the model, the motivational variables are no longer predictors of prosody performance. The results are discussed, allowing for reflection on possible implications for practice in the context of early elementary education.

Keywords: prosody; decoding; reading fluency; reading accuracy; reading motivation

Resumo

A leitura proficiente vai além do reconhecimento automático de palavras; envolve a capacidade de ler um texto sem esforço, com expressividade, entoação, pausas adequadas e precisão. Vários estudos sustentam a ideia de que a prosódia é a habilidade mais proeminente na fluência da leitura devido à sua forte ligação com a compreensão da leitura. O presente estudo procurou alargar o conhecimento sobre a associação da prosódia com variáveis motivacionais, como o autoconceito e o prazer da leitura, para além da velocidade e da precisão da leitura. O estudo envolveu 189 alunos do 3.º ano de escolaridade de escolas públicas do Norte, Centro e Sul de Portugal. Os resultados indicam que as variáveis motivacionais, nomeadamente o autoconceito, estão associadas ao desempenho prosódico. No entanto, quando a velocidade de leitura e a precisão são incluídas no modelo, as variáveis motivacionais deixam de ser preditoras do desempenho prosódico. Os resultados são discutidos, permitindo refletir sobre possíveis implicações para a prática no contexto dos primeiros anos do ensino básico.

Palavras-chave prosódia; descodificação; fluência da leitura; precisão da leitura; motivação para a leitura

Introduction

The acquisition of decoding skills at the word and text levels is one of the main learning goals in the first years (Suggate, 2016). With practice and training, this process helps children become increasingly fluent in reading (Cruz et al., 2022). The theoretical foundations of reading fluency primarily stem from the work of LaBerge and Samuels (1974) with their theory of automaticity, which highlights fluency as a critical element in the reading process. According to this theory, automaticity in word recognition refers to the ability to recognize words automatically and effortlessly, as competent readers do. Both the automaticity theory (LaBerge & Samuels, 1974) and the verbal efficiency theory (Perfetti, 2007) suggest that as readers become more automatic in word identification, the cognitive resources allocated to decoding processes decrease, freeing up more resources for text comprehension.

There is a consensus on the definition of reading fluency, which includes three components: accuracy, speed, and prosody (Calet et al., 2017; Hudson et al., 2005; Hudson et al., 2009; Kuhn et al., 2010; Kuhn & Stahl, 2003). Accuracy in word decoding refers to the ability to correctly identify written words (Torgesen &

Hudson, 2006) and accurately represent them orally based on their orthographic forms (Zimmerman et al., 2019). The research by Roberts et al. (2011) confirms the importance of accuracy in word recognition for competent reading. If a reader is unable to recognize the words in a text, comprehension will be impaired (Zimmerman et al., 2019).

Prosodic reading has been identified by numerous authors as a fundamental component of reading fluency (Kuhn & Stahl, 2003; Schrauben, 2010). The inclusion of this component in the definition of fluency has contributed to deconstructing the idea that a good reader is one who quickly reaches the end of a text (Dowhower, 1991). Prosody in reading represents the ability to make oral reading sound like spoken language (Kuhn, 2005; Kuhn et al., 2010).

Prosody is a component of spoken language and represents suprasegmental features of speech, as it involves more than just phonemic segments (syllables, words, and larger speech units). It primarily allows for the description of rhythmic and tonal patterns of speech (Dowhower, 1991), particularly changes in pitch (intonation), duration, and emphasis. In other words, prosodic features enable the production of speech with different pitch contours, faster or slower tempos, and higher or lower volumes (Pronina et al., 2021). According to Dowhower (1987), when these suprasegmental characteristics are perceptible in fluent reading, the term "reading with prosody" is used. Fluent readers are characterized by reading at an appropriate pace and conveying meaning through their voice, including tone, stress, and proper phrasing (Rasinski et al., 2009). Interest in research on prosodic reading has emerged primarily due to its role as a dimension of reading fluency and, secondly, due to its relationship with comprehension (Dowhower, 1991; Kim et al., 2021; Kuhn et al., 2010; Kuhn & Stahl, 2003). Although prosody is considered a fundamental component of fluency (Kuhn et al., 2010), research has predominantly focused on the more quantifiable dimensions of fluency, particularly speed and accuracy (Dowhower, 1991).

Prosody in reading is currently conceptualized as a multifactorial construct (Lopes et al., 2015). It encompasses variables such as smoothness, rhythm/pace, expression, volume, and phrasing, that readers use to convey meaning (Calet et al., 2017; Godde et al., 2020; Zimmerman et al., 2019). Rasinski (2004) developed a multidimensional classification system to characterize reading prosody, suggesting the need to integrate four key components: expressiveness, phrasing, smoothness, and pace. Expressiveness refers to reading that sounds like natural speech, with appropriate tone and volume (Lopes et al., 2015). It is primarily associated with punctuation, volume, and pitch variation. According to Erekson (2010) and Martin (2011), punctuation alone is insufficient to translate expressiveness into written language. Expressive reading implies that the reader has a deep understanding of the text and can infer the emotional states of the characters based on the story's context (Erekson, 2010). Conversely, a reader might demonstrate appropriate phrasing and intonation without expressiveness.

The phrasing dimension relates to the reader's awareness of sentence boundaries (Lopes et al., 2015), specifically the ability to recognize punctuation and appropriately mark the end of sentences. This dimension also pertains to the duration of pauses and hesitations, which typically occur when the reader has not yet achieved accuracy and automaticity in reading and are therefore linked to decoding difficulties (Miller & Schwanenflugel, 2006). Respiratory pauses produced by beginning readers are often a result of a slow speaking rate, whereas pauses made by more experienced readers tend to align with punctuation marks. Once automaticity is achieved, there is better coordination between breathing and textual analysis (Rasinski, 2004).

Smoothness reflects how the reader navigates through the text (Lopes et al., 2015), while rhythm refers to the consistency and pacing of reading throughout the text (Rasinski, 2004; Lopes et al., 2015). Fluent reading and efficient comprehension require the ability to capture and focus on the morphological, syntactic, and semantic cues present in the text, as well as an awareness of punctuation (Kim et al., 2014; Lopes et al., 2015). Without this, reading will be slow, marked by frequent hesitations and lack of expressiveness (Kim et al., 2010).

Thus, for prosodic reading, the reader must adopt the author's intonation and expressiveness to grasp the meaning of the text through its suprasegmental aspects (intonation, stress, rhythm, pauses, and speech rate). Whenever a reader engages in prosodic reading, variations in tone and rhythm indicate that the lexical and morphosyntactic features of the text have been identified and interpreted (Ravid & Mashraki, 2007). Therefore, prosodic reading signals that the text is being comprehended (Lopes et al., 2015).

Research suggests that the prosodic structure of texts is more readily attainable by fluent readers (Schrauben, 2010). Experienced readers can read words automatically, with greater accuracy and expression, resulting in prosodic reading characterized by appropriate intonation, pitch, and rhythm, as well as an adequate level of word reading (Rasinski, 2004). In contrast, beginning readers tend to focus their available attentional resources on word decoding due to limitations in word recognition (Lopes et al., 2015).

A study by Chung (2024) sought to understand whether the oral reading prosody of third-grade children in Mandarin differed based on their word-reading abilities. Prosody was assessed using the scale developed and adapted by Rasinski (2004), which evaluated expression, phrasing, smoothness, and rhythm. The results demonstrated that children with better word-reading performance exhibited superior prosody compared to those with lower word-reading performance (Chung, 2024). These findings are consistent with previous studies that confirmed that children proficient in word reading outperformed their peers with poor word-reading skills across various aspects of prosodic reading. All these findings highlight the notion that fluent word reading facilitates more prosodic reading (Benjamin & Schwanenflugel, 2010; Chung & Bidelman, 2022; Miller & Schwanenflugel, 2006).

These findings align with LaBerge and Samuels' (1974) automaticity theory, which suggests that automaticity in word reading fluency frees up cognitive resources for other aspects of reading, including prosody. In other words, children who can decode words automatically and effortlessly have more resources available to focus on prosody, resulting in fluent reading with better expressiveness, intonation, and rhythm (Benjamin & Schwanenflugel, 2010).

Reading fluency is thus associated with expressive reading, and prosodic reading occurs once decoding becomes automatic (Kim et al., 2010; Miller & Schwanenflugel, 2006; Taylor et al., 2013). There appears to be a consensus that the development of proficient reading is linked to expressive/prosodic reading, and the development of prosodic reading occurs when automaticity and accuracy in word recognition are achieved (Kim et al., 2010; Miller & Schwanenflugel, 2006; Taylor et al., 2013; Lopes et al., 2015). In turn, appropriate prosodic reading fosters proficiency in reading comprehension (Kuhn & Stahl, 2003; Hudson et al., 2005; Eason et al., 2013; Lopes et al., 2015; Veenendaal et al., 2016).

In addition to decoding skills, speed, and accuracy, research suggests that motivation for reading also contributes significantly to reading performance, despite receiving less attention in the literature (Gambrell, 1996; Wigfield & Guthrie, 2000; Hudson et al., 2020). Several authors define reading motivation as a multidimensional construct that involves components related to the enjoyment of reading tasks, the value associated with reading, and self-concept regarding one's reading performance (Baker & Wigfield, 1999; Gambrell, 1996; Wigfield & Guthrie, 1997).

Since the 1990s, thanks to studies by Gambrell (1996) and Wigfield and Guthrie (1997), research in the field of reading has begun to consider both cognitive and affective aspects of reading acquisition. Oldfather and Wigfield (1996) describe two perspectives on reading motivation. One perspective focuses on how the reader's interest influences comprehension of the material. This perspective suggests that interest is linked to attention level, the effective use of learning strategies, and comprehension of the material. Interest in the material facilitates comprehension. The other perspective emphasizes the role those social interactions, both in the classroom and within the family, play in developing students' motivation for learning. Baker et al. (1997) support the idea that a student may be motivated to read because they perceive reading as valuable and because it enables interaction with others. Wigfield (1997) further argues that reading motivation is derived from readers' perceptions of themselves, particularly regarding their sense of self-efficacy and the pleasure they associate with reading.

Research findings consistently associate motivational variables with reading skills. In a study by Wantchekon and Kim (2019) involving third- and fourth-grade students, reading engagement predicted 4% of reading comprehension by the end of the year, with the relationship between reading engagement and comprehension being weaker for below-average readers. Several studies have found moderate to

strong correlations between reading engagement and reading comprehension (Hamedi et al., 2020; Lin et al., 2021; Wantchekon & Kim, 2019).

Regarding the dimension of reading for pleasure, although there is much debate over defining this concept, there seems to be a consensus that reading for pleasure is associated with students' reading motivation (Reedy & De Carvalho, 2019). Reedy and De Carvalho (2019) suggest that reading for pleasure may result from stronger reading fluency and the consequent self-confidence in that fluency, rather than the other way around. Reading self-confidence has also been cited as a good predictor of reading development. Melero et al. (2020) studied the relationship between various motivational variables and word reading as well as reading comprehension, concluding that self-confidence was the only significant motivational predictor. Similarly, a study by Cho et al. (2018) found a positive relationship between reading self-confidence and reading comprehension among second-grade students. These results highlight the importance of promoting family involvement in children's reading acquisition to maintain their self-confidence.

A Portuguese study by Lopes et al. (2022), which included fourth-grade students, sought to identify the individual and school factors that best predict reading success. The study concluded that students' attitudes toward reading—specifically, reading engagement, enjoyment of reading, and reading confidence—are predictors of reading success, with varying levels of predictive power. Reading confidence was the strongest indicator of reading success, while reading engagement was a marginal indicator, and enjoyment of reading was negatively associated with reading performance. In a study by Wigfield and Guthrie (2000), it was found that students with higher motivation and confidence are more likely to become fluent readers. Thus, reading motivation appears to affect students' reading competence, with higher motivation and confidence correlating with an increased likelihood of becoming fluent readers.

In summary, the research highlights that prosody appears to be influenced by variables related to decoding, accuracy, and reading speed. Additionally, research suggests a connection between reading motivation and both reading fluency and comprehension. However, there is a lack of studies investigating the specific role of motivation in prosody. In light of this gap, the present study aims to contribute to the understanding of prosodic performance in third-grade students, examining the influence of reading skills and motivational variables on prosody performance.

Method

Participants

The participants were recruited as part of a larger project aimed at testing the effects of a reading intervention [reference omitted]. This study involved 189 students enrolled in the third grade at public schools in the northern, central, and southern regions of Portugal. Among the participants, 54.0% were female and 46.0% were male. The mean age of the students was 11 years (SD = 0.55), with ages

ranging from 10 to 13 years. Only students whose native language was Portuguese were included in the study, and all of them were speakers of European Portuguese.

Measures

Sociodemographic Questionnaire

The sociodemographic questionnaire, completed by the student's parents/guardians, collected information regarding the children, including their age, gender, and native language.

TLP: Word Reading Test (Chaves-Sousa et al., 2017)

To assess the decoding of isolated words, the TLP Word Reading Test was utilized. The TLP consists of 30 words, displayed on a computer screen. Students are instructed to read aloud the words, even if they are unsure of the correct reading. There is no time limit for the presentation of each word or for the completion of the test. The test is administered individually. Scoring is based on a binary system: 1 point awarded for each correctly read word, and 0 points given for incorrect readings, including omissions, substitutions, additions, or no response. The total score was calculated by summing the number of correctly read words, with a minimum score of 0 and a maximum score of 30.

REI: Text Reading Accuracy and Fluency Test (Carvalho & Pereira, 2009)

Text reading accuracy and fluency were assessed using the REI test. The test is administered individually, and students are asked to read aloud a text, which contains 281 words, within a 3-minute time frame. The reading was recorded for subsequent analysis. Reading accuracy was calculated by dividing the number of correctly read words by the total number of words read. Reading fluency was assessed by computing the number of words read correctly per minute.

Prosody scoring grid (Zimmerman et al., 2019)

Using the recorded reading task from the REI: Text Reading Accuracy and Fluency Test, prosody was evaluated. Prosody was assessed using a rating grid adapted from Zimmerman et al. (2019). This grid is divided into four dimensions: expressiveness, phrasing, accuracy, and rhythm. Each subscale was scored on a scale of 1 to 4, with the total prosody score being the sum of the subscale scores.

For expressiveness, the scoring varies from 1, where 1 corresponds to situations where the reader speaks softly, as if trying to say something specific, but the reading does not sound natural, to 4 that is used when the reader uses varied volume and expression throughout the reading and the reading sounds natural.

For phrasing, the scoring varies from 1, where the reader reads word by word, in a monotone voice, and the text is read as individual words, without flow or phrasing, to 4, where the reader reads sentences well, consistently respecting punctuation, emphasis, and intonation. The reading has regular intonation, and respect for punctuation is constant throughout the text.

Accuracy scoring is similar, and score 1 corresponds to a reader who frequently hesitates during reading, mispronounces words, and repeats words or phrases, making multiple attempts to read the same passage and/or the same word; whereas score 4 refers to a reader who reads without issues, with some pauses, but self-corrects difficult words and/or sentence structures.

Finally, score 1 for rhythm is attributed when the reader reads slowly and laboriously, and score 4 refers to a reader who reads at a conversational pace throughout the reading, resembling a conversation.

Reading Motivation Scale “Me and Reading” (Monteiro & Mata, 2000)

The Reading Motivation Scale “Me and Reading” includes 20 items divided into three subscales: (1) Reading enjoyment (8 items), (2) Reader self-concept (7 items), and (3) Social recognition (5 items). Respondents rate each item on a scale of 1 to 4, where 1 indicates low motivation for reading and 4 indicates high motivation for reading (Monteiro & Mata, 2000). In this study, only the first two subscales were used, as the social recognition scale demonstrated low internal consistency ($\alpha < .70$).

Procedures

This study received approval from the university's ethics committee [reference omitted]. After obtaining authorization to conduct the study, all participating school groups approved the project's development, including the implementation of the proposed methodology, data collection, and the use of these data for research and intervention purposes. Parents or guardians were informed about the project and its objectives, and they were asked to complete an informed consent form. This consent form ensured the confidentiality and protection of the children's data. Data collection was conducted by school psychologists who received specific training for this task. The assessment of word decoding, fluency, and accuracy skills was conducted individually, with each session lasting approximately 10 minutes per student, ensuring that school activities were not disrupted. The assessment of reading motivation was conducted in a group setting, with the test being read aloud by the assessors to ensure that students with lower reading fluency could understand the items.

After data collection, prosody scoring was conducted using inter-rater agreement, carried out by two raters who underwent three training sessions, each lasting two hours. During these sessions, the raters listened to and evaluated the recordings of the students' readings under the guidance of a specialist. In the following weeks, the raters worked independently, analyzing an additional 20 readings. Subsequently, they met to compare evaluations and continued training with an additional 10 readings. After this training, the raters independently evaluated 69 recordings. Cohen's kappa was used to assess inter-rater reliability, yielding high values: $k = .844$ ($p < .001$) for expressiveness, $k = .798$ ($p < .001$) for phrasing, $k = .886$ ($p < .001$) for accuracy, and $k = .823$ ($p < .001$) for rhythm.

Data Analysis

To investigate the contribution of reading skills (decoding, speed, accuracy) and motivational variables to prosody skills, a hierarchical multiple linear regression was conducted using the enter method. The total score of prosody was used as dependent variable. In the first block, motivational variables (self-concept and reading enjoyment) were entered. In the second block, the impact of decoding on prosody was assessed. In the third block, variables related to reading fluency and accuracy were added. Prior to the analysis, the assumptions were checked: sample size, absence of collinearity and multicollinearity, absence of outliers in all studied variables, and normality, linearity, homoscedasticity, and independence of residuals (Pallant, 2020). The study included 189 students, and the literature suggests that approximately 10 subjects per independent variable are needed for multiple regression analysis (Pallant, 2020). Tolerance values ($>.10$) and VIF values (<10) indicated the absence of collinearity and multicollinearity, demonstrating the independence of predictor variables (Pallant, 2020). All predictor variables were significantly correlated with the dependent variable ($p < .05$) (Field, 2009), meeting the requirements for inclusion in the regression analysis. Analysis of standardized residuals and standardized predicted values (between -3 and 3) indicated the absence of outliers. The Durbin-Watson test value (1.3) was within the expected range (1.5–2.5), suggesting independence of residuals (Pallant, 2020). Examination of the residuals' histogram confirmed that the assumptions of homoscedasticity, linearity, and normality of residuals were met (Pallant, 2020). Thus, the assumptions underlying multiple linear regression analysis were met. All statistical analyses were conducted using IBM SPSS Statistics version 27.

Results

Table 1 presents the descriptive statistics for the variables under analysis, including prosody, self-concept, reading enjoyment, decoding, fluency, and accuracy. For the prosody variable, the average score was 1.79 (SD = 0.61), with a maximum score of 3.25. The average score for the self-concept in reading was 3.00 (SD = 0.64) out of a total of 4 points. Regarding the enjoyment associated with reading tasks, the mean score was 3.24 (SD = 0.53) out of a possible 4 points. In the decoding test, students showed an average performance of 23.21 (SD = 4.63) out of a total of 30 points. For reading fluency, the average score was 54.40 (SD = 24.77) words per minute, with a maximum of 126.36 words per minute. Regarding reading accuracy, the mean score was 91.28 (SD = 6.76) out of a maximum of 100 points.

Table 1
Descriptive statistics of the variables scores

Variables	M	SD	Minimum	Maximum
Prosody	1.79	.61	1.00	3.25
Reader self-concept	3.00	.64	1.14	4.00
Reading enjoyment	3.24	.53	1.13	4.00
Decoding	23.21	4.63	11.00	30.00
Fluency	54.40	24.77	7.67	126.36
Accuracy	91.28	6.76	66.67	100.00

Note: M=Mean; SD=Standard deviation.

The multiple linear regression analysis conducted (see Table 2) revealed that the two motivational variables (self-concept and reading enjoyment subscales) introduced in Block 1 explained 27% of the variance in students' prosody performance, with the regression model being statistically significant, $F(2, 186) = 35.89$, $p < .001$. Only the self-concept variable made a significant contribution to explaining prosody performance ($\beta = .56$, $t = 8.08$, $p < .001$).

When motivational variables were combined with decoding in Block 2, the explained variance in prosody performance increased by 20% ($R^2 \text{ adj.} = .47$), and the model remained statistically significant, $F(3, 186) = 55.50$, $p < .001$. In this model, the self-concept subscale continued to significantly contribute to prosody performance ($\beta = .31$, $t = 4.68$, $p < .001$), and the decoding measure also made a significant contribution ($\beta = .50$, $t = 8.27$, $p < .001$).

When dimensions related to fluency and accuracy were included in the final model, 66% of the variance in prosody performance was explained ($R^2 \text{ adj.} = .66$). This comprehensive model, which included all variables, was also statistically significant, $F(5, 186) = 74.60$, $p < .001$. Notably, with the exception of fluency, all other dimensions ceased to be statistically significant. Fluency emerged as the sole and primary factor explaining prosody performance ($\beta = .71$, $t = 10.44$, $p < .001$).

Table 2
Multiple Linear Regression Analysis for Prosody Performance

Variables	Beta	t	p	R ² change	R ² Adj.
Block 1					.27
Reading self-concept	.56***	8.08	.001		
Reading enjoyment	-.08	-1.18	.241		
Block 2				.20***	.47
Reading self-concept	.31***	4.68	.001		
Reading enjoyment	-.03	-.45	.655		
Decoding	.50***	8.27	.001		
Block 3				.20***	.66
Reading self-concept	.05	.87	.387		
Reading enjoyment	.03	.56	.579		
Decoding	.09	1.21	.230		
Fluency	.71***	10.44	.001		
Accuracy	.03	.42	.673		

Note: *** p <.001.

Discussion

This study aimed to investigate the contributions of reading skills—specifically decoding, speed, and accuracy—and motivational variables, including reader’s self-concept and reading enjoyment, to prosody performance in third-grade students. The literature indicates that proficient reading extends beyond the automatic recognition of words; it also involves the ability to read text effortlessly with expressiveness, intonation, appropriate pauses, accuracy, and motivation (Therrien et al., 2016; Veenendaal et al., 2016; Hudson et al., 2020; Paige et al., 2017; Zimmerman et al., 2019). Several studies have shown a strong link between prosody and reading comprehension, with those skills being influenced by factors related to decoding, accuracy, speed, and motivation (Wigfield & Guthrie, 2000; Benjamin & Schwanenflugel, 2010; Miller & Schwanenflugel, 2008; Rasinski et al., 2009).

Hierarchical multiple linear regression analysis was used to test the contribute of reading and motivational variables to prosody. The first block included self-concept and reading enjoyment as predictor variables. The second block added reading decoding to these variables. The third block incorporated all predictor variables, including self-concept, reading enjoyment, decoding, fluency, and accuracy.

In the first block, which included only the two motivational variables as predictors, 28% of the variance in prosody performance was explained. The data indicated that the self-concept subscale was the only significant individual predictor of prosody performance. These findings suggest the need for strategies that enhance self-concept regarding reading, particularly in reading aloud. Strategies such as assisted reading, self- and peer-assessment of reading, and recording and listening to one’s own reading are crucial for students to evaluate themselves, recognize areas for improvement, and thus engage more fully in

reading tasks, increasing their self-awareness about their performance (Cruz et al., 2022).

When decoding was included in the second block, a significant increase in the percentage of explained variance was observed compared to the previous model. These results align with the literature regarding the contribution of decoding to prosody performance. Both the automaticity theory and the verbal efficiency theory (LaBerge & Samuels, 1974; Perfetti, 2007) suggest that as readers become more automatic in word identification, the cognitive resources devoted to decoding processes decrease, making more resources available for expressive reading and comprehension. Research indicates that the prosodic structure of texts is more easily achieved by fluent readers (Schrauben, 2010). This is because fluent readers automatically recognize words and engage in prosodic reading characterized by appropriate intonation and tone.

The third block, which added fluency and accuracy as variables, explained 66% of the variance in prosody outcomes, making it the model that explained the most variance in prosody performance. The data indicated that fluency was the main predictor of prosody. These results suggest that improvements in reading fluency are associated with improvements in reading expressiveness. Consequently, they highlight the importance of promoting practices that develop and enhance fluency instruction (Miller & Schwanenflugel, 2008; Therrien et al., 2016; Veenendaal et al., 2016). Of note is that, when fluency was included in the model, all other variables ceased to be significant. The strong association between fluency and prosody implies that as fluency skills improve, the ability to read expressively also increases. Previous studies in European Portuguese have demonstrated that, past the second grade, speed is a stronger predictor of comprehension than accuracy, given that European Portuguese is an intermediate depth orthography, in which accuracy is mastered relatively early for most of the students (Cadime et al., 2017, 2023).

In summary, the results of this study indicate that motivational variables, particularly self-concept, impact prosody performance. However, when reading performance is considered, fluency emerges as the most significant contributor to prosody performance. These findings provide valuable insights into the implications for educational practice, particularly the need to identify students at risk in various reading competencies—especially fluency—early on. Early identification can help minimize difficulties from the outset of formal education and promote foundational reading skills that contribute to the development of more complex skills like prosody.

The study also highlights that motivation for reading contributes to prosody performance, underscoring the importance of implementing strategies to enhance student motivation, particularly their self-concept. Motivational strategies include praise, reinforcing effort during each reading, providing timely corrective feedback, and setting goals after self-assessment of reading (Cruz et al., 2022; Cruz et al., 2023).

Given the study's results and the extensive literature on reading, it is increasingly important to consider the broad concept of fluency and its development within the school curriculum. Accuracy, automatic word recognition, and prosody throughout the early years of primary education continue to play a crucial role in achieving the ultimate goal of reading: text comprehension (Kuhn et al., 2010). All components of fluency—accuracy, automaticity, and prosody—should be considered in reading fluency assessment and in teaching methodologies aimed at improving reading fluency and, consequently, reading comprehension (Rasinski et al., 2009).

The study's findings also highlight the importance of equipping teachers with the necessary knowledge and tools for systematic fluency training, particularly in prosody, which is often overlooked in reading instruction. Developing teachers' understanding of prosody—such as expressiveness, phrasing, accuracy, and rhythm—can significantly enhance their ability to support students in becoming expressive and fluent readers. Several studies reinforce the value of systematic and explicit instruction, emphasizing that gains in reading fluency are influenced by several key factors. These include the amount of time students spend practicing fluency, the quality of reading models provided (e.g., teacher-assisted reading training or peer modelling), immediate and constructive feedback on their performance, and innovative techniques such as recording one's reading and listening to the playback to self-assess and refine fluency (Beach & Philippakos, 2021; Gersten et al., 2020). Considering these strategies, literature suggests that teachers should allocate regular and focused time for fluency activities in their reading instruction, ensuring students have consistent opportunities to develop their skills. Also, teachers can serve as effective reading models by demonstrating prosodic reading. Using read-aloud strategies with expressive intonation can help students internalize the natural rhythm and tone of fluent reading. Given feedback is also relevant, and should focus on specific aspects of fluency, such as phrasing, emphasis, and pace. Highlighting both strengths and areas for improvement can guide students toward more expressive reading. Recently, several studies have highlighted the positive impact of the use of recording technology, evidencing that encouraging student to record their reading and listen to the playback allows them to identify areas for improvement independently. This strategy also fosters self-awareness and accountability for their progress (Beach & Philippakos, 2021; Cruz et al., 2023; Rasinski et al., 2009). By implementing these strategies, teachers can create a supportive environment that fosters fluency development, enabling students to become confident, expressive readers capable of understanding and engaging with texts at a deeper level.

The main limitation of this study is the use of a convenience sampling method. Future studies should use a probabilistic sampling method, but also include the assessment of reading comprehension. It is essential to understand the role of prosody after the acquisition of decoding skills to determine its contribution to the comprehension of read texts.

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**DIALOGUES BETWEEN PICTUREBOOKS FOR
CHILDREN AND CHILDHOOD SCIENCES AND
CULTURES**

**DIÁLOGOS ENTRE OS LIVROS ILUSTRADOS PARA CRIANÇAS
E AS CIÊNCIAS E CULTURAS DA INFÂNCIA**

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Abstract

This article presents reflections on the dialogue between contemporary children's literature and the conceptualisations about childhood investigated in the social sciences. The analytical readings of three picturebooks form the basis for these reflections along with, in the field of social sciences, the research works by Daniel Goldin, by David Buckingham and by Manuel Sarmiento. Two of the picturebooks examined were selected during an academic internship in Portugal in 2022: *O meu avô* (2014), by Catarina Sobral, *Andar por aí* (2017), by Isabel Minhós Martins and Madalena Matoso. The Brazilian picturebook *Inês* (2015), by Roger Mello and Mariana Massarani, was included alongside the Portuguese titles. The selection criteria for the corpus focused on literary works that recognise young readers' comprehensive interpretative and creative skills. This material provides a contextualised critical framework to demonstrate a network of multidisciplinary formative agents engaged in creating and transforming plurisignificant artefacts in dialogue with child cultures.

Keywords: contemporary children's literature; social sciences of childhood; multidisciplinary approach; Portuguese and Brazilian contemporary picturebooks analysis

Resumo

Este artigo apresenta reflexões sobre o diálogo entre a literatura infantil contemporânea e as conceptualizações sobre as infâncias investigadas nas ciências sociais. As leituras analíticas de três livros-álbum constituem a base para estas reflexões, complementadas pela inter-relação com os trabalhos de investigação de Daniel Goldin, David Buckingham e Manuel Sarmiento no domínio das ciências sociais. Dois dos livros-álbum examinados foram selecionados durante um estágio académico em Portugal em 2022: *O meu avô* (2014), de Catarina Sobral, e *Andar por aí* (2017), de Isabel Minhós Martins e Madalena Matoso. O livro-álbum brasileiro *Inês* (2015), de Roger Mello e Mariana Massarani, foi incluído ao lado dos títulos portugueses. Os critérios de seleção do corpus centraram-se em obras literárias que reconhecem as capacidades interpretativas e criativas dos jovens leitores. Este material proporciona um quadro crítico contextualizado para evidenciar uma rede de agentes formativos multidisciplinares envolvidos na criação e transformação de artefactos plurisignificativos em diálogo com as culturas infantis.

Palavras-chave: literatura infantil contemporânea; ciências sociais da infância; abordagem multidisciplinar; análise de livros ilustrados contemporâneos portugueses e brasileiros

Introduction

The child doesn't know less, the child knows something else.

Clarice Cohn (our translation)

We are facing the revolution that was missing, the revolution of the child!

Lydia Hortélio (our translation)

The notable effervescence of diverse currents of thought and movements emerging from various fields of knowledge has been evident, both in academic research and in empirical experiences, amplifying and representing the voices of occupation and recognition for contemporary childhoods. From this perspective, the child is regarded as an integrated and active agent within the social sphere, embracing specific knowledge and their own childhood cultures. This conception may be compared to that of researcher and literary critic Nelly Novaes Coelho:

It appears to be evident that the path to the invention/construction of the new order that shall come will pass through education, through the cultural/ethical/existential formation of the new generations. (...) There is a "silent revolution" on the way, we just need to pay attention to the research effervescence in all fields of knowledge or to step into the

world of literature of the past and of today, and we will see that there is a new world view on the way (Coelho, 2012, p. 102 – our translation).

In fact, the perspective that a significant change is in progress, with dimensions that can generate “a new order and view of the world”, also resonates in the social studies of childhood, especially in sociology and anthropology, the two areas that are pushing the borders in the disciplinary fields dominated by psychology, medicine and education sciences, to shape a fresher approach to theory, epistemology and methodology.

Under the social sciences’ theoretical knowledge, childhood has been approached as a social category of generation type, whose essence is manifested through singular languages in which the imaginary and the understandings of the daily experience converge to create proper meanings. This child knowledge is manifested in the relation to the individual and the universal contexts, as well as in the production of cultures based on the relationship between children and adults, and among the children themselves. In this context:

Children have been increasingly considered for what they are, what they know, what they can do, for their competences, their ways to build culture, the way they create ideological systems, not necessarily coinciding with the adults’; children do that in the social world in the relations with the adults, and in the relations among themselves. This has been the great transformation of the past 25-35 years in how childhood is viewed: children are considered for the positivity of their own characteristics. (Sarmiento, 2016, p. 7 – our translation).

Observing such revolutionary changes in the views of childhood, we also notice that most critics, attentive readers and researchers of children’s literature agree on the presence of innovative books that propose literary experiences that can be multiplied in the contemporary scenario. In this collection of publications for children, these experiences spring from the resources that renew and expand languages in all compound elements of the codex and in the kinds of support for the stories. This multiplicity and expansion presuppose a reader who can create and re-create readings from these books.

Within the possible relations between these movements that, on one hand, involve the voices and the visions of childhood and, on the other, children’s literature in motion, we raise the hypothesis about the existence of relevant implications and influences between the two and about the transforming effects that both have been showing.

Building on that hypothesis and recognising the historically established premise of the reciprocal interplay between the dominant conceptualisations of childhood and the cultural and literary productions for young audiences, this article

seeks to revisit and analyse the development of contemporary literature as a significant cultural manifestation that catalyses the emergence of new social and cultural paradigms.

Finally, we analyse contemporary Brazilian and Portuguese projects in the picturebook genre, primarily characterised by books in which the “narrative is articulated between text and images” (Van der Linden, 2011, p. 8 – our translation). In the concept of picturebooks as discussed in this article, the verbal and visual elements complement one another to form an integrated narrative and message, creating various layers of reading and interaction possibilities for readers to engage with and co-create. In Portugal, picturebooks are called “livros-álbum”.¹

Such works incorporate a diverse repertoire of sensitive, scientific, and technological elements into their narratives, fostering the playfulness proposed by the particular and universal qualities of literature. This process of representing life, characters, feelings, and sensations through linguistic resources is as old as the book itself – historical and boundless – and has been updated in contemporary picturebooks, embracing the complexities of discoveries about childhood that some adults are willing to confront daily, while remaining open to the diversity of the children with whom we interact and the children we once were. These books invite dialogue, invention, play, and imagination, allowing readers to look between holes and pages, extend beyond the margins, conceal secrets, endure suffering, forgive, redeem, read invisible words, and engage with whatever comes along.

Based on these observations about the landscape of literary production for children and the foundational premises established, this article aims to offer a theoretical framework for the understanding of the above interdisciplinary flow, in which the arts have new roles and spaces in the new media, and in which children take on new roles within their social groups and in relation to themselves, often displaced due to the empty spaces left by the absent adults. Thus,

discourses that fundament the formation of readers (...) suppose that it is through reading that the transformation of people occurs. (...) they expect that, by being formed as such, readers amplify or modify their ability to establish relationships with themselves, with others and with institutions, and, therefore, even if collaterally, they help transform (or maintain) the social surroundings. (Goldin, 2006, p. 126 – our translation).

Literature and science, science and literature: the strengthening link and the enduring limit

To further the methodological theory foundation of this research, we selected the works by social scientists whose thoughts and views on contemporary childhoods and assumptions may re-signify readings as well as encourage

¹ Translator’s Note: The terms *Livro ilustrado* is used in Brazil and *álbum* or *livro-álbum* is used in Portugal.

innovative and sensitive literary activities. Mexican publisher Daniel Goldin approaches the transformations of childhood conceptions in literature investigating it as a tool for the establishment of new relationships between children and adults. In his opinion, through its polyphonic and multiplied language, contemporary children's literature enables readers to re-create stories, and, by so doing, it offers readers rights and powers. In this liberated territory of language, it is possible to bring adults and children closer together, for they contribute with one another in the readings with their individual knowledge and an equivalent exchange of the reading experience. According to Goldin (2006, p.59 – our translation): “Children's literature is no longer a literature to listen to and acquit, it has become a literature that seeks or enables, in many ways, dialogues and the active participation of the children in the world.”

Portuguese sociologist **Manuel Sarmiento** sets the shift in the idea of childhood as a time of silence, of incapacities and of transition into the adult life – a mini adult, a blank to be filled, confined with no public life, incomplete and dependent – to a sociological view in which childhood is a social category of generation type, and children are active members of society, they are subjects of the institutions they belong to; they are social actors who have a different identity from the adults, children have their own way to give meaning to the world. According to Sarmiento (2002, p. 3): “The order is about difference and not deficit when we talk about the child's imaginarieness in comparison to the adult's.” (our translation).

David Buckingham questions the view of childhood as exclusion, which, in his opinion, is the prevalent view, created by adults, and it may be observed in the way children have been represented in the media throughout time. He examines, for example, the ideas about childhood in the Golden Age of English Literature². Buckingham proposes that the same differences that segregate may be used to build new behaviours, in which adults and children take unprecedented positions in the face of new contexts, increasing possibilities in the context of electronic media:

The attempt to protect children restraining their access to the [electronic] media is destined to fail. The opposite must be done, we need to prepare them now to deal with this experience, and, by so doing, we must stop defining them simply in terms of what they lack. (Buckingham, 2000, p. 32 – our translation).

Daniel Goldin, Manuel Sarmiento and David Buckingham take off from the common perception of childhood as a social construct: “The idea of childhood as a social construct is today commonplace in childhood history and sociology, and it is being gradually accepted even by psychologists.” (Buckingham, 2000, p. 19 – our translation). These constructs vary significantly along history, as announced by Philippe Ariès (1960), also according to interests of the social, political and

² In reference to the books by Lewis Carroll, Edward Lear and J.M. Barrie, in the second half of the 19th century.

economic complex compounds of each time. Our investigation notices such crossings with literature, which, according to Sarmiento³, has the property of “anticipating many of the questions that later will be tackled, worked on and examined by the sociological thought, which, in turn, will produce its own knowledge. (...) somehow, the sociological work has an anchoring function for what intuitions and insights produced by literature are, and transforms them into knowledge susceptible to proof and validation in theory and practice” (our translation).

The detailed analysis and evocations generated by the picturebooks discussed below, can illuminate, in a magical and timeless manner, the threads of connection between sciences and literature.

Through reinvented language

The picturebooks analysed in this work reveal through their multiple possible readings relevant comparative references that can be established by observing specific features of literary projects aligned with the perspectives of childhood discussed here, according to the theoretical view of the three selected authors: Goldin, Sarmiento and Buckinham.

The works created within this context have been presented as productions engaged to a live movement for the creation of narratives that allow the plural participation of the creator-reader. This is one of the several connections that can be established between literature and the contemporary childhood views, as anthropologist Clarice Cohn stresses:

When culture is understood as a symbolic system, the idea that children are incorporating it as they gradually learn “things” should be reviewed. The point is not anymore just when and how culture is passed on in its artifacts, but how children formulate a meaning for the world that surrounds them. Therefore, the difference between children and adults is not quantitative, but qualitative; children do not know less, they know something else. (...) To anthropology, the point is not to know in which cognitive condition children create meanings and significations, but from which symbolic system they do so. (Cohn, 2005, p. 33 – our translation).

To understand and analyse the cross relations presented here so far and how they are applied to books, we selected two Portuguese titles and a Brazilian one. According to morphologic, syntactic and semantic characteristics present in these three titles, they are placed in the contemporary picturebook scene. They are:

³ The author of this article has interviewed Professor Manuel Sarmiento in 2020.

- O meu avô⁴, by Catarina Sobral, Editora Orfeu Mini, 2014.
- Andar por aí⁵, by Isabel Minhós Martins and Madalena Matoso, Editora 34, 2017.
- Inês, by Roger Mello and Mariana Massarani, Companhia das Letrinhas, 2015.

Both Portuguese titles are narrated in the first person and explore the theme of the child adult relationship, particularly the bond between grandson and grandfather. Before commencing our analysis, it is important to examine the social context surrounding these works.

“The new Portuguese children’s literature”

For the latest decades, Portugal has had an intense literary production for children and young readers, and a significant number of published titles have been internationally acclaimed, especially the picturebooks. To name but a few authors in this new generation, we have Catarina Sobral, Isabel Minhós Martins, Ana Pessoa, Bernardo P. Carvalho and Joana Estrela, who have been translated into many languages and received international awards, as well as their Portuguese publishers, among which Planeta Tangerina was awarded the BOP (Bologna Prize for the Best Children’s Publishers) at the Bologna Children’s Book Fair, in 2013.

This flourishing may be seen as a consequence – or as an opportunity – of several factors linked to the country’s social, political and economic contexts that converged at the end of Salazar’s dictatorship, when in-school and at-home reading incentive policies were inaugurated. Among them, the PNL (Plano Nacional de Leitura⁶) of 2006 has been a clear factor in the book circulation growth.

According to José António Gomes, since 1974, the social and political changes in Portugal have had an overspread impact on culture; and for children’s and young readers’ literature, in particular, this impact has resulted in a significant growth, referred by the author as “the so-called boom in literature for young readers in Portugal”. This kind of literary and artistic creation found then “the conditions to regain its breath, in an environment of freedom, and in a context where the number of works and the variety of productions directly or indirectly related to children’s universe increased” (Ramos, 2019, p. 151 – our translation).

The democratic system also facilitated a departure from the didactic commitment that had previously been imposed on books, allowing for innovative experimentation in the realms of illustration and non-linear narratives. This shift

⁴ My grandfather.

⁵ Walking around.

⁶ Reading National Plan.

resulted in books created through the free expression of art. Similar movements occurred in other countries emerging from dictatorial regimes, including Brazil, where the effects of the re-democratization process are reflected in the productions published during this period, incorporating aesthetic and thematic references from democratic nations. It appears that it was after this experimentation, influenced by the international scene, that local groups devised new solutions and began to establish new national identities. Considering the resources of a playful nature applied to the making of the book, the examination of some titles published by Planeta Tangerina, Pato Lógico, Orfeu Mini and Bruáa, among others wisely run by multidisciplinary teams, evidences a similar playfulness in the field of language, as found, for example, in *Livro Clap*⁷ (2014), by Madalena Matoso, published in Portugal by Planeta Tangerina, and in Brazil by Companhia das Letrinhas, and in *Daqui ninguém passa*⁸ (2014), by Bernardo P. Carvalho and Isabel Minhós Martins, published in Portugal by Planeta Tangerina, and in Brazil by SESI; as well as open invitations for the creation of new meanings, as in *Para onde vamos quando desaparecemos?*⁹ (2011), by Isabel Minhós Martins and Madalena Matoso, published in Portugal by Planeta Tangerina, and in Brazil by Tordesilhinhas, and in *Enquanto o meu cabelo crescia*¹⁰ (2010), by Isabel Minhós Martins and Madalena Matoso, published in Portugal by Planeta Tangerina, and in Brazil by Editora Peirópolis¹¹.

To value increasingly complex proposals in terms of narrative structure and of interaction with the reader, with many erudite intertextual references, for example, is no obstacle to value their playful dimension. (Ramos, 2018, p. 157 – our translation).

As timeline connections are relevant in this study, it is worth noting that the innovative movement in Portuguese literary productions resulted from the progress of studies in social sciences and, consequently, the views of contemporary childhoods that started in the 1970s. Also in Brazil, the relation between literature and science may be considered one of the triggers for the growing sophistication of languages and the appreciation of children's voices in the book production in Portuguese.

Andar por aí e O meu avô: unfolding dialogues between children and adults

The focus of the analysis of the two Portuguese books selected is the literary device of "voice", intricately interwoven within the textual and visual narratives.

It is through this reading, in particular, that the relations between character and narrative building become powerful, with the views of childhood outlined as

⁷ Clap book.

⁸ No one crosses this line.

⁹ Where do we go when we disappear?

¹⁰ While my hair was growing.

¹¹ Translator's note: these titles have been translated in the footnotes for this article.

theoretical references for this work. It is relevant to mention that the richness of themes in these picturebooks and their layers of meanings and literacy have produced varied and profound analyses published by academic critics specialised in contemporary children's literature. *Andar por aí*, for instance, was one of the titles examined as a "picturebook that depicts a healthy relationship between a child and the urban space" (Ramos, 2023). It was also noted for its narrative from the point of view of time, in which play and subjectivity compose the city and its multiple symbolic faces, all seen and experienced by the child and the adult (Andrade, 2021). *O meu avô* was examined under the intertextuality perspective and the intergenerational relations readings, in parallel with the homonymous book by Manuela Bacelar (Silva, 2019). It was also analysed under the perspective of the relationship between text and image (Cardoso, 2017), one of the strongest points of this book, qualified for the International Illustration Award of the Bologna Children's Book Fair, 2014.

Considering the characteristics that are common in the two books analysed here:

- They are written in the first person singular; the narrator is a child character that tells the story shifting his viewpoint from observer to participant. Each boy leads us through a journey with their grandfathers, who are "hip" gentlemen, behave freely and affectionately towards their grandsons and are admired by them.

- Both works have the grandfather as the adult character, the partner in the relation narrated by the child character. These characters and their representations are in the scope of interest of this analysis because of how the generational question appears in the relationship between the child and the old man. One of the pillars of theory introduced by sociology is the view of childhood as a generation class, still seen within the spectrum of limitations by some adults. Such view may also be applied to the elderly, for whom alleged ability limitations can often be used to justify their exclusion from social activities. In the two books analysed here, child and elder drive these limitations away, they do not bother with nor accept them, thus offering themselves the freedom that other adults, represented by the mother and Mr. Sebastião, immersed in their duties and chores, fail in offering and in enjoying themselves. The care the grandfathers have for their grandsons is affection, not control, and their protection is assured by their presence. Affection and presence are given and received in an even mutual flow between the child and his elder. Everyone has the same hierarchical authority in looking after themselves and others.

- In the two narratives, besides the grandfather, there is another adult who works as a kind of counterpoint for the grandfathers' behaviour. In *O meu avô*, it is Mr. Sebastião, a very busy neighbour; and in *Andar por aí*, it is the boy's mother, who lives with them and is often mentioned by the narrator, but only appears in verbal form.

- The use of graphic elements and visual and linguistic techniques is clearly emphasized and frequently crafted in the picturebooks published by this generation of authors in Portugal: solid colours, characters represented in narrow perspective (representation in 2D), simple shapes and patterns, use of humour and of parallel narratives in details of the illustrations. These elements may contribute to diverse reading experiences, welcoming readers of varied cultures and ages, for it relies on what makes good story telling: simplicity.

Proceeding to the analysis of the characteristics in each work:

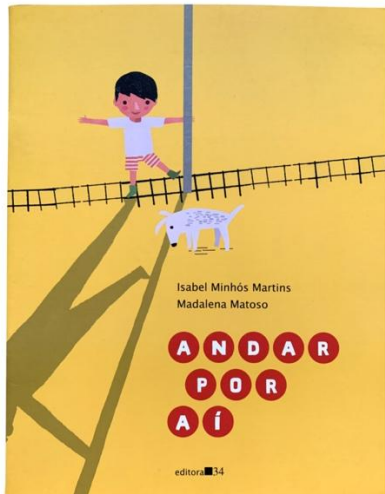


Image 1. cover of *Andar por aí*
Source: Martins e Matoso, 2017.

The text in *Andar por aí* is a sequence of short phrases, with alternating and overlapping themes, that creates a rhythm resembling that of our thoughts when we receive sensorial stimuli in motion, which is the case of this story's thematic argument: a stroll around the town.

In *Andar por aí*, we observe the work with the eyes, the points of view and the voices of the child narrator through solutions created by authors who know what it is like to be in the shoes of a child, connecting contexts, moving points of view within a child's perspective and his/her multiple skills of perception and fabulation. This care and attention appear, for example, in the use of colours and patterns that create the ambience for hot, cold, rainy, etc. Also, in the size difference between the boy and his grandfather, and of the other characters and the urban equipment, according to their importance at a given moment in the stroll.

It is important to notice how the trust and care the boy and his grandfather have for each other is represented throughout their journey. It is highlighted by the use playful resources and it is free from the logic of reality: the book plays with proportions and the characters' presence on the page, creating a sensorial experience for the character and the reader during their stroll, suggesting and subverting fears, frights and the unknown.

In the first half of the book, the images show the boy and his grandfather very close to each other at times (in the linear sequence), or very far away, for example, with one on the top and the other at the bottom of the page, resulting in the suggestion of an adult who trusts the child and gives him autonomy while protecting the little one with his presence; the boy, in his turn, relies on his grampa's protection and walks ahead to explore the distractions on the way.

This relationship of trust offers opportunities for the boy-character to wonder, to observe and to experiment in his city. The feeling of autonomy and freedom can also be noticed in the variation of proportions: sometimes the boy is nearly the size of his grandfather or, as the pages are turned, the boy grows bigger and bigger. He is also manner, different feelings in relation to how he is inserted in the urban space or his gradual assimilation of a sense of belonging to that place and context where he is and where, in the text, he affirms his place for strolling, in walks of recognition and familiarity as well as new elements for discovery.

This movement of the characters on the graphic field of the pages has a peak in the doublespread in the middle of the book, where, for the first and only time, the protagonist appears on his own, involved in a game of following traces on the floor, as shown below:



Image 2. pages 20-21 in *Andar por aí*
Source: Martins e Matoso, 2017.

In this doublespread, the grandfather is absent, but his body and presence are graphically suggested by the black lines that are also play material for the boy. That possible meanings of the black lines are suggested to the reader since the beginning of the story. The object the boy plays with on this doublespread may be the pavement, the neutral and tri-dimensional space, the book's open white paper that was written and drawn on, the endless drawing that overflows beyond the page

margin into the thin air surrounding the book, or any other place, into the real city. It is a significant toy-object with a non-utilitarian potential.



Image 3. cover of *O meu avô*
Source: Sobral, 2014.

Right from the cover, *O meu avô* invites us to participate in the child's point of view, as the framing shows the pair boy-grandfather: the complete image of the child and only part of the adult, guessingly the grandfather. The boy is looking up at him, in his elegant striped trousers, laced shoes and umbrella, making us curious about this adult.

We only meet the grandfather in person on page 6. Before that, we are introduced to a set of details represented by the overlapping of four solid colours of unusual combination. It is a meticulous portrait in loose details, a child's typical way of seeing. On equidistant settings on the doublespreads, with the child's eyes, we see the comparison between the grandfather's environment and Mr. Sebastião's. Here the narrator may be revealing what he knows and what he imagines about Mr. Sebastião's home. As we read on, we learn that Mr. Sebastião is the grandfather's neighbour, so, the boy may not know the place he is showing the reader.

Then, the next pages bring comparisons between the two adult characters, revealing both in the text and in the images these grown-ups' peculiarities with playful language, which we intuitively guess is the child's point of view.

From page 12 on, where the yellow colour is used for the first time, the text talks only about the grandfather, while the images still compare him to Mr. Sebastião on equidistant plates, inviting the reader to pay attention to the graphic details and relate them to the written text to continue the comparison game that leads us to the gradual introduction of these two grown-ups as pages are turned.



Image 4. pages 18-19 in *O meu avô*
Source: Sobral, 2014.

Going back to the point made earlier about the characters' features in response to the views of childhood in different periods, by observing the narratives in these two books as representatives of the contemporary production, it may be said that authors like Catarina Sobral, Isabel Minhós Martins and Roger Mello (whose book analysis is next) are transfiguring in their literatures a more balanced power relationship between child and adult characters, in stories that unfold without isolating the child or giving the adult a position of authority and control. If this is true, time and the readings will tell.

Retelling a literary myth in *Inês*: from ancestral orality to the place of the voice in children's narrative

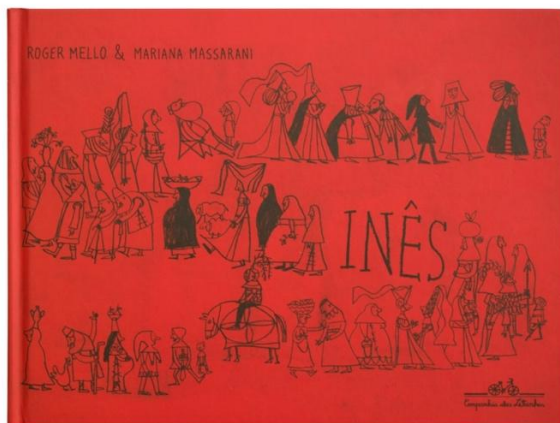


Image 5. Cover of *Inês*
Source: Mello e Massarani, 2015.

Inês retells the story of Inês de Castro and Pedro I, king of Portugal between 1357-1367, as told by their daughter Beatriz, a child narrator. In the literary myth, Inês is killed in front of her children and crowned after her death.

This title's tour de force is the narrative voice given to a child character for her to retell a traditional story whose central themes are death, jealousy and treason – normally seen as adult matter according to common sense. The narrative told by the images is permeated by the children's points of view, here "the children's points of view" are considered, according to the languages that compose the book, the appropriation of an open look to the wide universe of the symbolic, the literal, the poetic and the philosophical, often shown without the filter of a previous determining repertoire, and with the freshness and the surprise of the encounter, the commotion and the emotional abundance of first experiences. We can look at the details, the voids, the silences, at what is said and what is meant.

In regard to the objective of this article, we raise two points in *Inês* that are approached in a peculiar manner by the authors, in tune with the co-author reader: a) the child's view has plenty of the non-linear poetic narrative, through which adults are looked at "without a bias"; b) the narrative perception and complementarity between word and image in the approach of difficult themes.



Image 6. pages 6-7 in *Inês*
Source: Mello e Massarani, 2015.

*“Quando eles se conheceram, / “When they met,
eu andava escondida no meio de outras coisas. / I was hiding amid other things.
Curva de brisa, alga vermelha, briga de passarinho. / A bend in the breeze, red algae,
a bird*

[bout.

Eu ainda não era uma vez.” / I wasn't a once upon a time yet.”

(our translation)

The text structure in first person singular uses dramatic and lyric resources, resulting in material and fantasy images that suit the space-time of a literary myth. With such lyric insertions, the narrator seems to lace herself as an inseparable part of the happenings that occurred before her birth. Thus, the layers of meaning

derived from the text are filled with an “affective tone that incorporates the events to the experience of an “I”, who rhythmlessly incorporates the experiences to the free game of meanings, through which the language feedback about the self is operated”. (Nunes, 2013, p. 10 – our translation).

It comes from the child narrator’s voice the images and words that compose the material available to the reader, and this elaboration is innovative when the girl speaks about the adults. There is no place for preconceived or stigmatized values in her words, however, that does not mean that she is not aware of facts, for she is an empowered child who articulates her knowledge. To introduce inferences about her father, Pedro, the Prince of Portugal, she plays with words, suggesting nicknames that entitle her father:

“Pedro, o Desobediente” / Pedro, the Disobedient

“Pedro, o Confuso [...]” / Pedro, the Confused

“Pedro, o Mentiroso, foi é encontrar Inês” / Pedro, the Liar, went and met Inês

“Pedro, o Apressado, bateu em disparada.” / Pedro, the Hasty, fled like a bird.

“Até que Pedro, o Resoluto, alcançasse a torre.” / Until Pedro, the Resolute, reached the

[tower.

(our translation)

The author here uses this resource cannily, employing language as a play tool with which the narrator introduces a father with an unstable personality trying to adapt to the situations he is exposed to in his historical lifetime. With the nicknames, the narrator invites the reader to participate in a word game that sometimes evokes unexpected qualities for a father (or for a king), but they are softened by the playful tone of the game and of irony. This resource approaches Pedro to the imperfections of the human condition, with the fleeting behaviours revealed by his playful nicknames, but fully preserving the affection of the text. The narrator herself later confesses:

“Conheci muitos dos nomes do meu pai. / I knew many of my father’s names.

Pedro, o Cruel. / Pedro, the Cruel.

Pedro, o Cru. / Pedro, the Raw.

Pedro isso. / Pedro this.

Pedro aquilo. / Pedro that.

Só Pedro.” / Just Pedro.

(our translation)

The narrator comprehends the adults’ roles and facts through affection and free observation, focused on the present time of each happening, associated with the poetic and linguistic game. This is unarguably one of the reasons that allow the retelling of a myth plenty of difficult themes with beauty and conversations

connected to childhood culture. This story is a re-creation of the literary myth of Inês de Castro, not as a distant historical event, but, seen with a fictional intimacy, built with the wisdom of children's understanding, which move from the awareness of reality and fantasy, entwined by poetry, play and affection. A childhood that is, at the same time, medieval and contemporary.

"Pedro, o Vingativo, acabou com o silêncio: / Pedro, the Vengeful, ended the silence: Desenterrem Inês!" / Unbury Inês!

(our translation)

The resource that was a joke a minute ago (*Just Pedro*), now reveals a key to the plot. The king's nickname reaches a higher level in his daughter's eyes:

"Pedro, o Justo." / *Pedro, the Just.*

(our translation)

The story moves on and we are on page 39, where the dead queen's hand-kissing ceremony is happening.



Image 7. pages 38-39 in *Inês*

Source: Mello e Massarani, 2015.

We see a crowd. The expressions on each face vary from mourning tears to pious or fearful looks, some barely dare to raise their head, others are upset or maybe disgusted. Some have their eyes shut, for respect or in prayer. King Pedro is amid the crowd, watching the scene. The girl-narrator is integrated to her mother's body, she gently touches her mother's hair. The girl's eyes are closed and, together with the soft and tender caress, it looks like a final farewell. The image of this ritual, with the crowd and the leading characters, compose both a celebration of the queen and the loss of the mother.

The careful construction of the images softens but does not hide the presence of death in the scene. Inês and her death are crowned, on the throne. And not only is she dead, but time has also passed, and her body is a putrefying corpse, as the blue color on her face and hands shows us.

All these elements contribute to placate the harshness of this brutal and painful situation, without dissimulation or omission. The choice for graphic and textual elements that are open to the reader's participation and the diversity of interpretations may awake feelings of hope and redemption regarding the fact. What we see here regarding difficult or frustrating themes is the way contemporary authors and books take the stand to show they trust in children's skills and competence as readers and as people in constant construction, to know, to experience and to create identities or rejections, intertextualities, transpositions to reality or imagination, in reference to their own repertoire, or even readers who can sophisticate and add to reality gems of their playing and cultural background. This trust involving multidisciplinary knowledge and full artistic awareness, by considering life's complex unfoldings, is a tool to envision childhood according to the demands and transformations of our time. Buckingham invites us to prepare for and to participate in the use of this tool:

We cannot take the children back to the secret garden of childhood, nor find the magical key that will keep them locked inside its walls forever. Children are escaping to the big world of adults – a world full of dangers and opportunities where the electronic media have an increasing and important role. The era when we could expect to protect them from this world is coming to an end. We must have the courage to prepare them to deal with this world, to understand it and to become, by right, active participants. (Buckingham, 2000, p. 295 – our translation).

Final considerations

So far our investigation has allowed consonant and dissonant comparative approaches between the voices, views and thoughts about childhood and contemporary children's books in the light of the paradigm revolutions and transformations we have had in the past decades, especially in the fields of social sciences and literary production. We could document some ways to manifest narratives for children and to contribute with their testimony of an innovative amplification of experiences that a polyphonic literature for children may create in the future.

Through the methodology of comparative analysis (Carvalho, 2006), both unfolding and cohesive, we selected works that weave the plot to the consolidation of the thesis about children's literature as a space for the artistic manifestations of multidisciplinary features. These manifestations are deeply linked to the perception of contemporary childhoods and their cultures, all capable of fully interacting with the books and re-create the stories.

In the light of these imbricated views, the comparative analyses of the selected titles for this article could show an overview of the recent production of picturebooks internationally acclaimed and in which we could verify the use of

morphologic, syntactic and semantic resources aligned with concepts of a participant child reader.

The three books examined here, as well as the context they fit into, are tuned to the concept of the invention space, as indicated by Daniel Goldin:

The children's literature that truly regards itself as literature, that is, as a liberated territory for language, allows not only the recollection of the past of each person in the etymological sense of the term *re-cordis*, "to pass through the heart": it allows to open a space for the child to invent, or, at least, to make an enlarged freedom possible to build a world that bans violence, that establishes a greater balance among the potencies of power. (Goldin, 2006, p. 85 – our translation).

Inspiring or generating, to hear the self or the other has always been the fuel of literary writing. To observe, learn and read with children is a political attitude and a connection between social groups with equivalent importance in the social fabric, in all its diversity. What books and literary experiences shall spring from this proposal? We can see here some charming answers in surprising formats, linked to the sensitive, playful and attentive skills of some adults that, aligned with children's cultures, can create and expand realities from what is given. These books shine with the magic of an open window, they offer a cruise in the wind across realities and imaginations. A strong wind that sustains a round flight. Books that participate in the formation of the readers of worlds, not only of books.

May the new views and developments come! Let's share Roger Bastide's call in the preface of *As trocinhas do Bom Retiro*¹²: "We need to multiply this kind of research. Let's be fearless in the illumination of a science by another science", with the belief that literature can manipulate magical formulas for growth, so that more children may become adults that do not harm one another so badly.

We close this article with the call for hope by Ana Maria Machado, in the preface for *Os dias e os livros*¹³, by Daniel Goldin:

Children's contemporary literature has been observed in what concerns the re-creation by the reader, for language is neither unambiguous nor transparent, and so gives rights and powers to those who read it. This potential dialogue between children and adults through children's literature represents hope. As any other cultural creation, it can offer a redefinition for their relationship, from a liberated territory for language, with a power redistribution that is no longer based on the authoritarianism of the adults. (Goldin, 2012, p. 77 – our translation).

¹² The little jokes of Bom Retiro.

¹³ The days and the books.

Contributing to the study of children's literature and its possible relationships with other arts and areas of knowledge is to understand that literature is a movement that unfolds a universe beyond its pages. This study demonstrates and celebrates an era in which children's literature and the phenomenon of the picturebook constitute a true manifesto of excellence, grounded in free social, historical, and political thought, while contributing affectively, artistically, and technologically to the development of individuals and childhoods filled with enchantment and a more fulfilling existence, in connection with the world and with others.

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Bionote

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**PLAYING AND MATHEMATICS: PERCEPTIONS OF
CHILDREN FROM A PUBLIC SCHOOL**

**O BRINCAR E A MATEMÁTICA: PERCEÇÕES DE CRIANÇAS DE
UMA ESCOLA PÚBLICA**

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Abstract

The aim of this study is to explore the perspectives of Year 5 children from a state school in the municipality of Curitiba, Paraná, Brazil, on the connection between play and Mathematics. The research focuses on analysing drawings and photographs created by the children, which reflect their experiences in the classroom and their connection with mathematical concepts. The information obtained through observations, drawings, photographic records, and dialogues with the participants reveals that, although the children are able to associate mathematics with play and the respective spaces, their representations of ideal mathematics classes are still rooted in traditional practices, far removed from playfulness. This gap indicates the need for a more effective integration of play and mathematics teaching, aiming to make learning more meaningful and engaging for children.

Keywords: children's perceptions, play, mathematics, early grades

Resumo

Este estudo qualitativo tem como objetivo explorar as perspectivas de crianças do 5.º ano do Ensino Fundamental de uma escola pública do município de Curitiba-Paraná, Brasil sobre a articulação entre o brincar e a Matemática. A pesquisa fundamenta-se na análise de desenhos e fotografias realizadas pelas crianças, que

refletem suas experiências em sala de aula e sua conexão com conceitos matemáticos. As informações obtidas por meio de observações, desenhos, registros fotográficos e diálogos com as participantes revelam que, embora as crianças sejam capazes de associar a Matemática ao brincar e aos respectivos espaços, suas representações de aulas de Matemática ainda se baseiam em práticas tradicionais, distantes da ludicidade. Essa lacuna indica a necessidade de uma articulação mais eficaz entre o brincar e o ensino da Matemática, visando tornar o aprendizado mais significativo e engajador para as crianças.

Palavras-chave: percepções de crianças, brincar, matemática, primeiros anos

Introduction

Why is it that as the school segments advance, the spaces and times for play are reduced and children stop being children and become pupils? (Borba, 2007, p. 33).

By starting this article with this quote from Ângela Meyer Borba about the reduction of spaces and times for play as children progress through the different school segments, the intention is to make a reflection that instigates changes in the way the teaching and learning process is handled with primary school children, implying the loss of essential elements of childhood, such as play, especially in its relationship with maths. In the contemporary educational scenario, Mathematics Education has been searching for innovative and effective strategies that arouse children's interest and participation (Nacarato & Custódio, 2018; Muniz, 2016). In this context, play is highlighted in this text, especially in the early years of primary school.

According to Muniz (2016), there is a need for in-depth and well-founded discussion about the different meanings of the theoretical and practical relationships between play and learning maths in order to overcome limitations in integrating the play aspect with the subject. These limitations imply that games are used in two different situations: during the teaching process, as playful activities to motivate children, or after learning has been completed, as exercises to reinforce previously acquired knowledge.

In this direction, Spodek and Saracho (1998) explored the possibility of expanding this vision, considering that play can play a central role in the construction of mathematical knowledge, promoting learning that is more meaningful and integrated into children's experience. Spodek and Saracho's (1998) proposal goes beyond the instrumental use of play, as it argues that play should be seen as an integral and continuous part of the teaching process, and not just as a complementary resource.

With this in mind, the aim of this text, which is part of a doctoral research project from the Postgraduate Programme in Science and Mathematics Education (PPGECM) at the Federal University of Paraná, is to explore the contribution of play and its relationship with mathematics, based on the perspectives of children in a 5th-grade class at a public school in the municipality of Curitiba, Paraná, Brazil.

From this perspective, it becomes essential to deepen the theoretical discussion that underpins the relationship between play and mathematics, aiming to understand how play can foster meaningful experiences for children. In this sense, the adopted theoretical framework seeks to support the analysis of children's perceptions regarding this practice, highlighting the role of play as an essential dimension for contextualized, creative, and engaging learning within the school context.

Theoretical Framework

Discussing play necessarily implies addressing conceptions of children and childhood, because play is a fundamental dimension of children's lives, intrinsic to their development, expression and construction of knowledge. It is an activity that involves the active subject and is directly related to their mental and emotional representations. Recognising the importance of play in childhood highlights experiences that respect and meet children's needs, enabling them to explore, experiment and develop fully.

Children have always been present in society in their various forms, existing in multiple realities and being seen in different ways throughout history, as Sarmiento and Pinto (1997) point out. Childhood, as a social construction, was consolidated especially in the 17th and 18th centuries, when social representations, beliefs and socialisation and control devices emerged that established childhood as a social category of its own.

However, Sarmiento and Pinto (1997) emphasise that, in contemporary conditions, a paradox persists in relation to the way children are considered by adult society. It can be seen that the smaller the presence of children in the population, the greater the value placed on them. This phenomenon, attributed to increased life expectancy and falling fertility rates, especially in Western contexts, highlights the centrality of childhood in today's society (Sarmiento & Pinto, 1997).

The paradox with which children are viewed in the adult world also manifests itself in the school institution, as Sarmiento and Pinto (1997) point out. Children are, on the one hand, encouraged to behave like children, but, paradoxically, their childish attitudes are often criticised. They are expected to play when they are allowed to, but it is not understood why they don't stop playing when they are asked to. In the early years of primary school, this paradox intensifies, as children are encouraged to develop their cognitive, social and emotional skills in an exploratory and playful way. However, they simultaneously face pressure for academic performance and the expectation of behaviour closer to adult standards.

Historically, the perception of children has often confused them with 'mini-adults', being seen as reduced reproductions of adults, both in terms of dress and habits, as analysed by Ariès (1981). At other times, children were also seen as a form of entertainment, exhibiting behaviour seen as graceful for the amusement of adults, in a relationship that equated them with small domestic animals such as dogs, highlighting a view that oscillated between the playful and the instrumental.

However, according to the perspective of the Sociology of Childhood proposed by Sarmiento and Pinto (1997), children are seen as full social actors, which recognises their ability to create symbolism and construct representations and beliefs within organised systems, in other words, in different cultures. With the intention of investigating the contribution of play and its connection to maths from the children's point of view, the following section will be supported by reflections based on assumptions from contemporary theories and studies.

To deepen the discussion, it is crucial to consider the tensions between children's perspectives and the organizational structures of schools. While play is valued as an essential dimension of child development, it faces limitations imposed by school norms and practices. In this context, the next section explores the challenges and possibilities of this intersection, highlighting how play, even amidst institutional constraints, can pave the way for more meaningful mathematical experiences that are connected to children's realities.

Conflicts and Possibilities: The Intersection of Play and Mathematics

The practice of play within institutionalised spaces faces challenges, given that educational institutions operate with established norms and set timetables. In addition, it is adults who shape the proposals and organise the environment, which does not always result in a correspondence between the children's intentions and desires and the opportunities offered by adults.

It can be seen that the transition to primary school follows the logic of pedagogical tradition. As emphasised by Borba (2007), there is a predominant perception that, on entering primary school, children should adopt a more serious attitude, focusing on attention and relegating play to second place. In this context, Gilles Brougère (2017) argues that play is learning in itself, and that children learn to play. This act is essentially social, as it allows the child to interact with others. During play, what is really learnt is the dynamics of play itself, which is extremely significant.

The link between play and maths has been a topic of debate and reflection in the educational field. Researchers and teachers recognise the importance of exploring the potential of play as an effective pedagogical approach to teaching mathematics. However, it can be seen that, for the early years of primary school, this possibility still lacks more in-depth exploration and realisation.

Play offers children a playful experience, and this experience must not be compromised by institutional dynamics when trying to introduce school learning into something that is intrinsically the children, as it is essential to respect and preserve the space for children's play. By imposing pedagogical objectives on play, there is a risk of corrupting its essence, transforming it into what Brougère (2017) calls a distortion that distorts play from its ludic nature.

The author analyses play as a cultural phenomenon and explores its relationship with the child. Brougère (2017) explains that play culture is linked to play schemes, which combine social observation, play habits and material resources. Children build their own play culture through participation in play, influenced by the material and social conditions that surround them. This playful construction is not limited to the social sphere, but can also be applied to the educational context, especially in learning maths.

From this perspective, Maths can overcome the notion of being abstract and distant, becoming an opportunity to explore, experiment and experience Maths in a meaningful way. By developing new learning and potential, children have the chance to broaden their horizons and their mathematical skills, strengthening their confidence and self-esteem in the process.

According to Nacarato and Custódio (2018), play associated with the process of teaching and learning mathematics represents a specific way of systematising the diverse knowledge that children acquire through their daily interactions with their peers, especially in the context of the adult world. In this sense, the authors emphasise that play plays a crucial role in the construction of knowledge, while at the same time offering an understanding of the society in which the child is inserted and its cultural relations. 'Children are movement, and as they play and move, they recreate and rethink the events around them, developing practices of respect for others, ethics, as well as cognitive and motor skills' (NACARATO & CUSTÓDIO, 2018, p. 30). The authors also emphasise that by taking part in play, children establish bonds, understand their limitations and face challenges.

Spodek and Saracho (1998) address the connection between play and the promotion of playful learning in maths teaching. The authors argue that dramatic play offers an enriching opportunity because, by simulating situations such as a shop, restaurant or market, children can practise skills such as counting, weighing goods and organising objects according to the number of customers, allowing them to explore concepts related to the monetary system (Spodek & Saracho, 1998). Play creates roles and social relationships (Nacarato & Custódio, 2018; Spodek & Saracho, 1998), which is important for children as it allows them to test hypotheses, express themselves, negotiate different social situations and learn to work with their peers. Spodek and Saracho (1998) also mention motor play, which can take place both in open outdoor spaces and in classrooms.

To facilitate motor play, it is essential to provide materials such as ropes, balls, balance beams, sandboxes and hopscotch drawings on the floor. However, as pointed out by Muniz (2016) and Spodek and Saracho (1998), the role of the teacher

is crucial, as they have the ability to guide children in improving their play, dedicating time and attention. Teachers can adapt outdoor activities according to local weather conditions.

It is important to emphasise that the presence of play in the school environment is not enough if it remains an exclusive activity for children, without the participation of teachers. For play to be truly enriching, the teacher must be actively involved in the experience, acting as a partner who plays together. In this way, they can provoke and explore new possibilities, ensuring that play retains its authenticity and continues to provide a space for creativity and genuine learning.

Play must be recognised as a creative expression of the child, and the teacher must be careful not to appropriate this practice in order to meet specific targets set by the curriculum. Otherwise, there is a risk of jeopardising the essence of play, distorting its true meaning.

It can therefore be seen that teacher training focused on the theme of play in maths teaching is fundamental to providing teachers with both the theoretical basis and the practices needed to guide children in exploring mathematical concepts through their play. In this way, teachers can facilitate discussions about play within the context of mathematical learning.

Differentiating Play and Games

To substantiate the feasibility of play in mathematics classes, particularly in the early years of primary education, it is essential to go beyond a superficial understanding that associates the use of games and playful activities with merely restoring enjoyment in school activities. The aim is to encourage the reader to perceive mathematical learning as an integral part of children's play.

It is important to highlight the need to differentiate the concepts of game and play, as the Portuguese language allows for this distinction in terms of meaning. According to Muniz (2016), there is considerable confusion caused by the indiscriminate use of the terms *brincar* (to play) and *jogar* (to game), along with the polysemy associated with these words. The authors assert that this lack of clarity often hinders an adequate understanding of the new and valuable opportunities to integrate games and playful activities into formal educational settings, especially in curricula.

In this perspective, Muniz (2016) clarifies that play is intrinsically linked to the pleasure that children experience while engaging in the activity. Children have the freedom to enter, exit, and modify the activity, including alterations to the rules. In contrast, a game, as per Muniz (2016), operates with a set of predefined rules, where flexibility to change the rules and freedom to participate or leave are restricted. The Dutch historian and linguist Johan Huizinga emphasizes that rules play a fundamental role in defining a game, which is a space where civilization emerges and develops. Each game, with its specific rules, establishes what is considered valid

within its temporary context. These rules are absolute and do not allow for discussion (Huizinga, 2000).

It is important to note that what is often called a game in the Mathematics classroom is not always truly playful for children, as it lacks essential elements that ensure the enjoyment of the activity. According to Muniz, the playful dimension does not lie in the people who create, develop, implement, and control the activity, but rather in the perspective of the player themselves, that is, in the view of the child or young person experiencing the activity (Muniz, 2016).

After defining the distinctions between playing and playing, the text proceeds to describe the methodology employed in the study, elucidating the selected methods to investigate the contribution of play and its relationship with Mathematics from the perspectives of children in a fifth-grade class at a public school.

Methodology

The methodological approach of this research was guided by principles of the qualitative approach, which, according to Garnica (2010), acknowledges the dynamic and provisional nature of results, rejects the formulation of prior hypotheses, and recognizes the researcher's influence in the interpretive process. In this context, the researcher, while interpreting the data, inevitably incorporates their perspectives and prior experiences. Furthermore, it is understood that the process of constructing understandings is not fixed but continuous and subject to constant reformulation. Finally, it is acknowledged that systematic procedures cannot be rigidly regulated due to the inherent complexity and flexibility of the qualitative approach.

In the Brazilian context, there has been an effort to consolidate a view of the child as a citizen, a creative subject, a social individual, and a producer of culture and history (Kramer, 2002). In this sense, the present research aimed to explore children's perspectives on the theme of play and its relationship with Mathematics, selecting approaches and instruments that would allow for the gathering of information and capture the various forms of children's expression. The investigation, therefore, utilized a variety of methods to understand children's perspectives on play and its connection to Mathematics teaching. The chosen methods allowed access to the children's perceptions through written, visual, and verbal records, addressing the complexity of the object of study.

The investigation, therefore, employed a variety of methods to understand children's perspectives on play and its connection with Mathematics teaching. The instruments were selected based on their ability to capture the multiplicity of forms of children's expression, as suggested by Zabalza (2004), Flores (2015), and Gaskell (2004). Participant observations were conducted and documented in a field diary, focusing on the use of space, pedagogical planning, and the interactions between

children and the teacher during Mathematics lessons. The children also created drawings to represent what they consider an engaging Mathematics experience.

Photographic records were instrumental in identifying the relationship between Mathematics and play within the school environment. Group interviews were conducted to gather more detailed insights from the children about the constructed information. The choice of multiple research instruments, such as the field diary (Zabalza, 2004), drawings and photographs (Flores, 2015), and group interviews (Gaskell, 2004), aimed to encompass various forms of children's expression and capture the complexity of their experiences.

The selected instruments interacted with each other, fostering a triangulated approach where the information obtained complemented one another. Observations provided context for the children's interactions within the school environment; drawings and photographs highlighted their visual and narrative perceptions; and interviews deepened these perceptions through collective reflections and discussions.

Field of research

The choice of research site took into account aspects that would enable an in-depth analysis of the subject and the achievement of the objectives, always with an ethical commitment. It was therefore decided to choose a class in the early years of primary school in a public school, ensuring that the external researcher would be well received, without giving preference to teachers who already valued play in maths lessons. Initial contact was made with professionals from public schools in Curitiba. A teacher trainer, who worked in teacher training between 2018 and 2020 and returned to the classroom in 2021, agreed to carry out the research in her 5th grade class at the school where she teaches, located in the Tatuquara neighbourhood. The choice of this teacher also took into account her experience with diverse pedagogical practices, which contributed to the richness of the collected data.

Observing the Curitiba Municipal School, where the research was carried out, initially drew attention to its location on one of the main avenues in the Tatuquara neighbourhood. Nearby there is a Children's Education Centre, a Family Store, a church of the Christian Congregation in Brazil and other commercial establishments. The school has a large outdoor area, a spacious gymnasium and gates that delimit the educational environment.

Children who participated in the research

At the Curitiba Municipal School, a 5th grade class was selected for the research, involving 32 children. Although the proposed activities were carried out with the whole class to avoid embarrassment, 24 children provided the necessary authorisations to take part. The criterion for selecting the class was to ensure a

diversity of perceptions and experiences representative of the public-school context in Curitiba.

Weaving the information: drawings, photographs and interviews

Twelve visits were made during the field research in 2022. Six visits were dedicated to activities with the children, such as making drawings, photographs and interviews. One day was set aside for a conversation with the school's management team and a presentation of the research, inviting the children to take part. Four days were spent observing the 5th grade class and one day was dedicated to giving feedback on the first stage of the research. The class teacher supported this approach, as the children showed curiosity and shared their doubts with their families .

The participant observations were guided by pre-defined categories, such as interactions between children and the teacher, use of school spaces, and pedagogical practices related to Mathematics. These records, detailed in the field diary, were later analysed to identify patterns and emerging aspects.

During the interactions, the children asked questions about costs and additional materials. After the research presentation, classroom observations were carried out and recorded in the field diary. During the visits to the school, the children played the Dixit game to raise awareness and contemplate the images. The Dixit game, launched in 2008, provides an experience of reading and interpreting the cards, allowing reflection on the objects represented. The Dixit game was used to familiarise the children, and in subsequent interviews, the game cards were extended to include children's drawings and photographs, promoting dialogue and reflection during the group interviews.

During the field research, the field diary was used to record observations. On the first day, the teacher invited two children to introduce the school and accompany her during recess. She chose to record her observations when she returned from the field, focussing on the most striking aspects. When something caught her eye, she recorded it immediately. The diary included sounds, perceptions and emotions from the observations and the journey to the field, documenting the researcher's impressions and reflections.

Before the drawings were made, the children were sensitised to works of art by Candido Portinari, Edgar Degas and Pablo Picasso. After the awareness-raising, the children took part in an activity to answer what is needed for a good maths lesson, proposed by means of a story adapted from Cruz (2008). The story served to engage the children and arouse their curiosity, encouraging them to reflect on the important elements for an interesting and fruitful lesson. The aim was to create a relaxed and stimulating environment where the children could express their ideas freely, promoting an open dialogue about their perceptions of maths lessons.

The children had two lessons to draw their pictures individually, ensuring time and calm. Everyone took part, but only the drawings of the authorised children were used in the research. On another visit, there was a moment of sensitisation with photographs by Henri Cartier-Bresson to discuss framing. The children, organised in pairs, talked about what to record and made their photographic records.

Digital cameras and written records were distributed so that the children could write captions for the photos, answering two questions: 'What do you most like to do at school?' and 'Where is maths for you?'. The children were free to choose which areas of the school they wanted to photograph, and the staff were informed about the movement.

After the drawing and photography activities, interviews were organised with the participating children. Drawings, photographs and the Dixit game were used to stimulate ideas and discussions. The interviews took place in the library, with the children arranged around a round table. Only children with authorisation took part, and a voice recorder was used. The children were organised into small groups to discuss the information obtained from the research. The Dixit game was used to animate the debate, using the children's drawings and photographs as extension cards. Seven groups were formed, ranging from two to four children per group, depending on their presence on the days of the interviews.

One of the ethical processes of the research is feedback, where different materials are planned to present the results to the participants, such as the children and the school management. In December 2022, a meeting was proposed with the 5th grade class to present some preliminary results from the first stage of the research. The meeting began with a discussion about research involving children, using the books 'Childhood in the eyes of the child' and 'The house of stars'. The children had access to these books and to an exhibition of drawings and photographs, suggested by some of the children in the class. There was also a feedback session for the school management, with a talk and presentation of the information constructed by the children.

The triangulation of information obtained through drawings, photographs, and interviews enabled a rich and integrated analysis, connecting the multiple dimensions of children's experiences with play and Mathematics.

Results and discussion

In this context, an analysis was carried out based on Gaskell (2004), who explains that the aim of analysis is to seek meaning and understanding. Considering that what is said constitutes the information, but that analysis goes beyond accepting the apparent value. For the author, analysis seeks to identify themes with common content. Essentially, the author agrees that the moment of analysis and interpretation requires time and effort, which implies the researcher's own immersion in the corpus of the text. As Gaskell (2004) recommends, the interviews

were fully transcribed, marked up, annotated, concordance identified in the context of the words, as well as thematically analysed.

The analysis of the drawings was inspired by the construction of the affective map, according to Bomfim (2010) and Röder (2018), considering the structure of the drawing, which describes the image observed; the interpretation, which reveals what the creator intended to represent; the meaning, which exposes the sense attributed by the subject to their drawing, providing an understanding of the perception of play in maths lessons; the quality, related to the attributes that connect play to maths lessons; and the sense, the interpretation made by the researcher based on the metaphors present, without imposing external meanings on the teachers' representations.

To help analyse the visual materials, the work was also based on Loizos (2004), who is concerned with the use of photographs as qualitative research methods. For the author, the image is a potential record of temporal actions and real events. Loizos (2004) considers that photography can serve as a trigger to evoke memories of people that an interview would not be able to address. Thus, images can facilitate the construction and sharing of information, allowing the researcher and interviewee to discuss in a more relaxed manner than without a visual stimulus (LOIZOS, 2004, p. 143).

The empirical data reveal that children perceive play as an opportunity for movement, social interaction, and discovery. These characteristics align with the literature advocating for the integration of playful practices into Mathematics education, as highlighted by Borba (2007) and Nacarato and Custódio (2018). These authors emphasize that Mathematics, when experienced in meaningful contexts, can become a field of active and engaging exploration, contrasting with exclusively traditional approaches.

Children's Perceptions: Connections with Everyday Life

It is emphasized that, in total, the research listened to 7 groups, composed of five children during the group interviews; however, since this text refers to a specific subset of the research, only the information gathered from the first group, which participated in the proposed activities and had the recordings transcribed and analyzed, is considered for the present analysis.

The photographic records from the children in the first group revealed interesting choices regarding the school spaces. Places such as the playground and the sports court were selected to represent the areas they liked the most within the institution, symbolizing environments of movement and relaxation, where play frequently occurs. The choice of these spaces, where children can be more connected, aligns with the literature that emphasizes the importance of considering school environments to enhance learning. Authors such as Borba (2007) and Nacarato and Custódio (2018) discuss the relevance of exploring Mathematics and

play outside the classroom, as this way, children have the opportunity to play and explore Mathematics in a contextualized manner.

The present research investigated children's perceptions of the relationship between play and Mathematics, revealing that children associate the subject with spaces for movement and relaxation, such as the sports court. These environments, where they feel more at ease, are fundamental for building meaningful and contextualized experiences in Mathematics. This choice by the children aligns with studies that emphasize the importance of environments that promote interaction and playful exploration.

The information obtained indicates that children not only recognize Mathematics in formal contexts but also experience it in their daily activities. The identification of mathematical elements in play, such as quantifying and measuring distances on the court, demonstrates that Mathematics is perceived as an integral part of their daily experiences. This perspective is supported by Nacarato and Custódio (2018), who argue that play, in the teaching and learning process, represents an effective way to relate the knowledge constructed by children in their social interactions. However, the research also revealed a difficulty among the children in identifying places in the school where Mathematics is present, as recorded in the field diary.

Today, while observing the photography activity, I realised that the groups had difficulties identifying places in the school that could be related to mathematics. As they walked along the corridors, they questioned each other, trying to find connections. 'Is there maths here?' one asked, while another analysed the surrounding space, looking for references. The interaction between them was rich, but the hesitancy to recognise mathematics in everyday environments was evident. (Field Diary, 12/11/2022)

This gap underscores the need for teaching approaches that value experiences with play, as proposed by Muniz (2016). The photographs and captured dialogues highlight the importance of activities that connect Mathematics to children's daily lives, particularly in playful environments. The lack of such connections may lead to a distorted perception of Mathematics, which remains tied to traditional practices and detached from the essence of play.


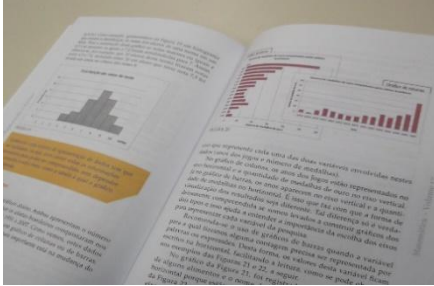

The analysis of the information obtained not only reflects the theories discussed but also highlights the need for pedagogical practices that integrate play as a means of meaningful learning in Mathematics. Promoting experiences that connect Mathematics to children's daily lives, especially in playful environments, can contribute to how they perceive and relate to the subject, making it more meaningful and accessible.

The conversation between Kauane and Júlia about the playground as the place they like most at school reveals not only their preference for a playful space but also how they associate this environment with play and exploration. The fact that Kauane and Júlia identify the playground as a significant location for play can be interpreted as a direct link between the enjoyment of the activity and the construction of knowledge, suggesting that Mathematics can be perceived more lightly when integrated into familiar and enjoyable contexts.

The empirical data reveal that children identify play as an opportunity for movement, social interaction, and discovery. These characteristics resonate with the literature advocating for the integration of playful practices into Mathematics teaching, as highlighted by Borba (2007) and Nacarato and Custódio (2018). These authors emphasize that Mathematics, when experienced in meaningful contexts, can become a field of active and engaging exploration, in contrast to exclusively traditional approaches.

The interaction with Lucas and Thauane highlights their perception of Mathematics in physical activities, particularly on the sports court. Their association of the court with games like football and basketball demonstrates their ability to recognise mathematical concepts, such as counting and measuring, in real-life contexts. This underscores the importance of incorporating these spaces into pedagogical practices, allowing students to experience Mathematics as connected to their daily lives rather than just theoretical concepts. This approach fosters a broader understanding of Mathematics among children. Photographs taken by the children can be found in Table 1 below.

Table 1
Photographs as Extension Cards of the 1st Group of Children

PHOTOGRAPH	DESCRIPTION OF THE AUTHORS
	<p>Researcher: Kauane and Júlia, the first photograph was about the place you like the most at school. Would you like to talk about that place? Kauane: It's our favorite place in school. Researcher: What is the place? Júlia: The playground. Kauane: There are lots of things to do there. Researcher: The school has two playgrounds, right? Júlia: Yes. Kauane: There are two sandy playgrounds, and one has a swing. Júlia: The swing. Kauane: Over there, you can see. Júlia: The swing. Júlia: From that part, you can see the playground. Researcher: I see. What do you like to do at the playground in the photograph? Kauane: Play on the. Júlia: Play mom height. Kauane: Mom height and slide down the slides.</p>
	<p>Researcher: And what about the second photograph? Kauane: That's our only option, right? Júlia: Yeah, we walked around the whole school and didn't find anything else. Researcher: So, you found a book? Júlia: Yes. Researcher: Why did you decide to take a picture of the book? Kauane: Because it had something to do with Mathematics. Researcher: Is this a Mathematics book? Júlia: Yes. Kauane: Yes. It was a book that was right here on the table (library table).</p>
	<p>Researcher: Where is this place? Lucas: The court. Thauane: The court. Researcher: What do you like to do there? Lucas: Play football and play basketball. Thauane: I like to play basketball.</p>



Researcher: The second photograph was about a place where you think there is Mathematics. Which place did you think of?
Lucas: The court.

Source: Field research (2022).

This relationship between play and Mathematics suggests the need for teaching that values these experiences, promoting a contextualized approach that stimulates children's experience and curiosity about mathematical concepts. It is interesting to highlight that the interaction between Kauane and Júlia, where they mention 'our only option, right?' and 'we went around the whole school and didn't find it,' reveals a limitation in children's perception of where Mathematics manifests itself.

When asked about the photograph of a book, Júlia's response, 'because it had Mathematics stuff,' indicates that their association with Mathematics is strongly tied to educational materials and the classroom rather than interactive and playful spaces at school. This situation suggests that although children recognize Mathematics as an important subject, they struggle to see it integrated into their daily experiences and play environments.

This limitation may be attributed to the way Mathematics is traditionally taught, often disconnected from practical experiences and spaces of social interaction. However, Mathematics should be integrated into children's daily experiences (Muniz, 2016).

Therefore, it is essential for teachers to promote pedagogical approaches that help children establish connections between Mathematics and play in various school settings, encouraging a broader and more contextualized view of the subject. Promoting activities that integrate play and Mathematics can facilitate this relationship, allowing children to recognize the presence of Mathematics in their everyday experiences, not just in books, but also in spaces of movement and social interaction.

Children's Perceptions: Experiential Representations of Mathematics Classes

The analysis presented reflects a common reality in Mathematics classes, where the traditional teaching structure predominates, limiting the exploration of play's potential that could enrich children's relationship with Mathematics. The observation that lessons were pre-planned and organized without the inclusion of manipulatives suggests a pedagogical approach that may not meet children's

learning needs, as discussed by Muniz (2016) and Brougère (2017). The lack of manipulatives can restrict children's ability to experience Mathematics meaningfully, which is essential for building mathematical concepts.

Field diary entries and analysis of drawings were valuable tools in understanding how children perceive and relate to Mathematics. Through their drawings, children express their experiences and preferences, revealing that their classroom experiences are strongly tied to traditional teaching methods that often do not value play as a pedagogical strategy. This aligns with the critique by Spodek and Saracho (1998), who argue that play should be seen as an integral part of the learning process, not just as a complementary activity.

In this sense, the finding that children draw on references from their classroom experiences when illustrating what they consider to be a fun and interesting Mathematics class suggests that, even while recognizing the value of play, their experiences are still deeply rooted in conventional approaches. This situation indicates a need to rethink pedagogical practice, where play and Mathematics can coexist harmoniously, allowing children to develop an integrated understanding of Mathematics in their daily lives.

Therefore, the analysis suggests that for Mathematics to become a more meaningful and playful experience, pedagogical practices must be reassessed and adapted, incorporating play as a central strategy in the teaching-learning process, as advocated by Nacarato and Custódio (2018).

Following this, the children's drawings, created individually over two classes, will be presented. These drawings were used as a response to the question of what would constitute a fun and interesting Mathematics class. In the context of the research, children were invited to help the city's mayor reflect on what this ideal class could look like, providing an opportunity for them to express their ideas and perceptions of Mathematics teaching in a creative and engaging way.

The analysis of the children's drawings deserves an interesting observation: when invited to imagine an ideal Mathematics class, they ended up reflecting their experiences in conventional classes, which, as observed, were predominantly traditional and did not incorporate play, games, or manipulatives. This finding is significant as it shows that, even with creative freedom, children based their drawings on their school experiences, which often lack playful approaches and experiences.

For example, Kauane drew squares of chocolate, highlighting the importance of concrete and sensory materials in learning. Her mention of a notebook and scissors suggests a perception that Mathematics goes beyond numbers, involving the handling of objects, which may indicate a broader view of the mathematical experience.

Júlia, on the other hand, associated her fractions class with the pleasure of using chocolate and the satisfaction of eating after the activity. Her drawing not only represents curricular content but also emphasizes the positive and memorable

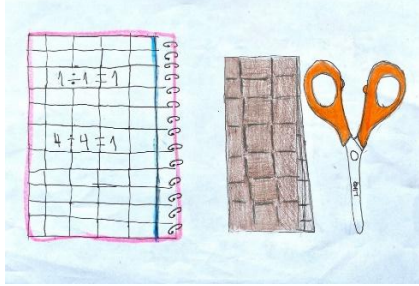

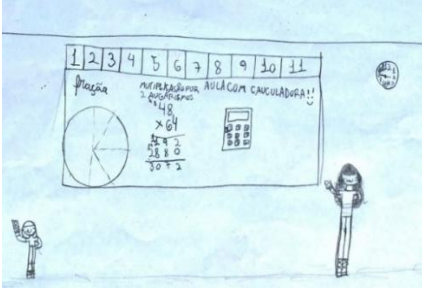
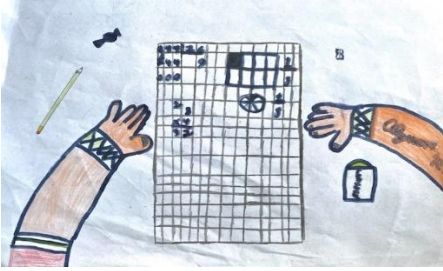
nature that practical activities can have in learning. Her choice of this class as 'really cool' reinforces the idea that practices linked to play can facilitate the understanding of abstract concepts.

In contrast, Thauane presented a more traditional representation of Mathematics, including fractions, multiplication, and a calculator. This suggests that, for her, Mathematics is closely linked to the teacher's role as the central figure in the teaching process.

Lucas expressed a more spontaneous and free approach, without a clear connection to a specific experience. This may indicate that, for some children, Mathematics can be represented more intuitively, not necessarily tied to a formal classroom context. His phrase, 'I don't know, it just came to my mind,' reflects a more fluid perception of the subject, allowing us to consider the various ways children express their mathematical experiences.

The children's drawings can be observed in Table 2 below.

Table 2
Drawings and Dialogues of Children About Mathematics Lessons

DRAW	DESCRIPTION OF THE AUTHORS
	<p>Kauane: Chocolate, because we can count the squares, and we've also had a class with chocolate. Researcher: Did you draw a notebook as well? Kauane: Because I also saw Mathematics in it. Researcher: And the scissors? Kauane: To cut paper. Researcher: Do you also use that in Maths class? Kauane: Sometimes. Thauane: Kauane, do you remember you took my scissors? Kauane: Yes (laughs).</p>
	<p>Júlia: I drew teacher Heloiza teaching us how to make fractions, and it was from that lesson we had with chocolate. Researcher: Why did you choose this lesson? Júlia: Because it was really fun; after we finished, we ate it. (laughs).</p>
	<p>Thauane: A good teacher giving a lesson. I drew fractions, multiplication with two digits, and a calculator. Researcher: And who are these two people? Thauane: The teacher and a student. Researcher: Is that you? Thauane: No.</p>
	<p>Lucas: I don't know, it just came to my mind.</p>

Source: Field research (2022).

These drawings reveal how play and experiences with Mathematics impact children's perceptions and representations. Although they recognize play as part of their experiences, their relationships with Mathematics remain strongly tied to traditional approaches. The classroom continues to be the most represented space when referring to Mathematics.

Therefore, this analysis highlights the need for a pedagogy that values experiences with play, promoting a more dynamic and interactive learning environment. This can engage children and facilitate the construction of mathematical knowledge, as suggested by authors like Nacarato and Custódio (2018) and Brougère (2017). Mathematics education should, thus, seek to integrate play, recognizing the child as an active subject in the knowledge construction process, as discussed by Kramer (2002).

For Mathematics to be understood in a broader and more meaningful way, it is essential for teachers to promote approaches that integrate play into the construction of mathematical concepts, valuing social interactions and everyday contexts as spaces for teaching and learning.

Conclusions

The research aimed to explore the perspectives of fifth-year children from a public school in the municipality of Curitiba, Paraná, Brazil, regarding the connection between play and Mathematics, highlighting the importance of integrating playful experiences into the teaching of this subject. The methodology adopted involved a qualitative approach, which included conducting interviews, observations, and analysing drawings and photographs produced by the children. These strategies allowed for capturing the diverse forms of expression and experiences of the children in relation to Mathematics, revealing how their everyday experiences influence the way they engage with the topic addressed.

The results indicated that although children recognize the value of play as part of the school environment, their experiences with Mathematics are still strongly tied to traditional teaching approaches. The representations made by the children, especially in their drawings, reflect their conventional classes, suggesting that the use of manipulatives and practical activities can facilitate the understanding of mathematical concepts. This finding reinforces the need for teachers to adopt methodologies that consider children's experiences, promoting a more dynamic and interactive learning environment. For expanding understandings of mathematical concepts and their connection with everyday life.

Moreover, the study highlights that when play is integrated into pedagogical practices, it can not only enhance children's engagement but also foster a more positive relationship with Mathematics, expanding the opportunity for them to reframe their experiences with the subject.

In light of the above, the research highlights the relevance of a pedagogical approach that values play as a central element in the teaching and learning process of Mathematics. In this sense, promoting pedagogical practices that incorporate play requires teacher training focused on recognizing and valuing children's experiences, as well as a critical reflection on the traditional curriculum.

By integrating play into the curriculum, it is possible not only to make lessons more engaging but also to contribute to the development of children's confidence and self-esteem in relation to Mathematics. Thus, the creation of a playful culture within the school environment, as discussed by authors such as Brougère (2017) and Nacarato and Custódio (2018), can be a promising path to transforming children's perceptions of Mathematics, making it a meaningful and enjoyable experience. This transformation requires not only a rethinking of teacher education but also the involvement of school management and the community, so that play is recognized as an integral part of meaningful Mathematics education.

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Abstract

Children with Specific Learning Disorders, particularly those with reading deficits (Dyslexia), exhibit difficulties in acquiring this complex skill. Currently, reading acquisition is considered an indispensable requirement for communication and social inclusion. This article aims to address the topic of Specific Learning Disorders, recognizing that they affect many school-age children. The main objective of this work is to analyse specific learning disorders, particularly reading deficits, by referring to the main explanatory theories. The theoretical analysis included the prevalence of this learning disorder, possible causes, the diagnostic process, including diagnostic criteria and assessment instruments. Finally, the functioning of the brain during reading in children with a Specific Learning Disorder was addressed. The consequences and warning signs of this disorder for children from an early age were also investigated.

Keywords: learning, reading, disorder, dyslexia

Resumo

As crianças com Perturbações Específicas de Aprendizagem, particularmente as que apresentam défices de leitura (Dislexia), apresentam dificuldades na aquisição desta competência complexa. Atualmente, a aquisição da leitura é considerada um requisito indispensável para a comunicação e inclusão social. Este artigo pretende abordar a temática das Perturbações Específicas da Aprendizagem, reconhecendo que estas afetam muitas crianças em idade escolar. O principal objetivo deste trabalho é analisar as perturbações específicas de aprendizagem, nomeadamente os défices de leitura, referindo as principais teorias explicativas. A

análise teórica incluiu a prevalência desta perturbação de aprendizagem, as possíveis causas, o processo de diagnóstico, incluindo os critérios de diagnóstico e os instrumentos de avaliação. Por fim, foi abordado o funcionamento do cérebro durante a leitura em crianças com uma Perturbação Específica da Aprendizagem. As consequências e os sinais de alerta desta perturbação para as crianças desde tenra idade também foram investigados.

Palavras-chave: aprendizagem, leitura, perturbação, dislexia

Introduction

Dyslexia is a learning difficulty that affects the skills involved in accurate and fluent word reading and spelling. The author, Rose (2009) clarify that characteristic features of Dyslexia are difficulties in phonological awareness, verbal memory and verbal processing speed, occurring across the range of intellectual abilities.

Children with Specific Learning Disorders, especially with reading deficits (Dyslexia), experience difficulties in learning to read. Reading acquisition is a complex skill that highlights linguistic and cognitive abilities (Ferraz, 2020).

One of the factors' influencing learning is parental involvement. In fact, a good relationship between family and school brings parents and children closer, enhances trust between parents and teachers, boosts children's motivation, prevents indiscipline, and contributes to academic success (Estanqueiro, 2013).

Given that reading acquisition is considered an indispensable requirement for communication and social inclusion, this work arises to gain a deeper understanding of Specific Learning Disorders, particularly reading deficits (Dyslexia).

The term "Dyslexia" has undergone several changes over time, and currently, the most appropriate term to define this neurodevelopmental disorder is Specific Learning Disorder with a reading deficit, according to the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2014). However, in this work, we will refer back to the term "Dyslexia" as this concept is still widely used and accepted by the scientific community.

This disorder affects many school-age children. The concept of Specific Learning Disorders was analysed, with a special emphasis on Specific Learning Disorder with a reading deficit. This concept and its evolution were explored through a review of studies and assessment instruments. Finally, an analysis was made of the relationship between the brain and the learning process of reading, highlighting some warning signs and the consequences of this learning disorder.

Specific Learning Disorders

Specific Learning Disorders, previously referred to as Specific Learning Difficulties, are generic terms that refer to a heterogeneous group of disorders. These are manifested by significant difficulties in acquiring and using listening, speaking, reading and reasoning skills (Kirk & Gallagher, 2002).

Specific Learning Difficulties are the disorders within the field of Special Educational Needs that have sparked the most multidisciplinary research and debates (Kirk et al., 2005).

The most common developmental disorders are specific learning difficulties in reading, writing, and arithmetic. These disorders are called “specific” because the difficulty in learning is not generalized (Antunes, 2009). Many researchers consider them mysterious and complex (Citoler, 1996; Correia, 2008; Lerner & Kline, 2005, Rose, 2009) because Dyslexia often co-occurs with other disorders although these are not themselves markers of this disturbance.

In Portugal, the term “Learning Difficulties” translating the original “Learning Disabilities” was introduced by Vítor da Fonseca in 1984 in his book “An Introduction to Learning Difficulties”. This book marked the first scientific publication concerning Learning Difficulties in Portugal.

In agreement with Fonseca (1984, 2009), Specific Learning Difficulties are a heterogeneous set of disorders, disturbances, disabilities, manifesting significant and specific difficulties in the verbal learning process. These difficulties are evident in the acquisition, integration, and expression of one or more of the following symbolic skills: auditory comprehension, speech, reading, writing, and arithmetic. Fonseca adds that specific learning difficulties manifest in the way the student processes information, interfering with academic achievement.

As specified by Cruz (2011), the term Specific Learning Disorder is generalized and is used by official entities like the Ministry of Education and the National Education Council, as well as by non-official entities, including the media, professionals, and even parents.

However, Martins (2006) notes that the concept underlying the term Specific Learning Difficulties is not understood uniformly by all who use it, suggesting that this term is synonymous and polysemous. He points out that this term is often used inappropriately to refer to different populations on the one hand, and on the other, different terminologies are used to describe the same group of people.

Other authors (Correia, 2008; Correia & Martins, 1999) suggest that in Portugal, the term Learning Difficulties has been used to refer to completely disparate concepts. These concepts range from intrinsic learning problems, such as intellectual and developmental difficulties, to extrinsic learning problems, such as inadequate teaching.

Today, Snowling and Hulme (2024) bring to reflection that the definition of Dyslexia as a dimensional disorder sometimes causes concern. They compare this

disorder with hypertension (high blood pressure), adding that, if there is no universally accepted cut-off does this make the disorder less real.

The Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2014) by the American Psychiatric Association states that Specific Learning Disorders fall under neurodevelopmental disorders and have a biological origin.

The biological origin includes an interaction of genetic, epigenetic and environmental factors that influence the brain's ability to perceive or process verbal or non-verbal information efficiently and accurately (American Psychiatric Association, 2014). As specified by this manual, children with this disorder have difficulty learning or using specific academic skills, such as reading, writing or arithmetic.

The American Psychiatric Association (2014), Specific Learning Disorders are organized according to three specifiers (p. 67):

i) 315.0 (F81.0) With reading deficit (Dyslexia): Word reading accuracy; Reading speed or fluency; Reading comprehension.

ii) 315.2 (F81.81) With written expression deficit: Spelling accuracy; Grammar and punctuation accuracy; Clarity or organization of written expression.

iii) 315.1 (F81.2) With mathematics deficit (Dyscalculia): Number sense; Memorization of arithmetic facts; Accuracy or fluency of calculation; Accuracy in mathematical reasoning.

In this work, we will discuss in more detail Specific Learning Disorder with a reading deficit (Dyslexia), because we pretend to assist educators, parents, and professionals in better identifying and addressing the disorder.

Specific Learning Disorder with a Reading Deficit (Dyslexia)

The main objective of this work is to analyze Specific Learning Disorders, particularly reading deficits, by referring to the main explanatory theories. This is a theoretical analysis about Dyslexia and those characteristics. For comprehend this disturb we need to analyze the evolution of this concept about time.

Historically, Dyslexia was described in 1877 by Kussmaul, who used the term “word-blindness” to refer to an adult patient with severe difficulty in reading after a brain injury (Moura, 2014).

The term Dyslexia was introduced by the German ophthalmologist Rudolf Berlin (1887) to describe poor reading ability in adults with normal vision after suffering a specific brain injury. In 1896, Pringle Morgan referred to “congenital word-blindness” when describing a clinical case of a 14-year-old boy who was very intelligent but unable to learn to read and write (Moura, 2014).

Since then, Dyslexia has received various denominations: “congenital word-blindness”, “congenital Dyslexia”, “strephosymbolia”, “developmental alexia”, “constitutional Dyslexia” and part of the continuum of language disorders characterized by a deficit in verbal sound processing (Teles, 2004). Chiland (1973) notes that in the 1960s, under the influence of psychodynamic currents, the biological aspects of Dyslexia were minimized, and reading difficulties were attributed to emotional or affective problems and even “immaturity”. However, during the 1970s and 1980s, several researchers demonstrated that the etiological cause of Dyslexia did not reside in visual perception deficits but in specific neurolinguistic deficits (Teles, 2004).

According to various authors (Antunes, 2009; Moura, 2014; Teles, 2004), Dyslexia can be defined as a specific learning disability of neurobiological origin. Etymologically, the word “Dyslexia” comes from “dys” meaning difficulty/disorder and “lexia” meaning reading (Latin) and language (Greek). Dyslexia is understood as a Specific Learning Disorder characterized by difficulty in reading accuracy, fluency, and comprehension, with deficits in phonological decoding, word recognition, and poor spelling skills. The difficulties associated with Dyslexia result from a deficit in the phonological component of language, which is unexpected in relation to other cognitive abilities (Snowling, 2001).

For a long time, the cause of Dyslexia was unknown. As specified by Teles (2004) the studies conducted presented converging results regarding its origin and the underlying cognitive processes. In conformity with this author, several theories emerged about the cognitive processes responsible for these difficulties.

It is consensual, the strong relationship between phonological skills and reading and the role of phonological deficits in Dyslexia (Melby-Lervåg, Lyster & Hulme, 2012). There is also evidence that phonological deficits are observed in children who go on to be dyslexic prior to reading instruction (Snowling et al., 2019). The phonological skills predict individual differences in reading fluency across alphabetic orthographies (Caravolas et al., 2013).

The definition of Dyslexia is included in the American Psychiatric Association (2014) specifically under Specific Learning Disorder with a reading deficit, characterized as a significant impairment in the development of word recognition and reading comprehension skills (p. 66). The difficulties arise during the school years, and academic abilities are significantly below what is expected for the chronological age. This manual adds that this disorder significantly interferes with school performance or daily activities that require reading skills.

Today, Snowling and Hulme (2024) clarify the definition of Dyslexia. In accordance with these authors Dyslexia is a difficulty in learning to decode or encode print. This disturbance is associated with phonological problems and may occur at different levels of ability. They add that Dyslexia is a dimensional disorder, where we set a cut-off for identification that is to some extent arbitrary.

Explanatory Theories

Over time, several explanatory theories about Dyslexia have emerged. These include neurobiological-based cognitive theories, genetic and hereditary theories and theories that rely on environmental factors. The most recent research (Snowling & Melby-Lervåg, 2016; Snowling & Hulme, 2024) indicates that the neurobiological perspective is the most relevant; however, psycholinguistic and visual-perceptual-motor perspectives continue to be referenced by researchers, indicating the lack of consensus (Cruz, 2009).

Several researchers support the neurobiological and multifactorial origin, with various genetic and environmental factors (Doust et al., 2022; Hulme & Snowling, 2016; Sousa & Martins, 2015). This disorder has a heritability between 40% and 60% (Fletcher et al., 2007) and genes involved in the onset of Dyslexia have even been identified.

Hulme and Snowling (2016) mention that, despite the importance of genetic factors, parental literacy, environment and the quality of teaching influence reading development. They add that genes act through the environment and that passive and active gene-environment correlations can affect literacy outcomes. Parents with Dyslexia not only share genes with their children but may also provide a literacy environment different from that found in families where parents do not experience such difficulties.

The automatization deficit theory was advocated by Fawcett and Nicolson (1992), characterizing Dyslexia as a generalized deficit in automatization capacity. In accordance with this theory, dyslexics manifest difficulties in automating word decoding, performing fluent, correct and comprehensive reading.

The magnocellular theory generated some controversy and attributed Dyslexia to a specific deficit in the transfer of sensory information from the eyes to the primary areas of the cortex (Teles, 2004). In agreement with this theory, people with Dyslexia have low sensitivity to stimuli with low contrast, low spatial frequencies or high temporal frequencies.

Conforming to Teles (2004), most researchers agree with the phonological deficit theory, which argues that Dyslexia is caused by a deficit in the phonological processing system due to a “disruption” in the brain's neurological system, at the level of phonological processing (Shaywitz, 2003; Zeffiro & Eden, 2000). In line with these authors, the phonological deficit hampers the discrimination and processing of language sounds, as well as the awareness that language is made up of words, that words consist of syllables and that syllables are made up of phonemes.

Regarding types of Dyslexia, Torres and Fernandez (2001) classified it into two types: auditory and visual. In accordance with to these authors, children with auditory Dyslexia have difficulties in differentiating, analyzing, and naming speech sounds, and they struggle with naming sequences and rhymes. Fonseca (2004) adds that auditory Dyslexia affects the cognitive process that allows relating phonemes (sounds) to graphemes (letters), leading to difficulties in interpreting, memorizing,

and differentiating words, confusion in word configuration, and frequent reversals, omissions, and substitutions, i.e., they have trouble relating spoken language to written language.

In agreement with Torres and Fernandez (2001), children with visual Dyslexia struggle with visual perception and discrimination tasks, exhibit orientation errors, have difficulties distinguishing sizes and shapes, confuse groups of letters and face challenges in transforming letters into sounds. Fonseca (2004) adds that in visual Dyslexia, letters are not recognized as letters due to a discrimination problem, which affects the visual encoding of graphemes and word formation.

More recently, Moura (2014) and Coelho (2014) argue that Dyslexia can be acquired or developmental. Acquired Dyslexia refers to the existence of brain injury, while developmental Dyslexia shows specific alterations in certain neurocognitive functions and a broad range of difficulties in reading and writing. The latter is currently characterized by difficulty in word reading accuracy and/or fluency, along with poor spelling ability. Reading difficulties result from a deficit in the phonological component of language, which is unexpected given the individual's other cognitive abilities and the educational conditions provided (Fletcher, 2009; Lyon, Shaywitz, & Shaywitz, 2003).

From a neuropsychological perspective, Specific Learning Disorder with reading impairment (Dyslexia) occurs in school-aged children (Ritzen & Debray, 1981). Cancela (2014) argue that it is a disorder with multiple causes. Some studies (Doust et al., 2022) indicate that some people are born with a genetic code that allows them to use the part of the brain that alters and creates perceptions. Being born with this genetic code does not cause the disorder, but it allows its development (Davis & Braun, 2010).

In the field of Genetics, some researchers argue that Specific Learning Disorder is hereditary, as children with this issue often have at least one close family member with difficulties in reading and writing (American Psychiatric Association, 2014). Moreover, some researchers believe that this disorder may be due to mutations in specific chromosomes, particularly chromosomes 6 and 15 and more recently, chromosome 2 (Lona, 2014).

From a psycholinguistic point of view, this disorder is related to language processing, which derives from brain function. Research using brain imaging suggests that information is processed differently by these individuals. Psycholinguistics points to phonological issues as the cause of many reading difficulties, revealing a broad set of language deficits among poor readers (Lona, 2014). Since learning to read results from the functioning of systems integrating various brain areas or units (Serra & Estrela, 2007), damage to even one part of the functional system can impair learning.

New research confirms that Specific Learning Disorder with reading impairment (Dyslexia) belongs to the field of Neuropsychology (Pépio & Maia,

2018), if we understand that reading, writing, and speech are elements of language, and language is one of the brain's higher mental functions (Ritzen & Debray, 1981).

Various cognitive components are involved in the learning process, which results from the reception and exchange of information between the environment and different nervous centers. The neuropsychological model applied to learning disorders assumes these disorders represent a dysfunction in the natural learning acquisition process, i.e., in stimulus selection, processing, and information storage. From this perspective, neuropsychological research allows for understanding the internal structure of psychological processes and the internal connection that links them (Paula et al., 2006).

After analyzing the explanatory theories of Dyslexia, it makes perfect sense to examine the prevalence of this disorder to better understand its occurrence.

Prevalence of Dyslexia

Regarding the prevalence of Dyslexia, it is observed in 5% to 10% of school-age children (Vellutino et al., 2004), although some studies present prevalence estimates between 6% and 17%, depending on the reading severity criteria used (Fletcher et al., 2007).

Yang, et al. (2022) analyzed the studies carried out between 1950 and 2021 about Dyslexia. These authors conclude that the prevalence of Dyslexia in school-age children is 7.10%.

The American Psychiatric Association, through the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2014), estimates that 5% to 15% of school-age children present a Specific Learning Disorder. Some studies report significant differences in the prevalence of this disorder between females and males, being higher in males (Cruz, 2009; Hulme & Snowling, 2016; Vale et al., 2011). Yang, et al. (2022) conclude that the prevalence in boys was significantly higher than in girls (boys: 9.22%; girls: 4.66%; $p < 0.001$).

In Portugal, there is no recent data on the prevalence of Dyslexia. However, a study conducted by Vale, Sucena, and Viana (2011) indicates that the prevalence of Dyslexia in Portuguese children attending the first cycle is between 5.4% and 8.6%, with about 28% of children in their sample presenting reading difficulties.

It is also common to observe a comorbidity relationship between Dyslexia and Attention Deficit Hyperactivity Disorder (ADHD) in 15% to 40% of children (Willcutt et al., 2005) and Dyscalculia in 15% to 70% of children (Willcutt et al., 2013).

Having established the prevalence rates of this disorder, it is essential to explore the underlying causes of Dyslexia.

Possible Causes

Regarding possible causes of Specific Learning Disorder with a reading deficit (Dyslexia), the American Psychiatric Association (2014) points out different causes (p. 72).

One of the causes cited in this manual is related to the environment, namely prematurity, very low birth weight and prenatal exposure to nicotine.

Another cause is genetic and physiological, which means that first-degree relatives of individuals with these learning difficulties and a family history of reading difficulties predict literacy problems, indicating the combined role of genetic and environmental factors.

Course modifiers are also considered causes of Dyslexia. Marked problems with inattentive behavior in the preschool years predict later reading difficulties. Delayed or disordered speech or language, or impaired cognitive processing in the preschool years predict specific disorders of later learning in reading and written expression.

Considering the possible causes of Dyslexia, it makes sense to analyze how the diagnosis is made and the criteria used to better understand this disorder.

Diagnosis

Due to the empirical evidence of recent decades on the neurobiological and neurocognitive nature of Dyslexia, the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2014) included Dyslexia in the group of Neurodevelopmental Disorders. As specified by this manual, Specific Learning Disorder with a reading deficit (Dyslexia) is a neurobiological disorder underlying the cognitive changes observed in reading and writing (American Psychiatric Association, 2014).

In addition to this new classification, some changes were made to the diagnostic criteria. Thus, the American Psychiatric Association (2014) establishes the necessity for a performance in reading fluency, accuracy, and/or comprehension that is substantially below expectations for chronological age, interfering with academic performance or daily life activities significantly. Performance should be confirmed through standardized reference tests, individually administered, a comprehensive clinical assessment that includes collecting medical, developmental and school information, symptom manifestations and a psychological/cognitive evaluation (American Psychiatric Association, 2014).

The same manual highlights that reading decoding difficulties should not result from intellectual difficulties, global developmental delay, sensory alterations or neurological or motor disorders. In other words, besides significant reading difficulties, children with Dyslexia tend to show specific deficits in some neurocognitive functions, such as phonological processing, executive functions, and working memory (Moura, 2014). In agreement with Fonseca (2009), Dyslexia has

been considered a reading and language disorder, an unexpected learning difficulty since the individual shows average or above-average intelligence. The Intelligence Quotient (IQ), considered a selective criterion, should be equal to or greater than 80. Therefore, based on this data, it is easy to deduce that Dyslexia is not synonymous with a low IQ.

The same author adds that Dyslexia is not related to a lack of motivation to learn to read, nor to unfavourable socioeconomic and deviant conditions. It can manifest in an individual throughout life, regardless of adequate learning opportunities.

Fonseca (2009) also notes that Dyslexia can be addressed through multi-therapeutic re-education. Many signs can be identified in preschool education, but it is with the learning of reading those problems related to sound awareness, letter recognition, verbal expression, and copying begin to emerge.

Cruz (2009) mentions that Dyslexia can be diagnosed in the presence of specific deficits in perception or information processing abilities in individuals who, despite having “normal” intelligence and adequate physical, mental, sensory, emotional, and pedagogical conditions, achieve results significantly below what is expected for their chronological age in specific learning areas. Oral reading in individuals with Dyslexia is characterized by omissions, distortions, and word substitutions, as well as slow, inaccurate, and effortful reading.

According to the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2014), the diagnosis involves observing the following criteria (pp. 68-69): Persistent difficulties in learning key academic skills that begin with formal schooling (Criterion A). The individual's performance in the affected academic skills is below the average for their age (Criterion B). Learning difficulties become readily apparent during the early school years for most individuals (Criterion C). Learning difficulties are considered “specific” because they are not attributable to intellectual disabilities, global developmental delays, hearing or vision impairments, or neurological or motor problems (Criterion D).

Specific Learning Disorder with a reading deficit (Dyslexia) can only be diagnosed after the start of formal education, at any time. The learning difficulties are persistent and not transitory, and progress in learning is very limited over at least six months, despite additional help being provided at home and/or school.

It can be diagnosed in children, adolescents, and adults, as long as there is evidence of onset during formal schooling years. The diagnosis is clinical, based on a synthesis of the individual's medical, developmental, educational, and family history.

The evaluation process is complex and involves multiple components, including clinical interviews to gather detailed personal history, school reports to assess academic performance, work portfolios that showcase a student's progress, rating scales completed by teachers or parents to provide additional insights, and

educational or psychological assessments that offer standardized measures of cognitive and emotional functioning.

On this subject, Ribeiro and Baptista (2006) mention four types of assessment to be carried out in the diagnosis of a Specific Learning Disorder with reading deficit (Dyslexia). They suggest a Neuropsychological Assessment, focusing on perception, motor skills, cognitive functioning, psychomotricity, psycholinguistic functioning, language and emotional development.

These authors consider that Psycholinguistic Assessment is crucial to determine the mechanisms responsible for this disorder. In psycholinguistic assessment, it is important to evaluate vocalization, lexical decision, semantic decision and visual processing. Another assessment that they consider crucial for diagnosis is Psychological Assessment, which aims to assess language, reading, spatial references, level of intelligence, attention and immediate memory.

The Comprehensive assessment, suggested by these authors, aims to evaluate language (comprehensive and expressive), psychomotricity (body scheme, laterality, spatial and temporal orientation), perception (visual and auditory), motor skills (gross/fine) and academic areas (reading, writing and arithmetic).

To diagnose Specific Learning Disorders, it is crucial to use the appropriate instruments and for this reason we analyse the most suitable instruments to make a correct diagnosis of Dyslexia.

Assessment Instruments

When evaluating a child or adolescent with suspected Specific Learning Disorder, it is important to consider some aspects, as Viana (2005) points out. Firstly, it is important to understand the child's development process and the problem, starting by knowing the child's life story and analyzing the educational materials used, such as notebooks and tests. It is equally crucial to understand the implications that this problem has on the individual's life, that is, to analyze the difficulties revealed that have consequences that extend to all contexts. It is also important to understand how the problem is perceived by the student and the people around them. Unfortunately, what has been observed is that psychological assessment is generally developed for remediation and not prevention. Finally, difficulties must be identified, to do this it is necessary to evaluate reading, identify letters and words, read groups of words and identify the main idea of a sentence.

For the evaluation or diagnosis of Specific Learning Disorder with reading deficits, various instruments can be applied, such as:

a) Assessment of Cognitive Functioning through Intelligence Scales: WISC-IV: Wechsler Intelligence Scale for Children (Wechsler, 2005); Wechsler Preschool and Primary Scale of Intelligence (Wechsler, 2005); WAIS-III: Wechsler Adult Intelligence Scale (Wechsler, 1997).

b) Assessment of Reading through Tests: TIL: Test of Reading Age (Sucena & Castro, 2008); ALEPE: Battery for Assessment of Reading in European Portuguese (Sucena & Castro, 2011); PRP: Word Recognition Test (Viana & Ribeiro, 2010).

c) Assessment of Expressive Language (Lexical knowledge; morphosyntactic knowledge; auditory memory for verbal material; capacity to reflect on oral language): TICL: Test of Identification of Linguistic Competencies (Viana, 2004).

d) Assessment of Phonological Processes through Tests: Oral Language Assessment Test (Sim-Sim, 1997); Phonological Test Battery (Silva, 2002).

e) Assessment of Perceptual-Motor Organization, Attention and Immediate Visual Memory through the Test: REY: Rey Complex Figure Test (Rey, 1942); TPD: Test of Perception of Differences (Thursthone & Yela, 1985).

f) Assessment of Perceptual-Auditory Acquisitions through the Test: DAPA: Diagnostic of Perceptual-Auditory Acquisitions (Fonseca, 1979).

g) Tests for Screening Phonological or Orthographic Disorders: PADD: Dyslexia Analysis and Screening Test (Carreteiro, 2005). PEDE: Exploratory Test of Specific Dyslexia (Condemarin & Blomquist, 1989).

h) Assessment of Perceptual-Motor Areas through: PDDA: Screening Project for Difficulties and Learning (Fonseca, 1978).

In the report of an evaluation of a Specific Learning Disorder with reading deficits, it should include not only the diagnosis but also the definition of the child's strengths and weaknesses in different areas, as well as the presentation of intervention objectives (Antunes, 2018). The diagnosis and assessment of Dyslexia should not serve to label a child or young person but should aim to define the most suitable intervention strategies to contribute to their academic success (Cruz, 2009).

The evaluation of a Specific Learning Disorder should be conducted by accredited professionals, and the evaluation process is complex, requiring a clinical interview, school reports, and work portfolios. Rating scales should be applied, and educational or psychological assessments should be conducted (American Psychiatric Association, 2014).

How the Brain Functions During Reading

It is necessary to understand how the brain functions to better understand the origin of a Specific Learning Disorder with reading deficits. Gray matter is composed of various areas with different functions. Learning is a brain function that involves information processing through sensory (reception), neurological (decoding, translation, retention and encoding) and psychological (perception, imagery, symbolism, and conceptualization) means (Serra & Estrela, 2007).

It is known that for human learning to occur naturally, a set of requirements, which Fonseca (2004) termed "neuropsychological functional completeness" must be met; otherwise, a brain dysfunction is likely to exist.

In accordance with Serra and Estrela (2007), to perform tasks such as reading, writing or counting, our brain activates each process of a complex and extensive functional system. It seems evident that if a part of this functional system is impaired, learning will be affected. Various studies in this area (Moura, 2014) have shown changes in the brains of children with Specific Learning Disorders.

There is a prevalence of the left hemisphere for linguistic processing in individuals with a Specific Learning Disorder compared to normal readers (Sousa & Martins, 2015). These individuals show a lower processing rate and deficient functioning of the right hemisphere. Studies have demonstrated involvement of the temporal lobe in the left cerebral hemisphere and adjacent parts of the parietal and occipital lobes (posterior language area), disrupting language, reading, and writing functions (Ritzen & Debray, 1981). The brains of individuals with this disorder are perfectly normal, although they process information in a different area, resulting in failures in brain connections (Lona, 2014).

Learning to read and write is a fundamental aspect of academic success; however, this is a heterogeneous and individual process that requires children to apply and integrate various cognitive and perceptual-linguistic skills, with some individuals experiencing difficulties in this process (Cruz, 2009).

Shaywitz and collaborators (1998) used functional magnetic resonance imaging (fMRI) to study brain function during reading tasks. They identified three brain areas: the inferior frontal region, the parietal-temporal area and the occipital-temporal area. The inferior frontal region is responsible for oral language (Shaywitz et al., 1998). It is where vocalization and articulation of words are processed and where phoneme analysis begins. This area is particularly active in beginning readers and individuals with dyslexia. The parietal-temporal region is where word analysis occurs (Shaywitz et al., 1998). This area handles visual processing of letter shapes, the correspondence between graphemes and phonemes, syllabic and phonemic segmentation and fusion. It performs analytical reading that occurs slowly and is utilized by both beginning readers and individuals with dyslexia. The occipital-temporal region processes visual word recognition, enabling fast and automatic reading (Shaywitz et al., 1998). All information from different sensory systems converges here, where relevant information about each word is stored and orthography is integrated. Most children learn to read without difficulties; however, dyslexic children do not learn to read at the appropriate or expected time, regardless of their normal intelligence and satisfactory teaching conditions. Therefore, reading acquisition in dyslexic children is slow and requires significant emotional investment (Fonseca, 2009).

In accordance with Sousa and Martins (2015), research conducted using functional resonance imaging has concluded that in individuals with dyslexia, the posterior areas (parietal-temporal, responsible for phonological processing and grapheme-phoneme conversion; and occipital-temporal, responsible for reading automation, word recognition and its components) show lower activation. In dyslexics, the inferior frontal gyrus (responsible for motor programming of word

articulation) is more activated. These authors suggest that these dysfunctions seem to justify phonological difficulties, accuracy, fluency and decoding capacity. Similarly, lower activation of the occipital-temporal area is associated with difficulties in automatic recognition of words and reading.

Thus, modern brain research procedures have identified three distinct subareas (Shaywitz, 2003): one that processes phonemes: vocalization and articulation of words (inferior frontal region); another that analyzes words: related to grapheme-phoneme (parietal-temporal region); and the last that recognizes words and enables fast and automatic reading (occipital-temporal region). Analysis of these examinations revealed that individuals with a Specific Learning Disorder have difficulties in activating the posterior brain areas responsible for word analysis and reading automation, relying more on Broca's area (left inferior frontal area) and other areas on the right side of the brain that use visual cues (Oliveira, 2017). These individuals exhibit deficiencies in phonological processing, showing confusions with letters, syllables, and words that resemble each other graphically.

In conformity with Fonseca (2009) it is now possible to assert that the left side of the brain is directly related to language, with its different areas responsible for processing phonemes, analyzing and recognizing words, which allows humans to learn to read and write.

When a child learns to read, reading is initially processed by the phonological route and later, with the acquisition of new skills, shifts to the lexical route. As the child refines reading skills, the brain becomes more proficient in the process, requiring less effort. However, the brains of individuals with this disorder do not function this way; they only use the area of the brain that processes phonemes while the area that analyzes words remains inactive, preventing proficient recognition and reading, even of words they have already read or studied (Polese, Costa, & Miechuanski, 2011). As specified by Cancela (2014) a deficit in cerebellar activity is suggested as an explanatory hypothesis for this disorder.

After understanding how the brain works in a Specific Learning Disorder, we need to clarify the warning signs to identify this disorder as early as possible.

Warning Signs

Today it is known that it is possible to identify a Specific Learning Disorder with a reading deficit when the child starts learning to read; however, this diagnosis should only be made by properly qualified professionals. Early intervention is considered by various authors (Teles, 2004) to be the most important factor in the recovery of dyslexic readers.

In accordance with Shaywitz (2003) and Teles (2004), there are some warning signs that can be observed before the start of reading learning. The first signs that may indicate potential difficulties in writing appear at the level of oral language:

- Delay in language acquisition

- Difficulty pronouncing complex words correctly (omission or inversion of sounds in words)
- Use of short sentences with poorly pronounced words and omissions or substitutions of syllables or phonemes
- Difficulty learning names of objects, colors, places, people
- Difficulty memorizing songs, nursery rhymes, rhymes
- Difficulty acquiring basic concepts: temporal and spatial
- Difficulty understanding that sentences made up of words can be segmented into syllables

To diagnose a Specific Learning Disorder with a reading deficit, children must demonstrate performance in reading fluency, accuracy, and/or comprehension significantly below what is expected for chronological age, interfering substantially with academic performance and daily life activities (American Psychiatric Association, 2014).

Thus, some authors (Shaywitz, 2003; Teles, 2004) identify several warning signs:

- Does not recognize the letters of their own name
- Difficulty learning and memorizing letter names and sounds
- Difficulty associating letters with their sounds
- Difficulty reading monosyllables and spelling simple words
- Frequent reading errors due to ignorance of grapheme-phoneme correspondence rules
- Refusal or delay in reading and writing tasks
- Reluctance, slowness, and need for parental support in completing homework
- Family history of reading and writing difficulties
- Very slow progress in acquiring reading and spelling
- Omission of phonemes and syllables in the middle of words
- Substitution of words with others of the same meaning
- Tendency to guess words, relying on pictures and context
- Greater ease in reading words in context than isolated words
- Difficulty finishing tests within the allotted time
- Frequent spelling errors
- Lack of pleasure in reading, avoiding books
- Disjointed speech with pauses and hesitations

- Incorrect pronunciation of long, unfamiliar, or complex words
- Difficulty finding the correct word, recalling verbal information
- Short-term memory problems, recalling dates, names, phone numbers
- Difficulty giving quick oral responses
- Difficulty recognizing words they have read or heard
- Preference for books with few words and many blank spaces
- Avoids reading to others
- Expressive vocabulary lower than receptive vocabulary
- Avoids using words they fear mispronouncing

If difficulties are not diagnosed early, they can persist and lead children to academic failure and the development of emotional and social integration problems. Consequently, frequent early school dropout (Antunes, 2018) and the choice of less demanding educational paths can be observed.

In addition to these difficulties, some authors argue that a late diagnosis can imply societal problems (Hulme & Snowling, 2016) and even affect the child's integration into school (Nash et al., 2013), potentially leading to more difficulties and academic failure.

Consequences of Dyslexia

If this disorder is not diagnosed early, it can have negative functional consequences throughout the individual's life. According to American Psychiatric Association (2014), one of the consequences of Dyslexia is related to low academic performance, which is reflected in higher rates of school dropout. People with this disorder experience high levels of psychological distress and, consequently, poorer mental health. These individuals have a propensity to attempt suicide whether as children, adolescents or adults. People with Dyslexia have high unemployment rates and, commonly, receive lower wages.

In accordance with Piedade, Marcelo, Porto and Martins (2020), when a child starts school, they begin a process of competition, being compared, evaluated and tested against their peers for the first time. In fact, it is easy to understand that a child facing difficulties may start to doubt their abilities.

Antunes (2018) also notes that early school dropout is more frequent among children with learning disorders, who tend to choose less demanding educational paths. This author adds that the child may eventually seek other options that might include acting out or taking risks. Typically, these children tend to do anything to be noticed or admired, even negatively.

Individuals with a learning disorder often experience psychological distress that can be analysed at the personality and educational levels (Piedade et al., 2020).

At the personality level, they tend to exhibit lack of attention due to the intellectual effort required to address their difficulties. Antunes (2018) notes that the child also demonstrates fatigue, which can result in a delay in vocabulary development and general academic knowledge.

The child with this disorder often shows disinterest in studying due to demotivation and a lack of educational or family stimuli. They may also exhibit personal maladjustment or even emotional issues such as emotional tension, aggressiveness, shyness, insecurity, and indiscipline (Hulme & Snowling, 2016).

At the educational level, children with this disorder typically enter a cycle of failure that may extend into adulthood. They generally have a more limited vocabulary and, as a result, struggle with self-expression. Dyslexic individuals frequently face barriers, which often leads to school dropout (Antunes, 2018).

In addition to these difficulties, the consequences can lead to social problems. Furthermore, some studies have demonstrated a significant relationship between early reading difficulties and problems of social adjustment, juvenile delinquency and other social issues (Hulme & Snowling, 2016).

Another aspect affecting individuals' lives is the diagnosis. A late diagnosis can result in difficulties integrating the child into school, as they are often labeled as lazy, immature and uninterested. Consequently, these children become victims of labels and prejudices for not meeting the societal ideal of a student without learning difficulties. As a result of these labels, they tend to experience greater difficulties and higher academic failure (Nash et al., 2013).

Thus, Dyslexia still appears to be an obstacle to educational progress, potentially having long-term negative effects on the development of cognitive, social and emotional abilities in children.

Conclusion

This study has contributed to a more profound understanding of Specific Learning Disorder with a reading deficit, commonly known as Dyslexia, with the goal of improving intervention with children who have this disorder. Recognizing the characteristics and early warning signs of this disorder enables more targeted interventions, ultimately supporting these children's educational success and emotional well-being.

The main objective of this work was to the Specific Learning Disorder with a reading deficit to assist those involved in the educational process, namely parents, therapists, technicians, and teachers, in identifying this disorder.

The primary objective of this research was to analyze Specific Learning Disorder with a reading deficit to assist those involved in the educational process, including parents, therapists, practitioners and teachers, in identifying and addressing this disorder. Current evidence indicates that if learning difficulties are

not diagnosed early, they can persist and lead children to academic failure and the development of emotional and social integration problems.

This article highlights the long-term impact of delayed diagnosis, which can extend into adulthood. By raising awareness of the warning signs associated with Dyslexia, this study allows educators to better understand its characteristics, promoting early and accurate diagnosis. An early and correct diagnosis helps to find the most effective strategies to support children and help them learn to read.

To prevent early school dropout and the choice of less demanding educational paths, it is crucial that the main stakeholders in the educational process are aware of the difficulties these children face. Moreover, a late diagnosis can lead to complications in the child's integration into school, resulting in academic failure.

Future research should prioritize analyzing the prevalence of Dyslexia in the Portuguese population, as current data remains outdated. Awareness of the defining characteristics and early indicators of Dyslexia should extend to the general public, especially those professionals who interact closely with affected children. If this disorder is diagnosed early, it becomes easier to implement appropriate support strategies from a young age and help children learn to read.

In summary, understanding this learning issue makes it easier to comprehend Dyslexia and facilitates the adaptation of support for children, emphasizing the importance of early and appropriate intervention for each case.

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Bionote

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**CHILDREN'S PICTURES IN RESEARCH PRACTICES
ACROSS ACADEMIC DISCIPLINES**

**IMAGENS DE CRIANÇAS EM PRÁTICAS DE INVESTIGAÇÃO EM
DIFERENTES DISCIPLINAS ACADÉMICAS**

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Abstract

With the aim of exploring how children's pictures are made relevant and given meaning in research, this article analyses how children's pictures are used, discussed, and studied across different academic disciplines. Altogether, 423 articles published between 2010 and 2023 were thematically analysed. Four themes were identified that run through the research: Health and wellbeing, Competence and the mind, Education, and Agency and opinions. Each have strong connections to academic disciplines but are not simply defined by them. They are connected to specific perspectives on children's pictures, as well as specific notions of children. The study shows that very few studies focus on children's pictures per se, or analyse them solely for artistic reasons. Instead, children's pictures are often included in research with the purpose of making claims that extend beyond the pictures themselves, and beyond picture-making processes.

Keywords: research, methodology, children, pictures

Resumo

Com o objetivo de explorar a forma como as imagens de crianças se tornam relevantes e ganham significado na investigação, este artigo analisa a forma como as imagens de crianças são utilizadas, discutidas e estudadas em diferentes disciplinas acadêmicas. No total, foram analisados tematicamente 423 artigos publicados entre 2010 e 2023. Foram identificados quatro temas que atravessam a investigação: Saúde e bem-estar, Competência e a mente, Educação, e Agência e

opiniões. Cada um deles tem fortes ligações às disciplinas acadêmicas, mas não são simplesmente definidos por elas. Estão ligadas a perspectivas específicas sobre as imagens das crianças, bem como a noções específicas de criança. O estudo mostra que muito poucos estudos se centram nas imagens de crianças *per se*, ou as analisam apenas por razões artísticas. Em vez disso, as imagens de crianças são frequentemente incluídas na investigação com o objetivo de fazer afirmações que vão para além das próprias imagens e dos processos de criação de imagens.

Palavras-chave investigação, metodologia, crianças, imagens

Introduction

To understand children's role and place in society, research must, from time to time, turn a critical eye towards itself, asking what it is that we as a research community do. It is extremely important to gain knowledge about how we position children and make them part of research. The aim of this study is to explore how children's pictures are made relevant and given meaning in research across academic disciplines. What is it that the collective research community does with children's pictures, and how does it simultaneously position children?

The background for the study is a recognition that picture-making is an important practice for children around the globe, and that adults are closely involved in this making, as well as in taking care of and interpreting the pictures. What adults do with children's pictures and how they approach them are not neutral acts, however. Rather, they are ideological. Wilson (1997) states: "The situations in which adults' study and interpret works of children's art always reflect an ideology – a particular set of values, biases, and interests. (p. 167)" When applied to the research community, populated by adults, this quote highlights the importance of seeing and understanding what ideologies, values, biases, and interests are implicit when children's pictures are used, discussed, or studied in research.

Rose, Jolley, and Burkitt (2006) argue that research concerning children's drawings should more thoroughly consider the contexts in which drawing occurs and they consider it crucial to investigate the attitudes and practices of teachers, parents, and children as they shape children's drawing experiences and the drawings they produce. I argue that it is important to achieve an even broader understanding of the social meaning of children's pictures and picture-making practices. It is thus essential to dig deeper into academic research, as this is one particular and important context in which children's pictures are made, used, and interpreted (Mitchell et al., 2011).

This study is positioned within the field of childhood studies/child studies. It is written in a large research project on children's cultural heritage (Vetenskapsrådet, dnr. 2020-03095), in which we cooperate with Svenskt barnbildarkiv (Eng: Swedish Archive of Children's Art) where more than 700 000

pictures made by children are conserved. Researchers from many different fields and disciplines come to this archive to work. Using different perspectives, theories, and methods, they analyse and discuss children's pictures for many different reasons. This practice reflects a larger trend in which children's pictures, particularly drawings, are shown to be of interest to researchers from within various disciplines and perspectives (Burkitt, 2022).

Historically children's drawings were first used in research at the turn of the 20th century. The purpose was to try to assess children's intelligence and developmental stages through them (Cox, 1993). More recently, they have been used for therapeutic purposes (Rubin, 2005), as well as tools for psychologists in their attempts to understand the child's mind and how drawing skills develop (Jolley, 2010; Milbrath & Trautner, 2008). Psychological approaches have been the dominant framework, even within educational contexts, an approach that is now heavily disputed from post-developmental perspectives (Sakr & Osgood, 2019; Trafi-Prats & Schulte, 2022).

The fact that children's pictures and picture-making practices are examined from within numerous fields raises questions about why, when, and how children's pictures are used in research, and what it means that they are used in these ways. I have found no study that investigates this; however, there are some reviews of how previous research uses visual methods with children (e.g. Driessnack & Furukawa, 2012; Xie et al., 2022). Nevertheless, these remain within their own fields and cannot say anything about approaches across different academic contexts. This study therefore fills a gap by addressing how children are made part of and understood within the wider research community dealing with children's pictures. Rather than being a compilation of studies, it is a qualitative thematic analysis of how children's pictures are approached, using published academic articles as the study material. I ask: How and for what purposes are children's pictures included in research?

Methodological considerations

In order to understand how children's pictures are made relevant in research across disciplines, a qualitative thematic analysis was conducted on an extensive body of research. The final collection of included studies consists of 423 articles.

To gather the material and gain a first overview of previous research, methodological inspiration was taken from the scoping review method. This method was developed to map out and examine previous research to provide literature overviews of broad topics where many different study designs might have been used (Levac et al., 2010). In line with the scoping review literature, I worked through the following steps: 1) Identify the research question, 2) Identify relevant studies, 3) Study selection, 4) Chart the data, 5) Collate, summarise, and report the results. This was done creatively and reflexively through a back-and-forth movement, repeating steps when necessary (Arksey & O'Malley, 2005).

Seeking to identify as many relevant studies as possible, I made manual and digital searches of various sources. Initially no restrictions were applied concerning publication date, genre, etc. All titles that appeared to include discussions on children's pictures were collected. The manual searches consisted of scrolling through reference lists, grey literature, and relevant researchers' personal websites. Digital searches were conducted through the databases Web of Science, Academic Search Complete, ERIC, NB-ECEC, PsycInfo, and Google Scholar. Search terms used in different combinations were the English words: "child*" + "picture*", "draw*", "drawing", "image", "child art", "photo*", "craft", "creativity", and the search strings "children were asked to draw" and "children were asked to paint". Numerous hits were deemed irrelevant because they refer to studies about, for example, children's picture books, or use the words "picture", "draw", and "image" metaphorically without having any connection to actual pictures or picture-making practices. An example is the article "Child and adolescent obesity: Part of a bigger picture" (Lobstein et al., 2015). After these hits were removed, the digital collection was still too large and included many duplicate and irrelevant titles. I decided to concentrate on recent studies published as articles. Following this logic, I weeded out some titles while simultaneously adding others located through targeted searches for recently published, peer-reviewed academic articles with abstracts.

This method does not guarantee that I have found all studies dealing with children's pictures. More articles could probably have been found if I had added additional search terms or searched in more databases and reference lists. Thus, the final collection used here as the empirical material, consisting of 423 articles published between 2010 and 2023, should be considered as a minimum of the total number of existing relevant studies. The studies found represent a broad range of research that deals with children's pictures in different methodological and theoretical ways. The majority are published in English, in peer-reviewed journals.

Criteria for the final collection

- Study or review published as article with English abstract.
- The article includes terms like "child*" + "picture*", "draw*", "drawing", "image", "child art", "photo*", "craft", "creativity", "children were asked to draw", or "children were asked to paint".
- Article deals with child-produced pictures in one way or another.
- Children are defined as age spans under 18, or by defining terms like children, teenagers, schoolchildren, or pupils. Other age groups may simultaneously be present.
- Published during the period 2010–2023.

The database searches generated hitlists that included three types of important information: 1) name of the publishing journal, often indicating its

belonging to a certain discipline or research field, 2) title of the article, indicating the thematic direction of the study, and 3) abstract, often explicitly or implicitly stating how children's pictures are made relevant in the study. This information functioned as a basis for thematic sorting. Guidance on how to approach similarities and dissimilarities was taken from literature on thematisation and qualitative categorisation work (Ryan & Bernard, 2003; Bergman & Coxon, 2005).

In the first rough sorting, titles with attached abstracts were pasted into a Word file in clusters based on identified connections and similarities relating to frequently used theories, methods, or keywords. Titles were moved between clusters and repeatedly re-sorted. Slowly, this sorting and re-sorting resulted in four major themes. It was not a linear process, with new titles frequently being added; thus, the themes were revisited and sometimes adjusted. Adding titles functioned as a test of how well the themes worked. As more and more articles continued to align neatly with one or more of the themes and none fell outside them, I conclude that, at an overarching level, the four themes correctly cover how research has dealt with children's pictures during the last 13 years.

The four major themes are: 1) Health and wellbeing, 2) Competence and the mind, 3) Education, and 4) Agency and opinions. Some studies align very straightforwardly with one of these themes; for example, with Health and wellbeing when simultaneously focusing on children's health, being published in a medical journal, and making medical claims. In other cases, studies take on a multidisciplinary approach and combine theories and methods from different traditions in ways that align them with more than one theme. This can be exemplified by the journal *Educational Psychology*, which reveals through its title that an article published there may simultaneously touch upon psychological research, often focusing on competence and/or the mind, and education. Two themes are then relevant and it is difficult to assign such a study to one theme only. Obviously, the themes intersect and the thematisation is not exclusive. Thus, "themes" might be a misleading term for what I have observed through the material. For practical reasons, however, I will stick to the term, while recognising that "loose sprawling topics", "discourses", or "strands" could be equally suitable terms.

I scrutinised all titles within each theme, working mainly with the abstracts but also downloading a majority of full articles and reading them to secure my understanding of the studies. I focused especially on aim, method, and theoretical approach in order to understand how each study deals with children's pictures. In this work, I recognised the distinctiveness of the themes, as well as subthemes within them.

The way in which the themes intersect and studies sometime align with more than one theme makes it difficult to count how many articles fall into each theme. Also, working within a qualitative tradition, I am hesitant to make counts at all. Nevertheless, to be transparent, I do declare the numbers in each theme at the final sorting. These numbers, which should be read as somewhat provisional, give an indication of where children's pictures are most often made relevant: Health and

wellbeing (138), Competence and the mind (97), Education (68), Agency and opinions (120). In the analysis below, the four themes are further discussed and exemplified.

Analysis: Children's pictures in research

The collected studies were published by researchers from, and concerning, a vast range of countries and communities, mainly but not exclusively in the global north. The pictures they deal with usually refer to child-produced drawings created manually using analogue tools such as pens, pencils, crayons, and sometimes brush-applied colours. However, other picture-making practices are also represented, such as photographs, collages, and digital pictures. Children's pictures are made relevant in three different ways: as finished products, as part of a picture-making process, and as a combination of both. Within the different themes, these three approaches appear to varying degrees.

Pictures are primarily used as a means to try to understand other things than children's pictures in themselves. This means that few studies focus solely on pictures. Some studies, for example reviews or theory and method developments, discuss children's pictures or picture-making processes theoretically, meaning that no "real" pictures or "real" children are included. It is therefore not possible to declare which children (age, country, and so forth) are being discussed in studies within the different themes. However, when children are referred to as participants in studies, they are seldom under the age of three. This might be because researchers consider the youngest children to be not yet competent in drawing. One exception is a visual ethnographic study that includes children as young as twelve months making pictures together with their parents (Lämsä et al., 2017).

Health and wellbeing

The health and wellbeing theme consists of studies within a broad range of medical and caring fields. Children's pictures are included here in a few different ways. The first can be exemplified by a medical study on the long-term motor-function consequences of prenatal exposure to insecticides. This is a quantitative study in which 263 children aged eleven were asked to draw Archimedes spirals. These spirals were later rated and used to determine whether the children in a group known to have been exposed to insecticides as foetuses display tremor, which is proof of a neurological effect (Rauh et al., 2015). Here, the children's drawings are seen as physical performances that provide evidence of a medical condition.

Another, very common, way that children's pictures are included in studies concerning health and wellbeing is when groups of children with a particular medical diagnosis or disability are asked to make pictures about their condition. This includes, for example, children who are hospitalised or have been diagnosed with cancer, diabetes, epilepsy, or heart disease. Often the chosen group of children

was asked to draw pictures that were later assessed in order for the researchers to make better diagnoses and/or better understand the children's experiences of their health issues. In one example of such a study, children with migraine were told to draw the visual aura they experienced when having a migraine seizure (Yilmaz et al., 2019). As migraine aura is a visual experience that nobody else can see, encouraging children to visualise it on paper seems a plausible method for communicating their experience. In most cases, however, the connection between the disease and visuality is not as explicit, but the same method is used. Children with paediatric restless legs syndrome, for example, were asked to draw their symptoms: "Do you think you could draw me a picture of how it feels when you get that feeling in your legs on this piece of paper?" When they had finished their drawing, the children were asked to "Tell me about your picture" (Picchiatti et al., 2011: 1366). The drawings and children's explanations were then analysed for specific content related to diagnostic criteria. As in the restless legs study, a drawing task is usually combined with a conversation or interview about the medical condition, which is the main focus of the study.

Many health and wellbeing studies explicitly use drawing as a way to facilitate communication, to make it easier for children to talk about their experiences. Some say that drawing activities were used as a stimulus for conversation (e.g. Mohangi et al., 2011) or as "icebreakers" to start an interview, and a way to help the child express ideas or feelings that might be difficult to verbalise (Zigler et al., 2020). Hence, drawing is seen as an aid for children to become better interviewees. It is said that letting children draw "while talking increased the amount of neutral information that children verbally reported and helped to overcome limitations in language skills" (Ware et al., 2020: abstract). Woolford et al. (2015) even argue that, in mental health assessments, children who both drew and talked about their problems provided twice as much information as children who only talked.

Many studies within this theme have a solid connection to the medical field, and are published in journals such as *Neurological Sciences*, *Journal of Pediatric Oncology Nursing*, *Journal of Child Health Care*, *Comprehensive Child and Adolescent Nursing*, and *Journal of Pediatric Health Care*. There are also studies with a primary interest in children's wellbeing in wider terms; for example, children's understanding and awareness of mental health issues and studies about psychosocial needs, and the experiences and stigmatisation of children with physical, neurological, or psychological diagnoses. There is also a psychological strand, with publications in journals such as *Emotional & Behavioural Difficulties*, *Clinical Child Psychology and Psychiatry*, *Frontiers in Psychology*, *International Journal of Social Psychiatry*, and *Arts in Psychotherapy*. These are studies within art therapy (Altay et al., 2017; Clapp et al., 2019) and where vulnerable children's drawings are analysed psychologically (do Vale Pinheiro et al., 2015). Other examples include studies focusing on groups of children with experiences of different traumas and crises; for example, sexual abuse, migration, war, parents' illness, death of a sibling, or home confinement due to COVID-19. Again, the

common method is for children to be asked to draw as a conversation starter, with the purpose of understanding them and providing better help.

What ties together these studies within the Health and wellbeing theme is that, in different ways, children are positioned as patients, or more generally as vulnerable groups exposed to health-related problems such as illness or having experienced crisis. The overarching aims are to make diagnoses, evaluate children's wellbeing, develop methods for best practice, and improve treatments to make children feel better. The medical, or health-related, issues are the focus, while pictures are usually included on the assumption that drawing is an especially useful tool when trying to gain information and access children's views on their health. The frequently used method of asking children to draw and talk take it for granted that children can draw, and that it is possible to glean facts from their drawings, or – more prominently – from the talk that the drawings spark. This assigns children competences in picture-making and as informants. The fact that these pictures are seldom analysed deeply or used without complementing interviews, however, reveals that words are valued over visual communication.

Competence and the mind

Within the Competence and the mind theme, there is considerable use of children's pictures as finished products in themselves. Generally, large quantities of drawings have been made on request and collected within experimental settings. In the largest study found, drawings from 7752 pairs of twins were analysed (Arden et al., 2014). Children are commonly asked to draw either a predetermined figure, such as copying a geometrical shape (Portex et al., 2017) or a freehand drawing, frequently of people, such as themselves (Burkitt & Watling, 2016), their family (Howard et al., 2017), or a human figure (Cannoni et al., 2021). These drawings are then scrutinised and evaluated from a psychological or cognitive perspective and usually processed statistically. The focus is generally on aspects central to psychology, such as development, cognition, perception, attachment, competence, and issues concerning the typical and the deviant. The competence and mind theme also includes studies designed to test and develop psychological and statistical methods and models (e.g. Strikas et al., 2022), and studies connected to a long tradition of assessing children's developmental capabilities; for example, using the draw-a-man test (e.g. Rakhmanov & Dane, 2019), which was developed by Goodenough in the 1920s (Cox, 1993). Studies are published in journals such as *Acta Paediatrica*, *Early Child Development and Care*, *Arts in Psychotherapy*, *Journal of Experimental Child Psychology*, and *Educational Psychology*.

Five types of orientation, or subthemes, can be described within this theme. One is "Children's drawing competences", in which drawing skills are assessed. This can be exemplified by a study of 90 children aged two to four years drawing in a smartphone app (Yadav & Chakraborty, 2017). In its focus on drawing competence, this study is typical of this theme, but it is simultaneously unusual because it focuses on digital, not manual, drawing competences, and because the researchers observed

how young children drew for a few minutes, rather than just looking at the finished products made by older children. Often, these studies let children solve a drawing task, such as drawing a football player (Baluch et al., 2017), with the aim of understanding children's different competences in relation to cultural settings or gender. Sometimes drawing competences are further related to language skills, typically focusing on comparing the drawing competences of children with presumed language disorders with those of typically developing children (e.g. Blom et al., 2021), or to scrutinise how language skills can aid drawing competence (Adline & Lefevre, 2021).

“Competences of certain groups of children” is the next subtheme, in which drawings made by special groups of children are collected and their skills assessed. Tested groups include children making stunningly realistic drawings (Drake & Winner, 2018), children with visual impairments (Vinter et al., 2018), and children with an autism diagnosis (Shi et al., 2021).

The subtheme of “Development” represents the many studies that focus on age and age-related knowledge of drawing and drawing skills. Here, different age groups are selected, and their drawings compared to each other, often in order to determine the point at which children typically become able to draw in one way or another. This can be exemplified by a study in which 120 children, in three age groups (five, seven, and nine years) were asked to draw, from their memory, with their preferred hand, some common objects (e.g. a walking dog, a facial profile, and a cup). The drawings were coded and analysed for their directionality, with the finding that there are differences in how different age groups draw the direction of these objects, and that by the age of nine children do it in relation to their own dominant hand, similar to adult drawers (Picard, 2011).

“Drawing competences in light of evolution and genetics” is a subtheme in which drawing is seen as an ancient behaviour, for which it is important to find the roots. Here, drawings made by child twins (Arden et al., 2014) are compared, as well as children's drawings in comparison to those made by adults and by apes (Saito et al., 2014; Martinet et al., 2021).

Lastly, there is a subtheme in which children's drawings are used as a method for measuring their inner perceptions and psychological features; for example, their perception of self (Goldner & Levi, 2014), attachment to significant others (e.g. Howard et al., 2017), and how creative they are (e.g. Mottweiler & Taylor, 2014).

Overall, studies within the Competence and mind theme aim to disclose what children are like, what they can do, and when. At its foundation, the pictures that children make are expected to show natural differences according to inner processes, age, and development. They are also thought of as something that can be correctly read, coded, counted, and compared. Children and their drawings are understood as something that can be assessed and measured to reveal facts, not only about the children who took part in those specific studies, but about children generally. Thus, there is a scientific truth-claiming foundation to this. In addition, children are positioned within a typical or deviant developmental movement that

adults have grown beyond. This means that children are positioned as a group separate and different from adults, apart from when children and their drawings are used in studies taking evolutionary or genetic approaches, when instead they stand as representatives of humanity, able to reveal something fundamental about human behaviour.

Education

This next theme comprises studies focusing on children's picture-making as part of school and other educational settings. Different approaches to pedagogy and learning are their core focus of interest. It aligns with the pedagogical discipline, teacher training, and early childhood education. Publications appear in, for example, *International Journal of Art & Design Education*, *Journal of Curriculum Studies*, *Research in Arts and Education*, and *International Journal of Early Years Education*.

Both qualitative and quantitative methods are present here, as well as studies that include finished pictures and picture-making processes. However, the focus is seldom on the finished pictures themselves, but on different actions involved in children practising picture-making. Here, drawings are only one of many picture-making techniques that are included. Some experimental studies compare art teaching methods by scrutinising sets of children's drawings (e.g. Chad-Friedman et al., 2019), while in other studies children's pictures are addressed as something that is merely talked about, sometimes not yet even existing. The not-yet-existing picture is made relevant in studies that discuss children's pictures in relation to curricula (e.g. Hamilton et al., 2019), a school subject that is part of visual arts education (e.g. lafelice, 2016; Kauffman, 2016), or different pedagogical settings, theories, and methods (e.g. Rose & Jolley, 2016). Children's pictures are then considered in the abstract, as something that can be worked with theoretically in order to be taught in ideal ways and improved in real educational settings in the future. Thus, within this theme, teachers and their doings are almost as central as children.

Another part of the Education theme comprises empirical studies dealing with children's picture-making in school classrooms, preschool, and kindergarten. Quite a few of these are ethnographic studies, following what happens during art lessons, and focusing on teachers' pedagogical strategies (e.g. Hallam et al., 2011) and children's actions during art education (e.g. Hallam et al., 2014). Here, interviews and discussions with teachers and children in school often complement observations. In some studies, the researcher is involved in participatory action research in the classroom. For example, Wahyudi and Fathani (2018) arranged a finger-painting class to study children's learning and evaluate the instruction model, and Darling-McQuistan (2017) was simultaneously researcher and teacher using drawings with her class of 5–7-year-olds to enable them to jointly reflect upon the purpose of learning.

Another recurring approach within this theme focuses on, or seeks, the benefits of children making pictures. It is directed towards both the benefits of art and picture-making in itself (e.g. Burkitt & Lowry, 2015) and the benefits of including picture-making for other purposes, such as in a community art programme (Adejumo, 2010), and in other school subjects for children to learn and become engaged with something else. For example, one study explored how digital cameras can enhance preschool children's engagement with science investigations (Britsch, 2019), and another showed that drawing can aid children in learning basic life saving skills (Petris et al., 2017).

It is characteristic for the Education theme that children are positioned as pupils and apprentices who should explore the visual, express themselves, and learn how to refine their creativity. In comparison to Competence and the mind, this refinement does not inevitably come naturally through development. Rather, children should learn and benefit from picture-making, and that in turn means that adults with special competencies are closely involved. There is a focus on trying to find the best methods and teaching practices for children to achieve competence. This means that children's future picture-making skills are touched upon here. And, since visual art education is central, children are accordingly seen as artists in the making, not yet fully competent in picture-making.

Agency and opinions

This final theme consists of studies from disparate disciplines and interdisciplinary fields within the humanities and social sciences. These publications are scattered across a wide range of journals. A few of the recurring ones are *Children & Society*, *International Journal of Qualitative Methods*, *Visual Communication*, and *Studies in Art Education*.

Within the Agency and opinion's theme, children's pictures are examined using a wide variety of methods, ranging from large quantitative studies to qualitative microstudies, and with numerous different aims. The common denominator is that children and their pictures are studied mainly for their own sake and/or that children's agency and/or opinions are central. The cultural and social aspects of life are important foundations for how children's pictures and picture-making are regarded here. Four broad strands of studies were identified within this theme. Firstly, there are studies analysing pictures that children have created, what they are, and what knowledge they mediate. Examples are archaeological studies of cave art (e.g. Lima et al., 2019) and analyses of children's art treated as historical documents (e.g. Kay, 2021), all valuing children's aesthetic and historical contributions to the understanding of our mutual past. Children's pictures are also analysed from an art historical perspective and at a theoretical level, as when discussing what children's drawings or children's art are, and how they can be regarded (e.g. Zuccoli, 2019; Park, 2019).

Secondly, there are studies focusing on children's multimodal activities related to picture-making in everyday contexts. These are usually in-depth ethnographic studies with a few children, focusing on meaning-making and drawing as play (Kukkonen & Chang, 2018) and social interaction. One example is Coates and Coates' (2021) study of two children who sit together talking and drawing. Another is Sakr's (2018) study of how children collaborate on drawing tasks with pen and paper and iPad, respectively. Also, there are studies focusing on daily occasions of drawing (Cameron et al., 2020) and close analyses of picture-making processes (Sakr et al., 2018).

Thirdly, there are studies that make use of drawings methodologically in order to understand children's experiences and what they think about certain issues. For example, Eskelinen (2012) asked children to photograph what they usually do in the afternoon, and Amrutha et al. (2021) analysed an exhibition of children's pictures about COVID-19 to gain an understanding of their perspectives on the pandemic. Most commonly, groups of children are asked by the researcher to draw something in particular. By giving children a set topic, the purpose is to gather their views and opinions on that topic in visual form. The topics given range from requests to draw a scientist (Christidou et al., 2023), which is quite common, to drawing your favourite gift (Kruuse et al., 2020), and drawing the future and the past (Rudolph & Wright, 2015). Studies of this kind can be large and quantitative but, due to their cultural-theory framing, rather than developmental theory, they seldom make general truth claims, in contrast to studies on similar tasks found within the Competence and mind theme. Here studies explore children's worldviews due to a fundamental interest in what children think. This means that children are treated as agents important to be studied in their own right. Yet, some studies also aim to improve something for children; for example, when children's opinions are collected through drawings to inform the design of toys (Mullick, 2013).

A fourth focus on children's views and opinions expressed through pictures is seen in studies discussing, problematising, and advancing research methods. Here, visibility is a way to bring children into research, to get to know more about them and their thoughts. Discussions involve, for example, the use of picture elicitation methods in which children produce visual material that is later used as prompts for interviews. These are drawings but also creative explorations of child-made scrapbooks (Cremin et al., 2011), text-and-picture diaries made jointly by children and parents (Lämsä et al., 2017), collaborative drawing between child and researcher (Knight et al., 2015), and children's photography in longitudinal studies (Luttrell, 2010).

Studies within this theme sometimes pose complex questions, some of which are theoretically challenging. Often, questions of research ethics, inclusion, power relations, and children's role and place in society are considered. Children are seen as important participants in this research, they are frequently positioned as active participants, or co-researchers, and the research aims to elicit children's perspectives (Earl, 2018), children's voices (Prosser, 2011), or to problematise an

“authentic child voice” (Nyberg, 2019: 482). This search for children’s voices is different from the search for children’s points of view that is present in the Health and wellbeing theme, where children’s utterances are generally taken at face value and the aim is to improve a problematic health situation. Here, there is often a critical take on the issue studied and on the visual methods. Also, there is a broad interest in children’s knowledge and participation. In addition, children’s pictures are frequently highlighted as being art, and thus attributed greater value.

Conclusion

The point of departure for this study is the importance of exploring what research does at a broad collective level. This is especially important when the subjects of study are children, who are usually excluded from research designs. It is adult researchers who think children and their pictures can and should be investigated or used in research, not necessarily children themselves. As academic research is a context in which children’s pictures are used, made on request, and interpreted in more or less ideological ways, it is crucial to explore how this is done.

Asking what it is that the collective research community does with children’s pictures, and how it simultaneously positions children, this study concludes that out of the 423 studies found very few focus on children’s pictures per se, or analyse them solely for artistic reasons. Evidently, they are not treated like adults’ pictures, which are generally made by adult artists, and frequently scrutinised within the disciplines and fields of art history, visual studies, and visual culture. Instead, pictures made by children are usually included in research with the purpose of making claims that extend beyond the pictures themselves, and beyond picture-making processes.

This exploration of how children’s pictures are made relevant in research has revealed four major themes. In summary, these are the *Health and wellbeing* theme, consisting of health-related studies aiming to make diagnoses and understand sick and vulnerable child patients in order to be able to help them better. The theme of *Competence and the mind* is dominated by psychological studies, where large collections of pictures are assessed to reveal aspects of children’s drawing competences, as well as other issues connected to their development and cognition. These mainly seek to disclose general facts about children. The *Education* theme is closely connected to school pedagogy and seeks to find best teaching practices and to refine methods for learning. Children are positioned as pupils and apprentices who should explore the visual, express themselves, and learn to refine their creativity. In comparison to *Competence and the mind*, this refinement does not inevitably come naturally through development, but through actions performed by competent teachers. The theme *Agency and Opinions* comprises studies conducted in a plethora of fields and disciplines within the humanities and social sciences. Often, they problematise visual methods and position children as agents with their own opinions and knowledge.

The four themes have strong connections to academic disciplines but are not simply defined by them. They are much more complex. Not all studies are neatly disciplinary, and it is obvious that theories and methods can be shared between disciplines and fields. Thus, the themes intersect. Simultaneously, there are tensions between them because they build on different assumptions about children and pictures, and about research more generally. This means that, when communicating about children's pictures, one should not take it for granted that there is a shared consensus on what children's pictures are, what they might mean, or how they can be used.

I have shown that children's pictures are regarded in a plethora of ways: as facts, as prompts to improve interviews, as sources of information about aspects of children's inner life worlds and development, as well as something to learn and improve, to be used as a pedagogical tool, and as being communication, culture, and a social activity. The fact that children's pictures are used and given meaning in these multiple ways means that what we as a collective research community are doing to children is saying that their pictures can be used for almost anything. It also shows that researchers have high expectations of what children's pictures can achieve.

Another important insight is that "child" almost always refers to children over three years of age and that younger children are seldom of interest within research dealing with children's pictures and picture-making. Yet there are large differences in how children are positioned. Through this collective research, children are simultaneously positioned as vulnerable yet capable and worthy of being listened to, as psychological beings who can be evaluated from different angles through a lens of the general and normal, as pupils and apprentices in need of education and teaching, and as active participating agents with opinions and knowledge important enough to be studied in their own right. The finding that these diverse positions emerge in relation to children's pictures, which is a topic that one might think of as apolitical and free of friction, further encourages questions about how such societal positioning of children might also come to the fore through research on other child-related topics.

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