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Master thesis

The blackboard, a window of opportunities

Co-creation, imagination and meaning-making in Waldorf Education

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Abstract

The blackboard has long been a central element of classroom practice, yet its pedagogical role is rarely examined in depth. While contemporary educational debates often focus on digital technologies, the blackboard continues to function as a powerful medium for structuring learning, supporting dialogue, and making thinking visible. Within Waldorf education, the blackboard holds a particularly distinctive place, as it is closely connected to image-based learning, rhythm, imagination, and the gradual unfolding of knowledge.

This study explores the pedagogical significance of the blackboard in Waldorf classrooms and investigates how it can support meaningful learning processes. Drawing on philosophical, pedagogical, and cognitive perspectives, the study develops three conceptual lenses for understanding blackboard practice: the blackboard as a dialogic medium, as a co-creative pedagogical instrument, as a mirror for differentiation, and as an inspirator for wonder, curiosity, and visual expression.

The research combines a conceptual analysis with empirical exploration. Classroom observations of blackboard work were conducted, complemented by interviews and focus group discussions with experienced Waldorf teachers. These qualitative data were analyzed to examine how teachers use the blackboard to structure knowledge, visualize concepts, respond to diverse learners, and foster imaginative engagement.

The findings suggest that blackboard practice functions as a pedagogical space where thinking becomes visible, where teacher knowledge and pedagogical judgment interact, and where learning unfolds through rhythm, image, and dialogue. Rather than serving merely as a surface for transmitting information, the blackboard operates as a dynamic pedagogical instrument that mediates relationships between teacher, learners, and subject matter.

This study contributes to the field of Waldorf pedagogy by articulating the often tacit practices surrounding blackboard use and by offering conceptual and practical insights that may support teachers in reflecting on and developing their own blackboard practices.

Key words: blackboard, chalkboard, collaborative learning, differentiated instruction, differentiation, slow teaching, dual coding, pedagogical content knowledge, embodied learning, bansho, Cornell-method,…

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Finally, I would like to thank the teachers and schools who participated in this study and generously shared their experiences and reflections. Their openness and commitment to education made this research possible.

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1. Introduction

The study is explicitly grounded in the tradition of Steiner or Waldorf education. While the term *Steiner education* is commonly used in Flanders, the term *Waldorf education* will be used throughout this study, as it is more widely adopted in international academic literature. Within this pedagogical tradition, teaching is not understood as the application of a fixed method, but as a responsive and creative practice that seeks to meet the developmental needs of the child.

The starting point of this research lies in a noticeable increase in the diversity of educational needs within our school, as well as in other schools, both within Waldorf education and beyond. This growing heterogeneity has intensified the demands placed on teachers in both primary and secondary education, requiring them to continuously adapt their teaching approaches to a wide range of learners. Classrooms increasingly consist of students with differing abilities, learning rhythms, and support needs, which adds complexity to everyday teaching practice.

In this context, it becomes essential to identify strategies that support teachers in responding to this diversity in meaningful ways. This includes exploring how pedagogical tools and practices can contribute to differentiation, while also acknowledging the challenges that teachers encounter. At the same time, this study seeks to contribute to the ongoing development of Waldorf educational practice by examining how such challenges can be approached in a way that remains faithful to its pedagogical principles.

Within this framework, I want to investigate how a teacher's perspective on the use of the blackboard and their approach to conveying it influence students' learning experiences. Knowledge sharing is inherently a complex endeavor, and doing so at different levels and through various didactic techniques requires additional expertise and insight. There is a wide range of possibilities that teachers have to maximize a student's growth potential. As Steiner stated, "Waldorf School Education is not a pedagogical system but an Art—the Art of awakening what is actually there within the human being" (Steiner, 1922/1967, GA 217, para. 24).

Additionally, I hope that my research will stimulate further exploration into the effective use of blackboards in Waldorf education and their relationship with the learning and teaching process — an area that would benefit from more in-depth study. From conversations with

colleagues, I hear there is a demand for more practical tools in this area. In my initial research, I found very little literature in our Dutch-language sources. This makes it particularly interesting for me to learn more about this topic and subsequently link this thesis to writing a handbook or articles.

1.1 Choice of topic

The choice for this research topic emerges from a combination of practical urgency, theoretical curiosity, and a noticeable gap within existing educational literature. While contemporary educational research is strongly oriented toward digitalization — focusing on smartboards, learning management systems, and interactive digital tools — the role of the traditional blackboard has largely faded from scholarly attention. This absence is particularly striking within the context of Waldorf education, where the blackboard continues to play a central pedagogical role.

Within the Waldorf educational landscape, the available literature on blackboard use is remarkably limited. While some attention has been given to *board drawing* as an artistic and illustrative practice, there is very little systematic reflection on *board writing* as a pedagogical phenomenon. The blackboard is often treated as a neutral or self-evident tool rather than as an active medium that shapes teaching, learning, and meaning-making. As a result, essential dimensions of classroom practice — such as handwriting, drawing, pacing, erasure, correction, and the temporal unfolding of visual explanations — remain largely unexplored.

More broadly, educational research tends to privilege technologies that promise efficiency, interactivity, and data-driven feedback. In doing so, it often overlooks the semiotic and embodied qualities of analogue teaching tools. There is little research that examines the physical blackboard as a *visual and material canvas* on which knowledge is gradually formed through gesture, movement, rhythm, and improvisation. The processes of writing by hand, adjusting explanations in response to students, making mistakes visible, and reworking ideas on the board are rarely theorized, despite their potential significance for learning and differentiation.

This gap is particularly relevant in light of increasing diversity in educational needs and learning profiles within classrooms. As teachers are challenged to differentiate instruction and respond to a wide range of learners, it becomes important to reconsider not only *what* is

taught, but also *how* knowledge is made visible and accessible. The blackboard, as a slow, adaptable, and responsive medium, offers unique possibilities for differentiation, dialogue, and co-construction of meaning — possibilities that are difficult to replicate through standardized digital interfaces.

By focusing on the blackboard as a pedagogical medium, this thesis seeks to contribute to a more nuanced understanding of teaching practices that are often taken for granted. It aims to bridge theoretical perspectives from dialogic pedagogy, semiotics, embodied cognition, and Waldorf education with the lived realities of classroom practice. In doing so, the research not only addresses a gap in the literature but also responds to a need expressed by practitioners for more reflective and practice-oriented insights into the use of the blackboard as an educational instrument.

Ultimately, this choice of topic reflects a commitment to valuing pedagogical artistry, attentiveness, and material presence in education—elements that remain essential, even in an increasingly digital world.

1.2 Research question

In order to explore how the blackboard functions as a pedagogical medium in Waldorf classrooms, this study is guided by the following central research question:

How do Waldorf primary teachers use the blackboard as a pedagogical medium to support interaction, shared meaning-making, and differentiated learning during the main lesson?

This research question is explored through several interconnected aspects. The study examines the pedagogical value of the blackboard within Waldorf teaching practice, the ways in which it supports differentiation in response to diverse learning needs, and how teachers use the blackboard to structure and represent knowledge during the main lesson.

1.3 The aim and contribution of this research

This study aims to explore the pedagogical use of the blackboard within Waldorf education, with particular attention to how it supports teaching practices, student learning, and differentiation. In doing so, the research adopts an exploratory and practice-oriented approach. Rather than aiming to prescribe universal solutions, it seeks to deepen

understanding of how teachers' use of the blackboard, and their pedagogical engagement with it, shape students' learning experiences.

The limited availability of Dutch-language literature on this topic further reinforces the exploratory nature of the study and underlines its relevance for the field. This study therefore aims not only to generate theoretical insight, but also to support pedagogical reflection and contribute to the development of concrete, practice-oriented resources for teachers.

To address this aim, a qualitative multi-method research design was adopted, combining classroom observations, reflective diaries, interviews, and two focus groups. These methods were selected in order to capture both observable classroom practices and teachers' reflective perspectives, allowing for a comprehensive and triangulated understanding of the phenomenon under study.

The research is structured around three interconnected dimensions, each focusing on a specific aspect of blackboard pedagogy while contributing to a broader understanding of teaching and learning within Waldorf education.

1.3.1 Aim One

The first objective of this study is to examine how teachers' views on teaching materials and their didactic approach influence students' learning experiences.

To address this aim, classroom observations were conducted in six fifth- and sixth-grade classes during main lessons. These observations focused on documenting teaching practices, the use of the blackboard, and the ways in which teachers structured and presented content. Observation as a method allows the researcher to capture detailed aspects of classroom practice that may otherwise remain implicit (Creswell, 2008). To ensure consistency, an observation template was used (see Appendix 1).

In addition, participating teachers were invited to keep reflective diaries in which they documented their teaching experiences and reflections on individual lessons. These diaries provided insight into teachers' perspectives on their pedagogical choices, the use of teaching materials, and student responses. Reflection is considered a key component of professional learning, as it connects experience with action and supports the development of practice (Boud, 2001). A structured template was provided to guide these reflections (see Appendix 2).

The observational data and reflective diaries were subsequently analyzed to identify patterns and relationships between teachers' perspectives and their didactic practices. Particular attention was given to how these perspectives became visible in classroom interaction and the use of the blackboard.

1.3.3 Aim Two

The second objective of this study is to gain insight into the increasing diversity of educational needs within Waldorf education and to explore how teachers experience and respond to these challenges.

To address this aim, an in-depth interview and two focus group discussion were conducted with participating teachers. These methods made it possible to explore teachers' experiences, perspectives, and strategies in greater depth, while also allowing for collective reflection through dialogue.

The data from the interview and focus groups were analyzed using a thematic analysis approach. This involved transcribing the data, identifying meaningful units of analysis, coding recurring patterns, and comparing perspectives across participants. This process enabled the identification of key themes related to differentiation, pedagogical challenges, and teachers' responses to diversity in the classroom.

1.4 Benefits

The results of this study may benefit not only teachers, but also students, school leadership, and the broader educational community.

For teachers, the study offers insight into how didactic techniques, such as the use of the blackboard, shape students' learning experiences. By developing a deeper understanding of how instruction can be adapted to diverse needs, teachers may be better equipped to refine their practice, support differentiation, and create more structured and meaningful learning environments. This may also contribute to a reduction of classroom-related stress and support more effective classroom management.

For students, the findings may lead to more responsive and inclusive teaching practices that take into account their individual learning needs and developmental pathways. The intentional

use of visual and structured representations, such as blackboard work, may enhance engagement, support understanding, and contribute to improved learning outcomes.

For school leadership and management, the study provides insights that can inform policy development and professional learning initiatives. By grounding decisions in research-based understandings of teaching practices and differentiation, schools may be better able to support teachers and strengthen the overall quality of education.

At the level of the broader educational community, the study contributes to ongoing conversations about inclusive and responsive teaching. By sharing practices, reflections, and strategies, it may support schools and educators in addressing the increasing diversity within classrooms.

Taken together, the findings of this research may contribute to the development of more adaptive and inclusive educational practices, in which both teachers and students are supported in meaningful ways.

1.5 Scope and limitations of the study

This study aims to explore teachers' perspectives on blackboard use. The scope of this research is therefore limited to a small group of schools in Flanders and the Netherlands. By focusing on this particular context, the study seeks to gain an in-depth understanding of the practices, perceptions, and experiences related to the research topic.

The research concentrates on teachers' experiences and reflections and does not aim to provide a comprehensive overview of practices across all educational contexts. Instead, the study offers a contextualized insight into how blackboard use is understood and implemented within the selected setting. The findings should therefore be interpreted within the specific pedagogical and institutional context in which the study was conducted.

Several limitations should also be acknowledged. First, the number of participants is limited, which means that the results cannot be generalized to all schools or educational systems. The study rather aims to provide qualitative insights and contribute to a deeper understanding of the topic.

Second, the data are based on interviews, observations, reflective diaries and document analysis, which means that the findings partly reflect the perspectives and interpretations of

the participants and the researcher. As in most qualitative research, the interpretation of the data may therefore be influenced by contextual factors and the researcher's analytical perspective.

Finally, the research is situated within a specific educational framework, namely Waldorf education. While this context provides valuable insights into alternative approaches to blackboard use, the results may not be directly transferable to other educational systems with different pedagogical traditions.

Despite these limitations, the study contributes to a deeper understanding of the role of the blackboard within the chosen educational context and may offer insights that are relevant for further research and educational practice.

1.6 Positionality

This study is situated within my professional practice as a headmaster working in a Waldorf school context. The research question emerges from lived pedagogical experience rather than from a purely external or theoretical interest. In recent years, I have observed a significant increase in the diversity of educational needs within my own school as well as in other educational contexts. This development has placed growing demands on teachers to differentiate instruction and to respond adequately to students with varying cognitive, emotional, and developmental profiles. From within this context, I have experienced the challenge of differentiation as pressing and, at present, not yet sufficiently addressed in our school practice.

My position as an insider-researcher shapes both the motivation and the orientation of this study. On the one hand, this positionality allows for a nuanced understanding of classroom dynamics, pedagogical intentions, and the implicit norms that structure teaching practices. On the other hand, it requires a continuous reflexive stance toward my own assumptions, values, and expectations as a teacher-researcher. Rather than striving for detached objectivity, this research adopts an interpretive and reflexive approach, acknowledging that pedagogical inquiry is always situated and value-laden.

This position is closely connected to the pedagogical foundations of Waldorf education, in which teaching is not understood as the application of a fixed system, but as an art of awakening what is already present within the human being. This perspective informs my

interest in the blackboard as more than a technical or neutral teaching tool, but as a pedagogical medium through which differentiation, encounter, imagination, and meaning-making can unfold. At the same time, this research does not aim to reaffirm Waldorf pedagogy uncritically. Instead, Steiner's insights are placed in dialogue with contemporary educational theories on dialogic teaching, co-creation, subjectification, and embodied learning, allowing for a critical and generative engagement between tradition and current educational thought.

1.7 Structure of this thesis

Following this introduction, Chapter 2, Literature Review, situates the study within a broader theoretical and pedagogical framework related to the use of the blackboard in education. Particular attention is given to concepts such as dialogic pedagogy, meaning-making, visuality, co-creation, and differentiation, while also engaging with perspectives rooted in Waldorf education. Rather than aiming for an exhaustive overview, the chapter develops the conceptual lenses that guide the study.

Chapter 3, Methodology, outlines the methodological framework of the research. It discusses the research design, methods of data collection, and ethical considerations, while clarifying how the chosen approach aligns with the exploratory, interpretative, and practice-oriented character of the study.

The empirical material is presented in Chapter 4, Findings, drawing on classroom observations, photographic documentation, interviews, focus group discussions, and reflective diaries. The findings are organized thematically and offer insight into how teachers experience, structure, and pedagogically use the blackboard within their classroom practice.

Building on these findings, Chapter 5, Discussion, brings the empirical material into dialogue with the theoretical concepts introduced earlier. Particular attention is paid to themes such as co-creation, dialogue, imagination, rhythm, and differentiation within blackboard pedagogy.

Finally, Chapter 6, Conclusion, synthesizes the main findings of the study, reflects on their pedagogical implications, and discusses the limitations of the research as well as possible directions for future inquiry.

2. Literature review

This chapter is structured around three interconnected concepts: the blackboard as an inspirator, the blackboard as a co-creative pedagogical instrument, and the blackboard as a mirror for differentiation. These concepts emerged through examining the multiple roles of the blackboard within classroom practice and exploring how blackboard work functions pedagogically within Waldorf education. Rather than approaching the blackboard as a merely technical teaching tool, this chapter conceptualizes it as a dynamic pedagogical medium through which interaction, meaning-making, and differentiated learning are shaped and enacted.

The first concept, *The blackboard as an inspirator: wonder, curiosity and visual expression*, explores the aesthetic, emotional, and imaginative dimensions of blackboard work within Waldorf education. Through drawings, colours, visual structures, and the imaginative presence of the teacher, the blackboard can evoke wonder, curiosity, attentiveness, and deeper engagement with the subject matter. In this sense, the board becomes a pedagogical space in which imagination, atmosphere, and inner participation are cultivated. Blackboard work may also carry an affective and relational quality, shaping how teachers and pupils emotionally encounter the lesson, the learning content, and one another within the shared classroom space.

The second concept, *The blackboard as a co-creative pedagogical instrument*, builds on this imaginative dimension by examining how learning is collectively enacted through interaction mediated by the board. Drawing on dialogic and socio-constructivist perspectives, this concept emphasizes how blackboard work can support participation, reflection, attentiveness, and collaborative meaning-making. Through gradual visual development, questioning, and shared inquiry, the blackboard emerges as a pedagogical space in which thinking becomes visible and understanding develops relationally over time.

The third concept, *The blackboard as a mirror for differentiation: a Waldorf-informed perspective*, examines how the pedagogical and visual qualities of blackboard work can support differentiated participation and learning. Rhythm, pacing, spatial organization, and visual scaffolding can provide multiple entry points into the learning process and support learners with diverse needs, modes of engagement, and developmental rhythms. The blackboard thereby not only structures collective learning processes, but also enables teachers to respond more attentively and flexibly to diversity within the classroom community.

Together, these three concepts illuminate interconnected dimensions of blackboard use in Waldorf education: imagination and inspiration, co-creation and shared meaning-making, and differentiation and pedagogical responsiveness. By articulating these perspectives, this chapter establishes the conceptual foundation for the empirical part of the study and provides a framework for interpreting how teachers experience, structure, and pedagogically use the blackboard within classroom practice.

2.1 The blackboard as an inspirator: wonder, curiosity and visual expression

In an educational landscape increasingly characterized by acceleration, standardization, and outcome-oriented thinking, the cultivation of wonder and curiosity emerges as an important pedagogical counterbalance. The development of wonder and curiosity lies at the heart of human learning and development (Engel, 2011; Lindholm, 2018). Within Waldorf pedagogy, Steiner (1919/2007d, GA 293) emphasizes that education should protect and nurture the child's innate sense of wonder, particularly during childhood. According to Steiner (1919/2007d, GA 293), learning should not proceed from premature abstraction, but from imagination, storytelling, and sensory-rich experiences. From this perspective, the blackboard occupies a central place: it is not merely a surface for the transmission of information, but a dynamic, interactive, and imaginative medium that can make ideas visible, invite exploration, and support both individual and collective meaning-making.

This first concept departs from the question of how education — and more specifically the blackboard — can evoke curiosity, wonder, and imagination in children. Is the blackboard merely a black surface for the transmission of information, or can it become a pedagogical space in which wonder, imagination, and meaning become visible?

2.1.1 Inner childhood and pedagogical play

For learners, it is often not self-evident why they should learn something, what its purpose is, or what it will ultimately bring them (Deci et al., 1999). Within contemporary educational contexts, strong emphasis is often placed on knowledge acquisition, measurable outcomes, and predefined learning objectives, grounded in the assumption that clearly articulated goals increase motivation and improve learning effectiveness (Hattie, 2009). Yet such an approach

also raises the question of whether students become engaged only through goal orientation, or equally through experiences of wonder, imagination, and meaningful pedagogical encounter.

In this respect, the imaginative and affective presence of the teacher plays a crucial role in fostering wonder and curiosity in the classroom. The teacher's personal history, experiences, and formative encounters shape how openness, creativity, and pedagogical relationships are enacted in practice (Kelchtermans, 2009). From both Waldorf pedagogical and narrative inquiry perspectives, teaching is therefore not understood as a neutral or purely technical activity, but as something deeply connected to the teacher's inner life, lived experiences, and ways of making meaning (Clandinin & Connelly, 1996; Steiner, 1926/2007b, GA 302). In this sense, the blackboard becomes more than a functional teaching surface: it carries the visual imprint of the teacher's pedagogical imagination and contributes to the atmosphere and identity of the classroom itself (Gran, 2018).

This perspective resonates with Bruner's (1960) and Miller's (2003) understanding of playfulness as a central condition for exploration, curiosity, and creative engagement. Within such a pedagogical framework, the blackboard can function as a play space for ideas, where spontaneous drawings, metaphorical sketches, unfinished questions, and partial narratives coexist alongside more structured forms of content and understanding. Gran (2018) similarly suggests that blackboard images become part of the lived classroom environment and acquire meaning through their relationship to the pupils and the unfolding pedagogical process. When students are invited to participate in the gradual emergence of text, drawings, and ideas on the board, the blackboard can support shared discovery and collective meaning-making. By contrast, when blackboard images appear only as finished products, they may resemble artworks displayed in a gallery: capable of evoking wonder and surprise, yet offering fewer opportunities for participation in the process through which understanding is formed.

2.1.2 Wonder as pedagogical resistance

Within contemporary educational systems dominated by standardization, efficiency, and measurable outcomes, sustaining wonder becomes a form of pedagogical resistance. By leaving questions open, valuing exploration over rapid closure, and creating space for iterative and revisable representations on the blackboard, teachers resist the pressures of premature abstraction and utilitarian forms of education.

Steiner (1919/2007d, GA 293) critiques purely outcome-oriented education because it reduces human development to functional proficiency and, in doing so, neglects ethical, imaginative, and creative capacities. Contemporary research confirms this concern: Sawyer (2011) and Craft (2005) demonstrate that creativity and curiosity flourish particularly in environments that tolerate ambiguity and allow learners to explore multiple possibilities without fear of immediate evaluation.

The blackboard embodies this form of resistance. Its provisional nature — chalk can be erased, diagrams can be expanded, and questions can be revisited — encourages openness, reflection, and playful experimentation. Students experience that learning is not a linear pathway toward fixed answers, but a living process of inquiry, dialogue, and imaginative engagement.

2.1.3 Colour as a medium of wonder

In Waldorf pedagogy, colour is understood as more than a visual attribute; it mediates perception, feeling, and imagination (Steiner, 1919-1924/2007a, GA 345). Carefully chosen colours on the blackboard transform abstract concepts into sensory-rich, emotionally resonant, and imaginative experiences. Warm colours (red, orange, yellow) can energize and attract attention, while cooler colours (blue, green, purple) invite reflection and inward orientation (Steiner, 1919-1924/2001).

Colour is also connected to the teacher's inner childhood — their capacity for curiosity, playfulness, and aesthetic sensitivity. When teachers bring their own sense of wonder and aesthetic awareness to the blackboard, the use of colour becomes an expression of authenticity and engagement. By consciously working with hues, contrast, and composition, the teacher models an attentive and responsive relationship to phenomena, inviting students to perceive, question, and explore in similar ways. This aligns with contemporary research on embodied cognition and visual thinking, which demonstrates that learners process and retain information more effectively when it is connected to multisensory and emotionally meaningful experiences (Ritchhart & Perkins, 2008; Engel, 2011).

In addition, the strategic use of colour on the blackboard contributes to a classroom culture in which wonder and curiosity are foregrounded. Questions, diagrams, and narratives can be emphasized through colour transitions, stimulating both individual reflection and collective exploration. In this way, the blackboard becomes not only a cognitive tool, but also a

mediator of aesthetic, imaginative, and affective experiences that support the development of learners as whole human beings — thinking, feeling, and willing.

In summary, colour fulfils a dual function within blackboard pedagogy: on the one hand, it enhances the visibility of ideas and makes abstract concepts more perceptible and tangible; on the other hand, it can activate learners' imaginative and emotional capacities, thereby supporting intrinsic motivation and sustained curiosity. Within the Waldorf framework, this resonates with the broader educational aim of cultivating autonomous, ethically responsive, and creatively engaged learners (Steiner, 1894/1963; Miller, 2003). From this perspective, colour may contribute to the blackboard functioning as a dynamic and participatory pedagogical medium that invites wonder, imagination, and differentiated engagement within classroom practice.

2.2 The blackboard as a co-creative pedagogical instrument

Most of us still remember teachers from our school years who primarily taught through frontal instruction and allowed little room for student input. Until a few decades ago, this remained the dominant norm in many classroom contexts. Within Waldorf education, however, imagination, participation, and human encounter constitute fundamental pedagogical principles, giving the blackboard a particularly significant pedagogical role. It mediates learning not as a one-way transmission of knowledge, but as a shared and lived process in which meaning emerges collectively. Students are therefore not approached as passive recipients of information, but as active co-creators of meaning who engage in a responsive and involved way with what unfolds in the classroom.

This second concept therefore explores how the blackboard can function not merely as a surface for instruction, but as a shared pedagogical space in which dialogue, participation, and collective meaning-making become possible. How does the blackboard shape the ways teachers and learners encounter one another, construct understanding together, and participate in the unfolding process of learning?

2.2.1 From transmission to co-creation

Historically, the blackboard primarily functioned as an instrument of teacher-led demonstration. In traditional classroom contexts, it often served as a surface on which the teacher presented explanations, instructions, and correct solutions, while students observed,

copied, and memorized. As Wylie (2012) notes, even foundational skills such as reading were long taught through imitation and drill, with the blackboard mainly operating as a demonstration space (p. 262). Embedded within this practice is a transmissive conception of learning, in which knowledge is regarded as a stable body of content that can be transferred intact from teacher to learner through explanation and repetition.

Contemporary educational theory increasingly reframes learning as a socially situated, dialogic, and participatory process rather than as a linear transfer of information. Drawing on dialogical and socio-constructivist perspectives (Bakhtin, 1981; Vygotsky, 1978; Alexander, 2008), meaning is understood as something that emerges relationally through interaction, participation, and shared inquiry rather than through passive reception. This relational understanding of learning is further deepened by Dewey's (1938) idea of the continuity of experience, in which learning is understood as a temporal and cumulative process.

> Every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after. Hence the principle of continuity of experience means that every experience both influences future experiences and is influenced by past experiences.
> (Dewey, 1938, p. 35)

This movement toward collaborative meaning-making also strongly resonates with the concept of co-creation developed by Prahalad and Ramaswamy (2004), in which value does not pre-exist interaction but emerges through mutual engagement and shared authorship. Applied to education, this perspective invites a reconsideration of classroom authority and participation. This understanding of learning as an active, participatory, and relational process closely aligns with Steiner's view of human development. Steiner (1894/1963) does not regard the human being as a passive recipient of external knowledge, but as an active participant in the ongoing creation of the world. Cognition, in his view, is fundamentally creative rather than reproductive and forms "the most perfect link in the organism of thinking" (Steiner, 1894/1963, p. 297). This perspective is closely connected to Steiner's conviction that education must be grounded in a deep understanding of the developing human being, since "knowledge of the human being, supported by the science of the spirit, will enable one to reach, more or less easily, the child's powers of cognition" (Steiner, 1921-1924/1996, GA 304a, para. 2).

Although co-creative and dialogic approaches emphasize participation and shared meaning-making, such processes do not emerge automatically. Connectedness forms a fundamental

condition within this process. Before a learner can genuinely relate to others and to the subject matter, a sense of inner involvement and connection with oneself is required (Depuydt et al., 2001). Collaborative learning furthermore depends on practical and pedagogical conditions that support orientation, attentiveness, continuity, and accessibility within the classroom environment. The quality of interaction is therefore shaped not only by interpersonal dynamics, but also by the way learning is materially and spatially organized. In this sense, the pedagogical role of the blackboard extends beyond participation alone, as it can also provide structure, visibility, rhythm, and coherence within collaborative learning processes.

2.2.2 Spatial orientation and shared attention in the Waldorf classroom

A Waldorf classroom is often immediately recognizable by its distinctive “look” and atmosphere. Typically, these classrooms are characterized by natural materials, harmonious proportions, and a clear orientation toward the front of the room. Within this arrangement, the blackboard often occupies as the central organizing element. Desks, seating arrangements, and movement patterns are oriented in relation to it, not to enforce passivity, but to support shared focus and a sense of communal rhythm. Johnson (2011) similarly describes the blackboard as one of the defining characteristics of Waldorf education, suggesting that it contributes to a recognizable sense of place and pedagogical identity across Waldorf schools worldwide. According to Johnson (2011), the blackboard creates a sense of “home” that is distinctly associated with the Waldorf classroom (p. 5).

Research on classroom interaction and learning environments supports the importance of such spatial orientation. Studies indicate that clearly defined visual centers can support joint attention, participation, and collective cognitive engagement by providing a shared focal point for classroom interaction (Higgins, Beauchamp, & Miller, 2007; Jewitt et al., 2011). Research on classroom design more broadly has demonstrated that seating arrangements, visibility, and spatial organization shape communication patterns, attentiveness, participation, and opportunities for interaction within the classroom environment (Wannarka & Ruhl, 2008; Higgins et al., 2005; Jewitt et al., 2011). Classroom layout influences not only what students are able to see and access, but also how they engage with teachers, peers, and shared pedagogical materials. However, relatively little research has specifically examined the pedagogical role of the blackboard itself as a spatial and organizing center within classroom environments, particularly in Waldorf educational contexts.

2.2.2.1 Imagination and the unfolding of understanding

The quality of blackboard work within Waldorf education is closely connected to imagination and image-based learning. Steiner (1919/1969, GA 296) emphasized that education should address the whole human being by engaging thinking, feeling, and willing in an integrated manner. From this perspective, learning does not occur merely through passive reception, but through an active inner process in which meaning is gradually appropriated and transformed by the learner. As Steiner explains:

> A good teacher must not merely bring out the rhythm, and the rhyme in a poem; he must comment technically on the text; he must introduce the meaning, and only when he has unraveled the meaning will the pupils absorb it as an inner activity (Steiner, 1919/2000, Part VI, para. 16).

Carefully composed blackboard images support this process by offering forms that can be inwardly taken up, transformed, and re-expressed. In this sense, blackboard work does not merely communicate information, but creates conditions for active inner participation and meaning-making. Such practices also resonate with Shulman's (1986, 1987) concept of *Pedagogical Content Knowledge* (PCK), which emphasizes the teacher's capacity to transform disciplinary knowledge into pedagogically accessible and meaningful forms for learners. Through images, spatial composition, visual sequencing, and symbolic representation, the blackboard becomes a medium through which abstract ideas can be made experientially and conceptually accessible.

Within Waldorf pedagogy, imagination and structure are not regarded as opposites, but as mutually reinforcing dimensions of learning. Abstract concepts are often approached through narrative, pictorial, and symbolic forms with which learners can inwardly connect, transform, and reinterpret. At the same time, the deliberate spatial organization of blackboard work — including legibility, pacing, visual sequencing, and compositional structure — supports comprehension, orientation, and memory (Ranjan, 2016). As Ritchhart (2015) argues, making thinking visible can reveal gaps, tensions, and alternative possibilities, thereby fostering deeper curiosity, interpretation, and reflective engagement with the learning process.

This interaction between visual representation and conceptual understanding aligns with Paivio's (1971) *dual coding theory*, which proposes that learning is strengthened when information is presented through interconnected verbal and visual channels. When learners are able to integrate verbal explanations with meaningful visual representations, multiple pathways to understanding emerge, increasing the likelihood of retention, transfer, and deeper

conceptual connection (Paivio, 1971; Weinstein, Madan, & Sumeracki, 2018), while also strengthening the durable consolidation of knowledge (Hattie, 2009; Wammes et al., 2016; Weinstein et al., 2019). The pedagogical value of the blackboard therefore lies not only in what is presented, but also in the rhythm, repetition, and gradual unfolding through which understanding is allowed to develop.

This temporal dimension strongly resonates with theories of *slow teaching*, which emphasize that meaningful learning cannot be rushed and that attentiveness, reflection, repetition, and the gradual unfolding of understanding are essential to educational processes (Berg & Seeber, 2016; Payne & Wattchow, 2009). Gran (2018) similarly describes blackboard work as a pedagogical process in which understanding gradually develops through the unfolding of text, drawings, and signs in real time. Rather than confronting learners with finished representations, this evolving form of blackboard work invites students to follow and participate in a shared "journey of discovery," allowing meaning to emerge collectively through attentiveness, improvisation, and dialogue.

2.2.2.2 The blackboard as a pedagogical bridge in Waldorf education

Within the spatial and pedagogical ecology of the Waldorf classroom, the blackboard can function as a bridge in multiple senses. It connects teacher and learners by making thinking visible and shared. It links inner experience with outer form through images, words, and gesture. It also bridges pedagogical intention and educational realization, guiding learners from collective encounter toward individual understanding.

This bridging function becomes particularly clear when the blackboard is approached intentionally and pedagogically. As Ranjan (2016) suggests, the effectiveness of this bridge depends on how consciously and skillfully the teacher uses the board. In Waldorf education, this skill is not merely technical but also pedagogical and ethical. It requires attentiveness to space, rhythm, visibility, and relationship, as well as sensitivity to what unfolds between teacher, learners, and the shared visual field. Van Manen (2008) similarly argues that pedagogical action is shaped both by embodied habits and routines and by responsiveness to the contingencies and expectations that emerge within lived situations.

Similar pedagogical principles can also be found in other educational traditions that approach blackboard work as a shared space for collective thinking and inquiry. This pedagogical use of the blackboard resonates, for instance, with the Japanese concept of *Bansho*, which refers

to the deliberate and strategic organization of blackboard work in order to make students' thinking visible, structure collective inquiry, and scaffold discussion (Takahashi, Yoshida, & Shimada, 2013). In Bansho practice, teachers record and organize students' contributions in an evolving and carefully structured manner, highlighting relationships, categorizing ideas, and guiding reflection over time. Similar to Waldorf blackboard pedagogy, the board becomes a shared cognitive and visual space in which understanding develops collaboratively rather than being delivered in finalized form. Such practices also create multiple entry points for learners with different abilities and modes of engagement, echoing the Waldorf emphasis on differentiated access through visual, symbolic, and spatial representation.

The figure below illustrates how blackboard space can be deliberately organized to support visible thinking, collective inquiry, and the gradual development of understanding within classroom interaction.

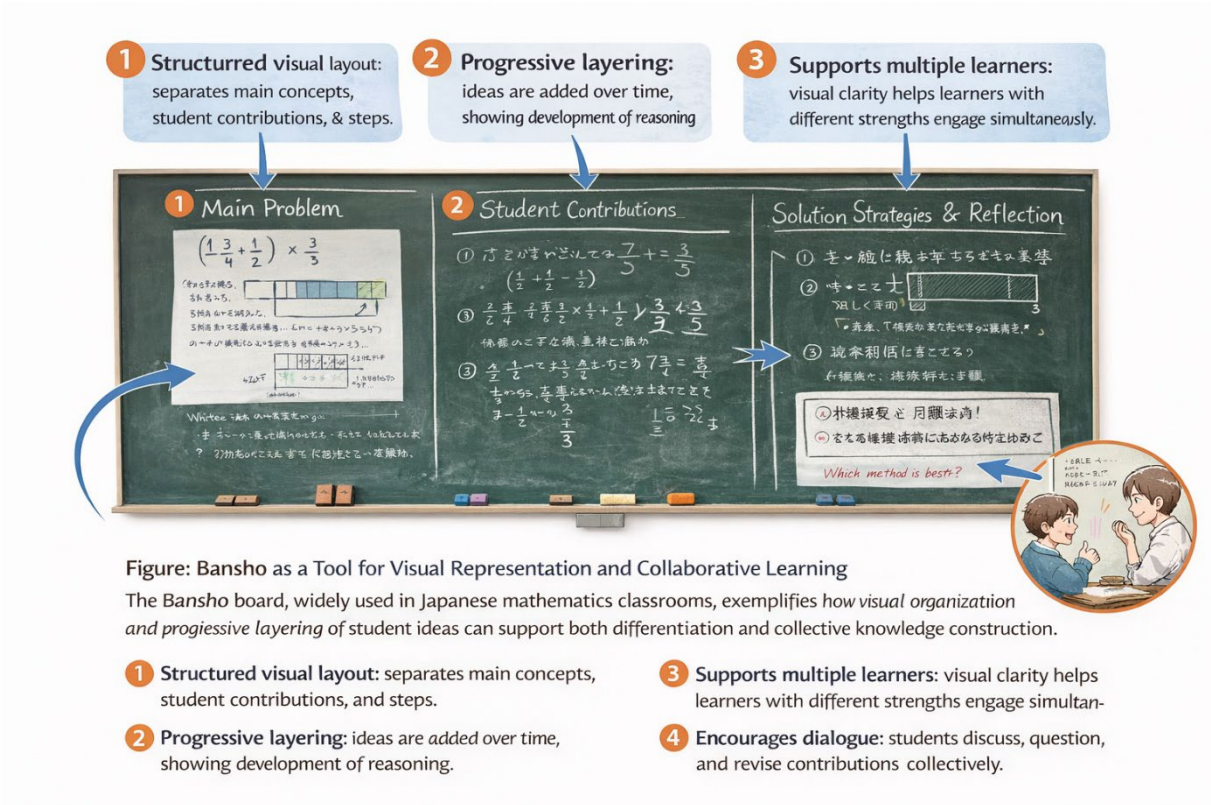


Figure 1. *Example of a Bansho board in classroom practice.*

2.3 The blackboard as a mirror for differentiation: a Waldorf-informed perspective

After exploring the blackboard as a means of evoking wonder, imagination, and engagement, the second concept examined how the blackboard can function within Waldorf education as a pedagogical bridge between teacher, subject matter, and learner. This third concept deepens that perspective by considering what happens when such transmission or connection does not occur naturally or effortlessly. How can the blackboard function pedagogically when learners differ in learning pace, engagement, cognitive abilities, or modes of participation within classroom life?

International perspectives on inclusive education similarly emphasize that educational environments should be designed in response to learners' diverse needs, vulnerabilities, and barriers to participation (UNESCO, 2022). Such perspectives underline the importance of concrete pedagogical practices and classroom structures that can support meaningful access to learning for all students. Likewise, the Flemish Education Council (VLOR) stresses that meaningful inclusion requires not only structural support and collaboration, but also concrete pedagogical practices that enable teachers to respond to the needs of all learners within everyday classroom life. Despite the wide range of diversity-related themes present in contemporary educational debates, one central pedagogical question continually re-emerges: how can education be designed in ways that create space for differentiation and meaningful participation for all learners?

2.3.1 Education serving human development

The concept of differentiation is interpreted in various ways within educational contexts. On the one hand, external differentiation refers to the division of students into separate groups in order to create more homogeneous learning environments. On the other hand, internal differentiation, or within-class differentiation, maintains heterogeneous classroom groups while the teacher adapts instruction, support, and learning activities to diverse educational needs within the same classroom context.

Research shows that decisions regarding within-class differentiation often stem from behavioural observations and are strongly guided by teachers' experience, intuition, and personal judgements (Van Gasse & Van Acker, 2023, p. 898). As a result, initial assumptions or expectations about students may remain insufficiently questioned, which can lead to

confirmation bias and potentially influence students' learning opportunities and educational trajectories. This observation contrasts with Tomlinson's (2017) understanding of differentiation, in which differentiation is viewed not merely as a collection of instructional strategies, but also as a pedagogical mindset (*a way of thinking*). Differentiation therefore requires an ongoing and reflective search for ways to align educational practices with the diverse needs of learners, without losing sight of the teacher's pedagogical responsibility.

2.3.2 Everything is context

From a Waldorf perspective, differentiation is not understood merely as a technical or procedural strategy, but as an ethical and developmental orientation in which teaching seeks to attune itself to individual rhythms, capacities, and interests while addressing thinking, feeling, and willing as an integrated whole (Steiner, 1919/2007d, GA 293). Within this perspective, differentiation does not imply that every student follows a completely separate learning trajectory; rather, it means that education is shaped flexibly and responsively so that different learners can meaningfully participate within a shared learning process. This aligns with the idea that differentiation does not imply separate activities, but rather interrelated learning pathways that support a common understanding (Good, 2006).

In Flanders, there is still a strong emphasis on separate schools for students with special educational needs. However, policy recommendations toward 2030 advocate for the gradual reduction of such segregated systems, making diversity within mainstream classrooms increasingly the norm. Within this context, the blackboard emerges as a crucial pedagogical instrument capable of reflecting and mediating differentiated learning in real time. It is more than a surface for transmitting information; it functions as a dynamic space in which content, pacing, and visual representation can be responsively adapted to students' needs.

This perspective also resonates with Brown's (2020) understanding of the classroom environment as a *third teacher*, in which classroom furniture, spatial organization, material arrangements, and the broader school environment implicitly shape learning and instructional processes. From this viewpoint, differentiation is not only enacted through verbal instruction, but also through the ways pedagogical space is organized, structured, and experienced within classroom life. The blackboard may thereby offer multiple possibilities for supporting diverse forms of participation, attention, pacing, and engagement within shared learning processes.

2.3.3 Learning together, learning differently

As Tyack and Cuban (1995) note, a nineteenth-century blackboard seller described the board as “the mirror that reflects the functioning, character, and quality of the individual mind” (p. 121). Although metaphorical, this image strongly resonates with Steiner’s emphasis on careful pedagogical observation and attentiveness to the child’s development. Within Waldorf pedagogy, teachers are encouraged not only to observe what children know, but also how they engage, respond, hesitate, interpret, and participate within the learning process (Steiner, 1923/2007b, GA 302).

When learners externalize their thinking on the blackboard — through drawings, symbols, written responses, spatial arrangements, corrections, or collaborative constructions — aspects of their understanding become visible within the shared classroom space. As Ranjan (2016) stated: “The blackboard is the soul of the classroom. The board is there for everyone and does not discriminate between children.” Teachers may observe how pupils structure ideas, where confusion or uncertainty emerges, how confidently they contribute, or how they relate imaginatively and conceptually to the subject matter. From this perspective, the blackboard can be understood as more than a surface for displaying information; it may also function as a pedagogical space in which learning processes become visible and open to reflection.

This visibility also supports more responsive and differentiated forms of teaching. Rather than relying primarily on fixed labels or standardized categorizations, teachers can adapt explanations, pacing, visual supports, or classroom interaction in response to what becomes visible through ongoing participation and blackboard activity.

2.3.4 Differentiation through pace, rhythm, and temporal unfolding

An important dimension of effective differentiation concerns pace. Research indicates that a mismatch between instructional tempo and students’ processing speed can lead to disengagement or cognitive overload (Gross Davis, 2009). According to Opgenhaffen (2015), a high lesson pace likely negatively affects both the quality and effectiveness of students’ notes because insufficient time is available to process the material being presented. Writing on the blackboard naturally slows instructional tempo, since the teacher must speak and write simultaneously, allowing ideas to unfold gradually. Research on note-taking indicates that simultaneously listening, processing, and writing places significant cognitive demands on learners, making it a highly complex activity (Boch & Piolat, 2005; Hartley & Davies, 1978).

This approach directly aligns with the principles of slow teaching (see 2.2.2.1), in which intentional pacing, reflective engagement, and attentive interaction with learners are central. By combining slow teaching with blackboard work, the teacher creates a learning environment in which students can process, internalize, and connect ideas at their own pace. This supports learners who require more time to grasp new concepts, while simultaneously providing sufficient depth and challenge for those ready to move further. In this way, the blackboard becomes not merely a presentation tool, but also a temporal and relational scaffold that supports differentiated and meaningful learning.

2.3.5 Repetition, remembering, and internalization

When learning does not occur naturally or effortlessly, repetition becomes crucial for helping students meaningfully absorb and retain subject matter (Lemov et al., 2012). Teaching without repetition risks becoming education aimed at forgetting rather than remembering. At the same time, repetition should not be reduced to passive or mechanical forms of instruction. Repetitive teaching approaches in which students remain limited to listening and copying should be avoided, as such practices often restrict active engagement and deeper understanding. This perspective also resonates with Caviglioli's (2019) work on visual learning structures, in which repetition is not understood as mere mechanical reproduction, but as a process of active reconstruction. By gradually building visual structures, discussing them, copying them, and later reconstructing them from memory, learners are supported in deepening and consolidating their understanding. From this perspective, copying blackboard work can function as a form of cognitive repetition in which relationships, hierarchies, and thinking processes are gradually internalized.

This rhythmic and temporal understanding of learning closely aligns with Waldorf main lesson block teaching, in which subject matter is explored intensively over several weeks before being temporarily set aside and later revisited. Rawson (2021) describes learning processes as unfolding through successive phases of experience, forgetting, remembering, meaning-making, practice, and transformation. Within this pedagogical structure, learning is not conceived as the reproduction of short-term factual knowledge, but as a process of gradual deepening, remembering, and inner assimilation. As Steiner explains:

> "Main Lessons" we keep very strictly to the method of teaching in periods. During each period we take only one subject but these lessons can include other topics related to it. We thereby save the children from what can work such harm

> in their soul life, namely that in one lesson they have to absorb what is then blotted out in the lesson immediately following. The only way to save them from this is to introduce period teaching (Steiner, 1924/1995, GA 311, para. 38-39).

Within this process, the blackboard plays an important role as the visible and shared memory of the classroom. Through the gradual construction of images, concepts, and structures, students are able to follow, revisit, and reconstruct thinking processes over extended periods of time. Likewise, the main lesson book functions not merely as a reproduction of blackboard work, but as a personal processing space in which learners reorganize, illustrate, and reinterpret subject matter. The repetition that emerges through blackboard work, main lesson books, and later moments of recall therefore supports not only knowledge acquisition, but also long-term internalization and meaning-making.

2.4 Conclusion

This literature review has explored the pedagogical significance of the blackboard within Waldorf education through three interconnected concepts: the blackboard as an inspirator, the blackboard as a co-creative pedagogical instrument, and the blackboard as a mirror for differentiation. Together, these concepts reveal that the blackboard cannot be reduced to a neutral instructional device or a simple surface for information transfer. Rather, it emerges as a dynamic pedagogical medium through which imagination, participation, visibility, rhythm, and meaning-making become materially and relationally enacted within classroom life.

The first concept highlighted how blackboard work can cultivate wonder, curiosity, and imaginative engagement through images, colour, narrative, and visual composition. Within this perspective, learning is approached not merely as the acquisition of predefined knowledge, but as a process of inner participation in which learners are invited to explore, interpret, and relate meaningfully to the world. The blackboard thereby becomes a space in which aesthetic experience and pedagogical encounter converge.

Building on this imaginative dimension, the second concept examined the blackboard as a co-creative pedagogical space. Drawing on dialogic, socio-constructivist, and Waldorf perspectives, learning was understood as a relational and participatory process rather than as a

linear transmission of knowledge. Blackboard work can support this process by making thinking visible, structuring collective inquiry, and enabling understanding to unfold gradually through dialogue, interaction, and shared attention. In this sense, the blackboard functions as a mediating space between teacher, learner, and subject matter.

The third concept approached the blackboard from the perspective of differentiation and pedagogical responsiveness. Through rhythm, pacing, visual organization, imagery, repetition, and temporal unfolding, blackboard work can provide multiple entry points into the learning process and support learners with diverse developmental rhythms, cognitive needs, and ways of participating. The blackboard thus functions not only as a collective pedagogical space, but also as a medium through which teachers can observe, respond to, and support individual learning processes within a shared classroom environment.

Across these perspectives, several recurring pedagogical themes emerged: visibility, rhythm, imagination, participation, temporality, and relationality. The literature suggests that the pedagogical value of the blackboard lies not only in what is represented on it, but also in how learning is spatially, visually, socially, and temporally organized through it. Blackboard pedagogy therefore reflects a broader educational orientation in which cognition, affect, embodiment, and social interaction are understood as deeply interconnected dimensions of learning.

At the same time, the literature also reveals a gap between theoretical conceptualizations of blackboard pedagogy and its lived enactment within contemporary classroom practice. While existing research and pedagogical theory offer important insights into imagination, co-creation, visual learning, and differentiation, relatively little attention has been given to how teachers themselves experience, structure, and pedagogically use the blackboard within everyday Waldorf classrooms.

The following chapters therefore move from conceptual exploration toward empirical inquiry. Through observations, interviews, focus group discussions, reflective diaries, and visual documentation, this study investigates how Waldorf teachers use, experience, and reflect upon the blackboard as a pedagogical medium for imagination, co-creation, and differentiated learning within the lived dynamics of classroom practice.

3. Research design and methods

3.1 Methodological framing

Qualitative research is particularly suited to exploring educational practices and meanings as they emerge within real-life contexts. Rather than seeking to measure variables or establish causal relationships, qualitative approaches aim to understand how participants interpret and experience phenomena within their social and pedagogical environments (Bloomberg & Volpe, 2019).

Within qualitative research traditions, the case study approach enables an in-depth investigation of complex educational processes situated in specific contexts. Case studies are especially valuable when the boundaries between the phenomenon under study and its context are not clearly separable, as is often the case in classroom practice (Yin, 2018). By examining pedagogical practices in their natural setting, case study research allows the researcher to capture the richness, complexity, and situated character of teaching and learning processes.

To strengthen the credibility of qualitative findings, researchers frequently combine multiple sources of data, a strategy known as methodological triangulation. Triangulation allows different perspectives on the same phenomenon to be compared and integrated, thereby increasing the depth and trustworthiness of the analysis (Savin-Baden & Major, 2013).

3.2 Research design

This study adopts a qualitative case study design, or qualitative exploratory study of blackboard pedagogy, to explore the pedagogical use of the blackboard in main lesson. The research focuses on how the blackboard functions as a dialogic, co-creative, differentiating, and inspirational pedagogical medium within classroom practice. A case study approach was chosen because it allows an in-depth investigation of a complex pedagogical phenomenon in its natural educational context. Multiple qualitative data sources were collected, including classroom observations, photographic documentation of blackboard work, teacher interviews, and reflective journals.

The study is situated within an interpretive research paradigm, aiming to understand how teachers and pupils experience and use the blackboard as part of the learning process.

3.2.1 Data triangulation

This study adopts a qualitative case study design in order to investigate a specific pedagogical phenomenon within a defined educational context, namely the pedagogical use of the blackboard in main lessons within a Waldorf educational setting.

A case study approach is particularly appropriate for this research because it allows for an in-depth exploration of a complex pedagogical process as it unfolds within its natural classroom environment. By focusing on a specific educational context, the study seeks to develop a nuanced understanding of how blackboard practices contribute to teaching and differentiated learning processes in everyday classroom situations.

To gain a comprehensive understanding of this phenomenon, multiple sources of qualitative data were collected. These include classroom observations, photographic documentation of blackboard work, semi-structured interviews with teachers, and reflective journals maintained by participants throughout the study.

3.3 Research setting

The empirical data for this study were collected in several Waldorf schools in Flanders (Belgium) and in Eindhoven (the Netherlands). The study follows a qualitative research approach aimed at gaining an in-depth understanding of pedagogical practices within their natural educational context. Qualitative research is particularly suited to exploring educational processes and meanings as experienced by participants (Bloomberg & Volpe, 2019).

Classroom observations were conducted in six Waldorf schools during main lessons in classes 2 to 6. These observations focused on everyday classroom practices and, more specifically, on the pedagogical use of the blackboard during the main lesson. Observations allowed the researcher to document how pedagogical intentions and practices manifest in real classroom interactions. As Savin-Baden and Major (2013) note, observation is an important method in qualitative educational research because it enables the researcher to capture practices as they unfold in context.

3.4 Participants

The participants in this study were experienced Waldorf teachers working in primary education. All participating teachers had more than five years of teaching experience and were between 27 and 45 years of age. The teachers were involved in teaching main lesson in the fifth and sixth grades during the observation period.

The classroom observations took place in several classes ranging from grade 2 to grade 6 across six Waldorf schools. The class sizes varied between approximately 12 and 24 pupils, which reflects the typical class size in Waldorf primary education. These classes formed the context in which the teaching practices and the pedagogical use of the blackboard were observed.

To ensure confidentiality and protect the anonymity of the participants, pseudonyms were used throughout the study. The following list presents the participating teachers, who are referred to by fictional names throughout the analysis and discussion of the data.

Name teacher	Grade	Class size	Experience	Main lesson	Source of data
Anna	Grade 5	24	12 years	Mathematics	Observation, reflective diarie
Eva	Grade 4	22	24 years	Language	Observation, reflective diarie, focusgroup 2
Lukas	Grade 5	25	15 years	Mathematics	Observation, focusgroup 2
Sara	Grade 6	23	10 years	Geography	Observation
Elise	Grade 5	24	23 years	Mathematics	Observation, focusgroup 2

Sofie	Grade 2	22	9 years	Language	Observation, interview
Clara	Grade 4	18	7 years	Mathematics	Observation, focusgroup 1
Olivia	Grade 3	12	5 years	Mathematics	Observation, focusgroup 1

3.5 Ethical Considerations

Several ethical considerations were taken into account throughout the research process to ensure the protection of participants' rights and well-being.

3.5.1 Privacy and anonymity

Since the study involved collecting data through classroom observations, reflective journals, and interviews, it was essential to safeguard the identities of both teachers and students. All collected data were anonymized by using pseudonyms and removing identifying details such as school names and personal information. The data were stored securely and were accessible only to the researcher.

3.5.2 Informed consent

All participants were informed about the purpose of the study, the research procedures, the types of data collected, and how the data would be used. Participation was voluntary, and participants were informed of their right to withdraw from the study at any time without negative consequences. Written informed consent (Appendix 4) was obtained from all participating teachers prior to the observations and interviews (Savin-Baden & Major, 2013). As classroom observations also involved minor students, parental consent was requested where required.

3.5.3 Voluntary participation and well-being

Participation in the study could potentially create feelings of discomfort, particularly when teachers reflected on their own teaching practices. To minimize this risk, participants were

reminded that their involvement was entirely voluntary and that they could decline to answer any question or withdraw their data at any time. Care was taken to ensure that interviews and discussions took place in a respectful and supportive environment.

3.5.4 Confidentiality

All information shared by participants was treated confidentially. In the reporting of the research findings, no identifying details were included that could lead to the recognition of individual participants or schools.

3.6 Data collecting tools and process

The data for this study were collected through a qualitative multi-method approach consisting of classroom observations, interviews, two focus group discussions, and reflective research diaries. Combining multiple data collection tools allowed the researcher to explore the research topic from different perspectives and to build a richer understanding of pedagogical practices. Using different sources of data also supports methodological triangulation, which enhances the credibility and depth of qualitative research (Bloomberg & Volpe, 2019).

3.6.1 Classroom observations

Classroom observations formed the primary data source for this study. Observations were conducted in six Waldorf schools in Flanders (Belgium) and in Eindhoven (the Netherlands) during main lessons in the lower and upper primary grades. The observations focused specifically on the pedagogical use of the blackboard within the structure of the main lesson.

Observations are particularly valuable in educational research because they allow the researcher to document classroom practices as they naturally occur (Savin-Baden & Major, 2013). During the observations, attention was given to how teachers used the blackboard to structure mathematical concepts, guide explanations, and visually organize ideas during the lesson. Field notes were taken during and immediately after each lesson to document relevant classroom interactions, visual representations on the board, and the sequencing of instructional activities. The observation protocol used during this study is included in Appendix 1.

3.6.2 Interview

In addition to the classroom observations, a semi-structured interview was conducted with a participating teacher. Interviews are widely used in qualitative research because they allow participants to articulate their perspectives, experiences, and interpretations in their own words (Bloomberg & Volpe, 2019).

The interview was conducted in person and aimed to gain deeper insight into the pedagogical intentions behind classroom practices, as well as the teacher's reflections on the use of the blackboard. The semi-structured format allowed for flexibility, enabling the researcher to explore relevant themes that emerged during the conversation while maintaining focus on the research questions. The interview guide used during this study is included in Appendix 2.

3.6.3 Focus group discussion

Two focus group discussions were conducted as part of this study: one with teachers at the researcher's own school, and a second with participants from other Waldorf schools in Flanders.

Focus groups allow participants to reflect collectively on their experiences and can generate insights that emerge through interaction between participants (Savin-Baden & Major, 2013).

During both focus groups, teachers discussed their experiences with teaching practices, blackboard use, and differentiation. The group setting encouraged participants to respond to each other's ideas and to elaborate on shared as well as diverse practices within the Waldorf educational context.

3.6.4 Reflective research diaries

Throughout the research process, the researcher maintained reflective research diaries. Reflective writing is an important tool in qualitative research as it allows researchers to document emerging insights, methodological decisions, and reflections on the research process (Savin-Baden & Major, 2013).

The reflective diaries were used to record observations, analytical thoughts, and reflections following classroom visits, interviews, and the focus group discussion. They also served as a means of acknowledging and critically examining the researcher's own positionality within the Waldorf educational context. By documenting these reflections, the diaries supported an

ongoing process of reflexivity and contributed to a deeper interpretation of the collected data. The template of the reflective diaries used during this study is included in Appendix 3.

3.6.5 Data collection process

The data collection process unfolded in several stages. First, classroom observations were conducted in order to gain direct insight into everyday pedagogical practices. These observations provided a contextual basis for the subsequent interviews and focus group discussion.

In the second stage, individual interviews were carried out with teachers in order to deepen the understanding of the practices observed in the classroom. Finally, the focus group discussion allowed participating teachers to collectively reflect on the themes emerging from the study.

Throughout the entire process, reflective diaries were maintained to document emerging insights and reflections. Through this sequential and reflective approach, the study combined direct observation of classroom practice with teachers' reflective perspectives, creating a comprehensive understanding of the pedagogical role of the blackboard in Waldorf education.

3.7 Researcher positionality, assumptions and potential bias

As a researcher and teacher working within the Waldorf educational context, my own professional background inevitably shapes the way this study was approached and interpreted. My familiarity with Waldorf pedagogy and classroom practices provided valuable insider knowledge that helped me to understand the educational significance of the blackboard within this context. At the same time, this positionality also requires reflexivity, as prior experiences and pedagogical commitments may influence the interpretation of the observed practices.

This study therefore acknowledges several underlying assumptions. One assumption guiding this research is that pedagogical practices such as blackboard work can play an important role in structuring knowledge, supporting imagination, and fostering meaningful learning within Waldorf education. Another assumption is that classroom practices are shaped by broader pedagogical intentions and traditions.

Being both an insider and a researcher also introduces potential sources of bias. For instance, there is a risk of interpreting classroom practices in ways that confirm existing beliefs about

the pedagogical value of blackboard work. To address this, the study sought to remain attentive to the empirical data through systematic observation, triangulation of data sources (observations, interviews, and focus group discussion), and careful interpretation of participants' perspectives.

Following qualitative research principles (Bloomberg & Volpe, 2019), reflexivity was therefore an important element of the research process. Throughout the study, efforts were made to critically reflect on how the researcher's position, experiences, and interpretations might shape the research process and findings.

3.8 Research process and adjustments

During the research process, several practical and methodological challenges emerged, which led to adjustments in the research design.

Initially, the study aimed to focus primarily on mathematics lessons, as differentiation practices are particularly visible in this domain. However, scheduling observations within this specific subject area proved difficult in collaboration with participants. Therefore, the scope of the study was broadened to include all main lesson subjects.

Furthermore, although five participants agreed to contribute to reflective diaries, only two provided data on a regular basis. Participants indicated that maintaining the diaries was experienced as an additional workload alongside their teaching responsibilities. As a result, the data from observations and reflective diaries alone proved insufficient to fully support the research aims.

Consequently, greater emphasis was placed on focus group discussions. Two focus groups were organized: one with three external participants and one within the researcher's own school context.

In addition, while the initial focus was on upper primary grades (grades 4–6), the inclusion of a participant from a lower grade context broadened the scope of the study. This ultimately proved valuable, as the data revealed clear developmental differences in blackboard use across grade levels.

4. Presentation of empirical material

4.1 Introducing the empirical material and its thematic organisation

This chapter presents the empirical material collected through classroom observations, two focus group discussions—one conducted with teachers from the researcher's own school and a second with three participants from other Waldorf schools in Flanders—and an individual interview with Sofie, a teacher working in lower primary education in the Netherlands.

The aim of this chapter is to provide a structured overview of how teachers describe and enact the pedagogical use of the blackboard in their daily practice. The material is organized thematically, based on recurring patterns identified across the data. These themes reflect key dimensions of blackboard use, including intentionality, structure, differentiation, co-creation, and the role of the blackboard in fostering engagement and imagination.

Where relevant, visual material in the form of photographs is included to support and illustrate the findings.

4.1.1 Data sources and presentation of empirical material

The blackboard is positioned as a central element in this study because it functions as a visible and shared pedagogical space in which teaching, learning, and interaction become materially present. It provides a unique entry point for exploring how teachers structure content, respond to students, and shape the learning environment in practice.

In this chapter, the empirical material is presented through descriptive accounts, visual material, and selected excerpts from interviews, focus groups, and reflective diaries. The aim is to remain as close as possible to participants' experiences and expressions, without engaging in in-depth interpretation. A more analytical discussion of these findings is developed in Chapter 5.

4.2 The blackboard and imagination, wonder, and engagement

A distinctive feature across all data sources is the strong emphasis on the aesthetic and imaginative qualities of the blackboard. Teachers consistently describe the board not only as a

tool for instruction, but also as a medium capable of awakening curiosity, engagement, and a sense of wonder among students. Particularly in the lower grades, visual elements such as drawings, colour, and composition were described as important ways of attracting pupils' attention and emotionally involving them in the lesson.

4.2.1 The role of blackboard drawings

Although this study primarily focused on differentiation, participants consistently associated wonder more strongly with blackboard drawings, noting that these visual elements evoked the strongest sense of amazement and curiosity among pupils.

In classroom observations, almost every classroom contained some form of blackboard drawing or visual decoration. These ranged from colourful seasonal illustrations and nature scenes to mathematical visualisations, story-related drawings, decorative borders, and hand-lettered lesson titles. In several classrooms, the middle board functioned as a central visual space in which drawings, colours, and written content were carefully combined. For example, Figure 2 presents a spring-themed chalk drawing on the right side of Sofie's middle board, integrated into a language lesson. Written content and visual elements from the main lessons had remained visible on the board throughout the week, creating a layered visual learning environment.



Figure 2. *Photo of the blackboard in grade 2.*

However, the extent to which teachers integrated drawings into their practice varied considerably. Some teachers used drawings frequently and prominently throughout the day, while others applied them more selectively or only during specific lessons or themes. For example, Figure 3 shows a drawing created by Olivia during a period on dragons, in which the blackboard drawing remained visible on the left board throughout the entire three-week period.



Figure 3. *Photo of board drawing in grade 3 during dragon period.*

Sofie, for example, referred to the blackboard as something that immediately invites children into the learning process. She explained how pupils react when they enter the classroom and notice new visual elements on the board: “Then they come and then ‘oh, there is something new on the board’.”. Similarly, participants in both focus groups emphasized that visual richness on the board stimulates pupils more strongly than text alone. Elise described how “the middle board is full of drawings… that gives me energy and the children too”, while Olivia stated that “if there is only text, they are not stimulated”.

Teachers additionally linked the visual qualities of the blackboard to emotional and cognitive engagement. Sofie explained this connection by stating that “you have to go from feeling to thinking, and that the blackboard really helps with that”. In this sense, the board was described as a way of connecting emotional involvement with understanding and concentration during classroom activities.

At the same time, the aesthetic dimension of blackboard use appeared closely connected to the teacher’s own presence and artistic engagement. Participants emphasized that pupils are often fascinated not only by the final visual result, but also by observing the teacher while drawing, writing, or constructing ideas in real time. Eva described the strong impression this process can have on children, explaining that “the children look at you as if you were a God… and what you do makes an impression”. At the same time, she noted that pupils also appreciate the spontaneity and imperfection of the process itself: “They also enjoy seeing me struggle”.

4.2.2 Chalkboard versus digital tools

Within the concept of wonder, an additional layer emerged through the observed use of digital tools alongside the traditional chalkboard. During the observations, both Sofie and Lukas made use of digital media within their classrooms. Sofie worked with an interactive whiteboard, while Lukas made use of a projector and screen. Although both tools were initially introduced in the upper grades, Sofie primarily based on curricular content and Lukas from a differentiation-oriented perspective, their use gradually expanded as teachers recognized their pedagogical value.

Sofie explained that her school initially limited the use of digital boards to higher grades, assuming that such tools were less appropriate for younger pupils within the Waldorf context. However, over time, the advantages became apparent, leading to a school-wide implementation. In particular, digital visualization allowed certain phenomena to be represented in ways that surpass the possibilities of live drawing. For example, a volcanic eruption is considerably more difficult to capture on a chalkboard than through high-quality digital imagery. In this sense, digital tools were experienced as supportive of wonder: they enabled pupils to encounter complex natural phenomena more vividly and concretely, thereby fostering imagination and curiosity.

Lukas similarly described the use of digital projection in the upper grades, though his motivation was more closely linked to differentiation. By displaying exercises or visual supports on the screen, he was able to scaffold learning for pupils with diverse needs and working paces. The digital medium thus functioned as a practical support for accessibility and clarity, particularly for pupils who benefit from structured visual input.

4.2.3 Differences in teachers' artistic practices

Important differences emerged not only between individual teachers, but also between educational contexts, school cultures, and national traditions regarding blackboard use. While teachers differed in their personal confidence and approach to blackboard drawing, participants additionally pointed to broader differences between schools in Flanders and the Netherlands, as well as to varying school agreements and expectations surrounding the use of the blackboard.

At the individual level, these differences appeared closely related to artistic ability, teaching style, and practical constraints such as time. Elise frequently used the middle board for artistic drawings and decorative visual compositions, shown in Figure 3. Whereas Lukas preferred to use the backboard for temporary visual displays that were only revealed at carefully chosen moments during the lesson.

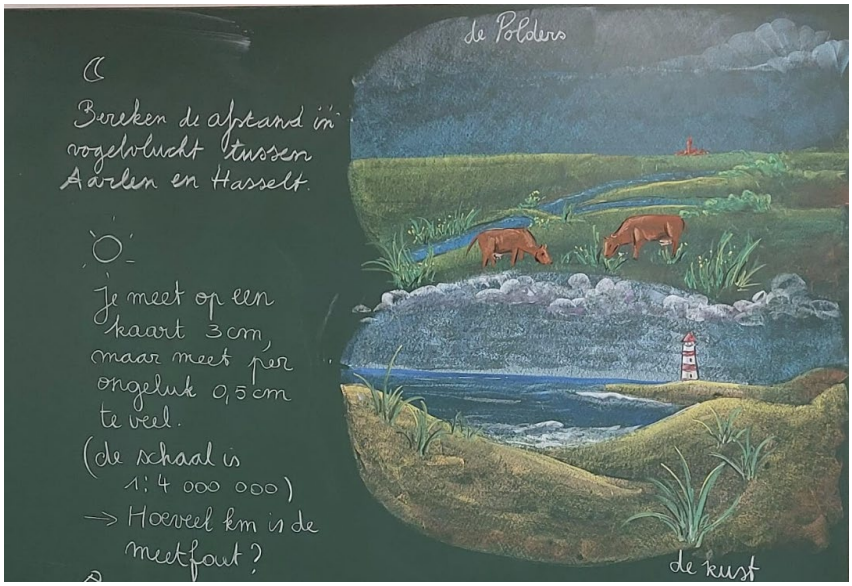


Figure 4. *Photo of Elise's artistic drawing on the middle board. The drawing occupied a considerable amount of space on the blackboard, while mathematical exercises were arranged around it.*

Eva explained that she experienced blackboard drawing as difficult and therefore limited herself to approximately one drawing per month, shown in Figure 5. She also mentioned occasionally asking pupils for help with drawings.

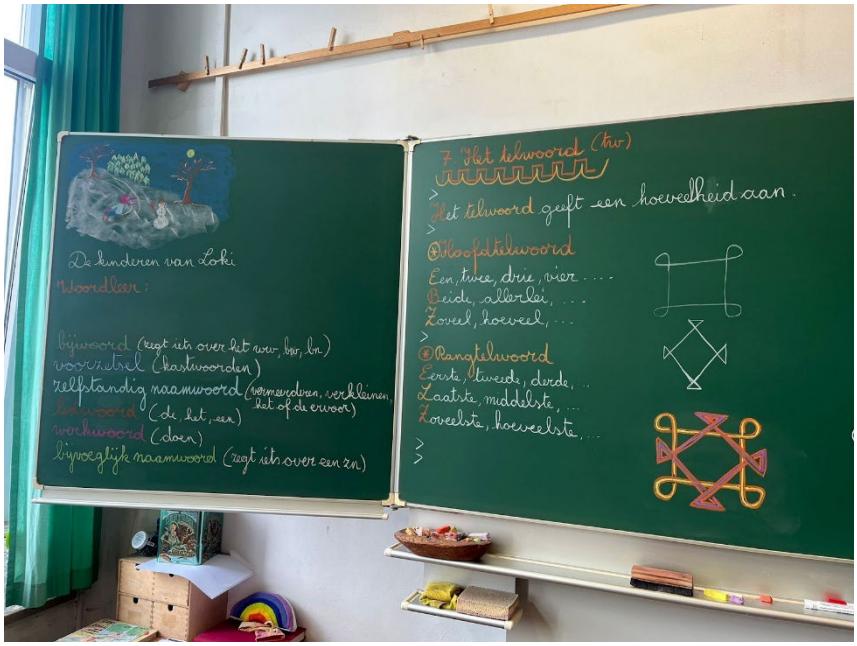


Figure 5*. Photo of a board drawing from Eva. In comparison to the other observed classrooms, the drawing was relatively small and occupied only a limited section of the board. Sara also explicitly expressed feelings of insecurity regarding her drawing abilities, which appeared to influence the extent to which she integrated visual elements into her blackboard practice.*

Participants in focus group 2 similarly emphasized that the use and effectiveness of blackboard drawings partly depended on the teacher's artistic confidence and ability to communicate visually with pupils. At the same time, participants suggested that these practices were also influenced by the wider pedagogical culture of the school and by shared expectations concerning what blackboard work should look like in the classroom.

4.2.4 The use of colour on the blackboard

Another recurring element across classroom observations and interviews was the deliberate use of colour on the blackboard. Teachers frequently used coloured chalk to structure information, emphasise key concepts, and visually organise lesson content. In particular, orange and purple were often used to highlight important words or titles, although participants differed in their individual colour preferences and systems.

Clara, for example, explained that she mainly works with red and blue as important instructional colours. Several teachers also associated specific colours with particular subjects or learning domains, creating visual consistency for pupils across lessons. Differences in colour use became especially visible in mathematics and language lessons, where colour often served a structuring function.

During observations of mathematics lessons, colour coding appeared to play an important role in helping pupils organise abstract concepts visually. In lessons on the decimal place-value system, for example, different positional values were consistently indicated using specific colours. Pupils were expected to reproduce these exact colours in their notebooks, resulting in a direct visual correspondence between the blackboard and the written work. A similar approach was observed during Anna's lesson on prime numbers, where both the structure and colour composition of the blackboard were copied identically into the pupils' notebooks, shown in Figure 6.



Figure 6. *Photos of the blackboard and an example of a lesson book from a pupil.*

The same principle appeared in language lessons. During Eva's lessons on sentence analysis, colours were systematically used to distinguish grammatical elements and sentence structures, shown in Figure 7. Here too, pupils carefully reproduced the layout, colour use, and organisation of the blackboard in their written work.

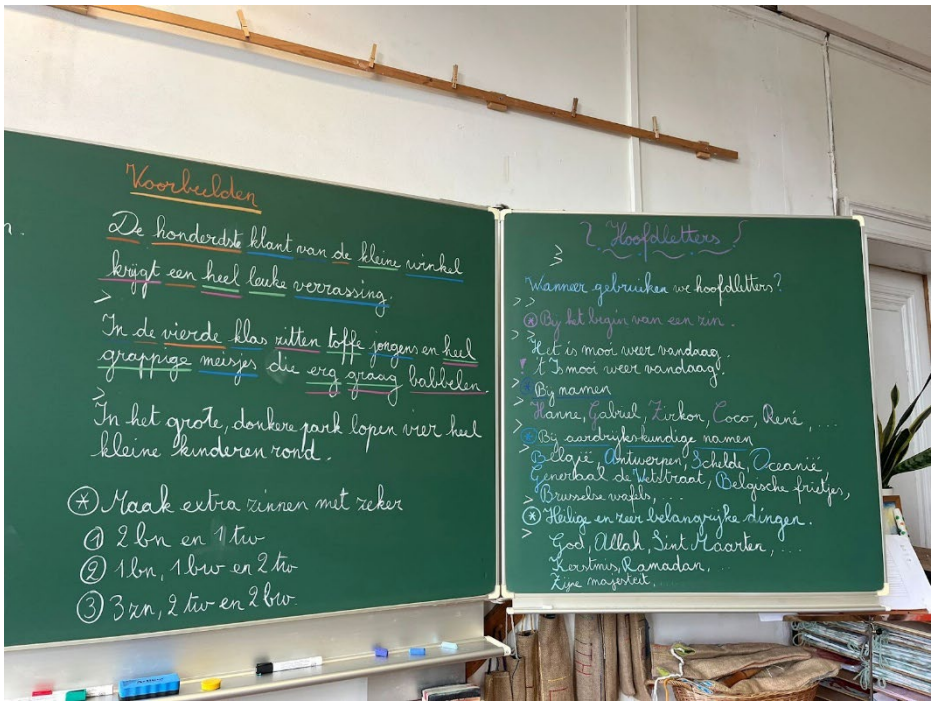


Figure 7. *Photo of Eva's grammar lesson. Articles were underlined in red, nouns in blue, verbs in purple, and adjectives in green.*

At the same time, differences emerged between teachers regarding how strictly colour systems were applied. Some colour conventions appeared to result from broader school agreements, while others functioned as informal classroom routines developed by individual teachers or teaching teams. Participants referred not only to agreements concerning specific instructional colours, but also to shared expectations regarding notebook organisation, title formatting, and the visual structure of pupils' written work. These findings suggest that colour use on the blackboard functions not only as an aesthetic element, but also as a pedagogical and organisational tool within classroom practice.

4.3 The blackboard as a shared or teacher-directed space

The empirical material reveals variation in how teachers position the blackboard in relation to student participation. In focus group 1, teachers describe how, particularly in the lower grades, the board is often built up together with students. Children may contribute by writing, drawing, or solving exercises at the board. However, this practice tends to decrease in higher grades, where students become more hesitant to present their work publicly. Sofie, in contrast, describes the blackboard as primarily belonging to the teacher. While students occasionally

come to the board, this is limited and intentional. The board is described as a central pedagogical space that is carefully guided by the teacher.

Teachers described blackboard work not merely as the presentation of a finished visual product, but as a dynamic and interactive process that unfolds together with the pupils during the lesson. Several participants emphasized that pupils are engaged not only by what eventually appears on the board, but also by observing the teacher while drawing, writing, explaining, and constructing visual representations in real time. Eva described the strong impression this process can have on pupils, explaining that “the children look at you as if you were a God… and what you do makes an impression”. At the same time, she highlighted the importance of spontaneity and imperfection within this process, noting that “they also enjoy seeing me struggle”. These findings suggest that pupils are not only interested in the final result on the board, but also in witnessing the gradual creation of lesson content and visual material.

This dynamic process became clearly visible during classroom observations. In Sara’s classroom, for example, a geology lesson was planned during the main lesson. Before the lesson began, key words and an empty circle had already been prepared on the blackboard. During the lesson, Sara gradually developed the drawing together with the pupils while simultaneously explaining how they could reproduce certain figures in their notebooks. Step by step, the key words on the board were crossed out and transformed into flowing sentences. Figure 8 illustrates how this highly structured progression resulted in a clear and carefully organised final product in the pupils’ notebooks.

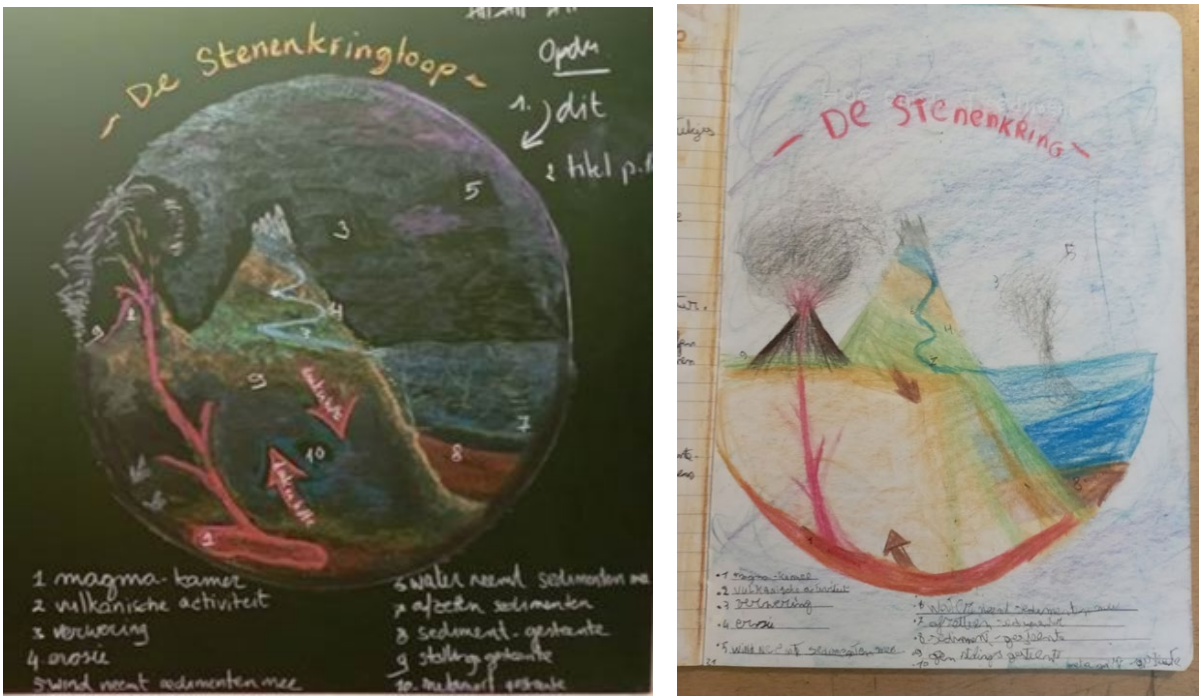


Figure 8. *Photographs showing the completed blackboard and the corresponding lesson book of a sixth-grade pupil.*

Across observations and interviews, blackboard work thus appeared as a visible and shared classroom activity through which teachers and pupils interacted continuously during the lesson.

4.3.1 Evolution across grade levels

A clear pattern emerging from the data concerns the changing role of the blackboard across different grade levels. Teachers in focus group 2, working in upper primary education, describe a shift towards a more functional use of the board. There is less emphasis on extensive drawings and more focus on key concepts, instructions, and supporting independent work. The increasing complexity of differentiation and time constraints are frequently mentioned as influencing this shift.

Differences between grade levels also emerged in the way these visual structures were used. In the lower grades, thinking processes were more often supported through colours, drawings, and visual cues, whereas in the higher grades teachers increasingly relied on symbols, diagrams, abbreviations, and coded forms of notation. As pupils progressed through the

grades, the blackboard appeared to shift from a visually guided and image-based support towards a more abstract and condensed representation of information.

Figure 9 further illustrates this gradual development from grade 2 to grade 6. In addition to differences in the use of colour, the images also reveal changes in the size of the handwriting, the increasing use of symbols and codes, and the gradual disappearance of instructional cards and visual supports. Together, these observations suggest a transition from visually rich and highly guided blackboard practices in the lower grades towards a more condensed and functional form of board use in upper primary education.





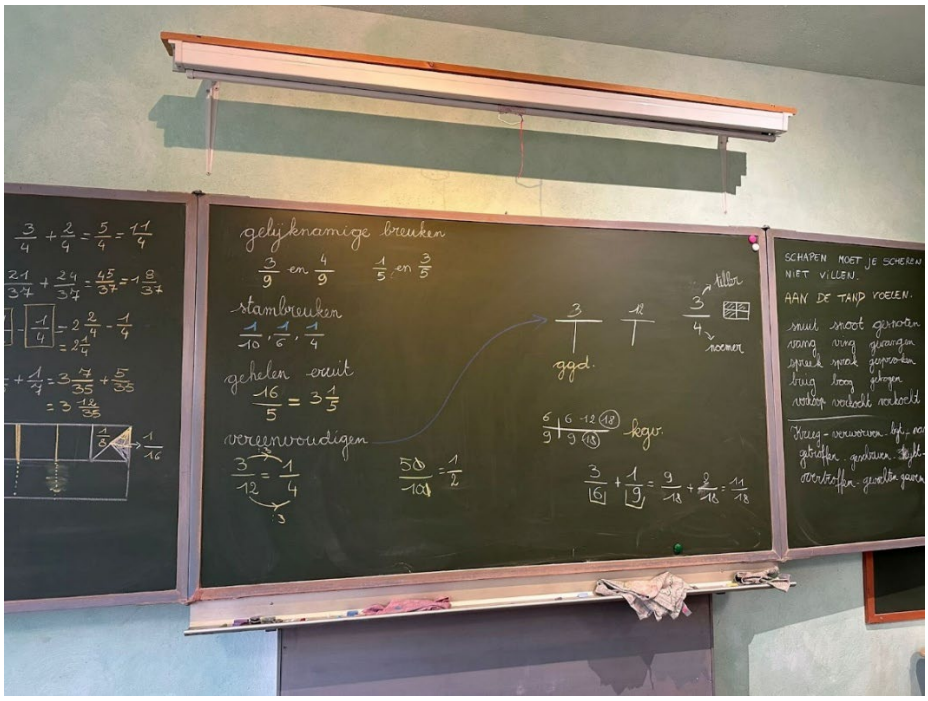


Figure 9. *Photos of the contrast between visually rich blackboard use (lower grades) and more functional use (upper grades).*

4.4.1 Responsive and evolving pedagogical practices

Several participants described the blackboard as something that develops dynamically throughout the lesson. Elise explained that although she usually starts with a clear intention beforehand, “the way the board develops emerges during the lesson”. This suggests that the board is not experienced as a fixed or fully predetermined structure, but rather as a flexible space that evolves together with classroom interaction. This dynamic became particularly visible during observed lessons in mathematics and language. Teachers gradually built up exercises, visual schemas, sentence structures, or calculations step by step while pupils actively followed the progression. Intermediate stages frequently remained visible on the board, allowing pupils to retrace the reasoning process throughout the lesson. In several classrooms, arrows, colours, symbols, and spatial groupings were used to visually organize relationships between concepts and make abstract thinking more concrete.

Across both focus groups and the individual interview, teachers describe the use of the blackboard as a deliberate and meaningful aspect of their teaching practice. Blackboard use is not experienced as incidental, but as something that requires conscious consideration.

Participants in focus group 2 emphasize the importance of planning and structuring the board, particularly in subjects such as mathematics and language. Teachers describe thinking in advance about what should appear on the board, how content is built up, and what should remain visible throughout the lesson or period. At the same time, more intuitive elements are also present, especially in relation to drawings and artistic expressions that emerge during the lesson. Figure 10 demonstrates how the blackboard functioned as a carefully organised workspace in which different lesson components, including language, mathematics, and handwriting, were visually structured alongside one another.



Figure 10. *Photo of the different lesson components in grade 2.*

Sofie similarly describes a combination of fixed structures and responsive decision-making. While elements such as the daily rhythm cards and general board layout remain consistent, other aspects arise in response to what the class requires in the moment.
Across both datasets, the blackboard emerged as a central tool for providing structure, predictability, and orientation within the learning process. Teachers consistently described using the board to make the flow of the lesson visible through daily planning, step-by-step instructions, fixed board sections, and visual anchors that help pupils situate themselves within classroom activities.

4.3.2 Structure, orientation, and shared meaning-making

A recurring theme in the data concerns the role of the blackboard in providing structure and predictability for students. Several participants emphasized the importance of maintaining a clear and consistent organization of the board. Lukas, for example, explained that certain parts of the board always retained the same function: “ I have a separate agenda board that is distinct from my instruction board, so it always remains visible.”. Such fixed structures appeared to create familiarity and predictability for pupils throughout the school day, as shown in Figure 11.

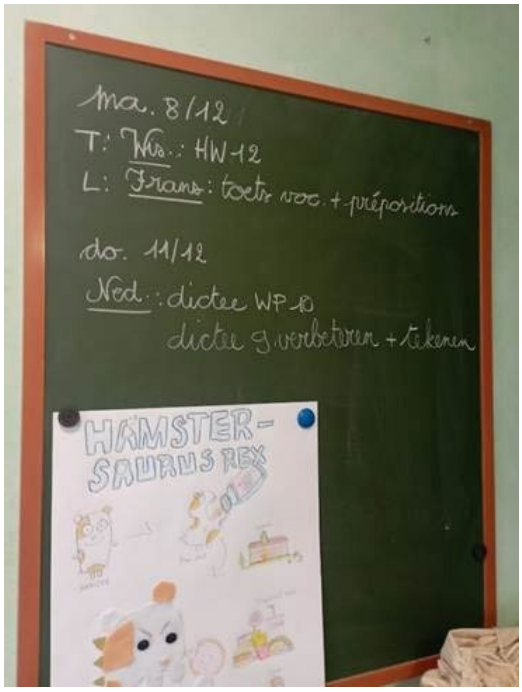


Figure 11. *Photo of the separate agenda board from Lukas.*

Teachers additionally described how leaving specific elements visible on the board for longer periods contributed to a sense of continuity and calm within the classroom. Sofie explained that “the other elements remain on the board for a longer period… that creates a sense of calm”. During classroom observations, this was reflected in boards where schedules, instructions, keywords, or reference materials remained visible throughout several lessons or even across multiple days, as shown in Figure 12.



Figure 12. *Photo of Sofie's instruction cards, which remain displayed on the blackboard throughout the entire language period.*

In addition, teachers refer to the use of personal visual codes to support clarity and understanding. These include consistent uses of colour, as well as markings such as lines, crosses, and other symbols that help to structure information or highlight key elements. Such codes are often developed individually by teachers and become part of a shared classroom language, allowing pupils to navigate the content on the board more easily. For example, in grade 2, Sofie uses small stars to indicate spaces between words. The vowels are consistently marked in blue, while the consonants are written in pink. She additionally uses magnets to indicate where pupils are in the exercise, allowing them to follow the lesson more easily without having to search extensively on the board. In this way, the transfer from the blackboard to the pupils' notebooks becomes more accessible and structured, shown in Figure 13.



Figure 13. *Use of colours, stars, and magnets on the blackboard in Sofie's grade 2 classroom.*

As illustrated in Figure 14, teachers in the higher grades use a ">" symbol to indicate spaces between full lines of text. Both Clara and Elise explained that they write these symbols in black, as this is a colour pupils do not have in their pencil cases, making it immediately clear that the symbols should not be copied into their notebooks. Clara did, however, note that black chalk is often more difficult to erase from the blackboard.

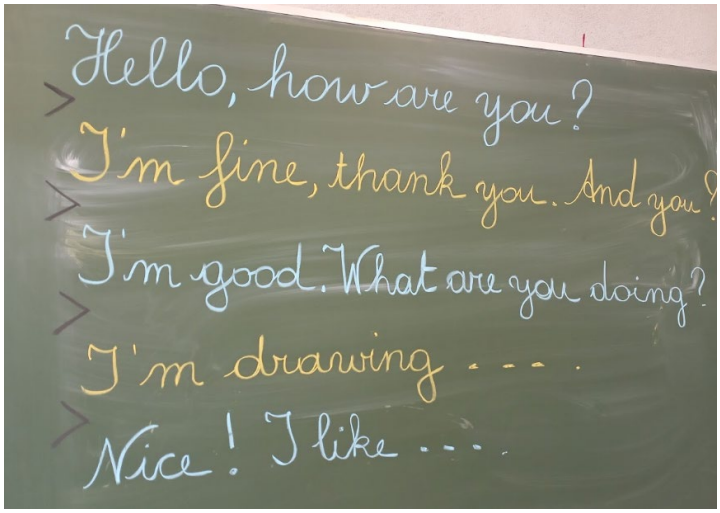


Figure 14. *Use of black symbols to indicate spacing and writing structure in grade 3.*

Anna also developed her own system of visual codes for both language and mathematics lessons, based on the structure of the main lesson notebooks used in class. During language lessons, she used a simple horizontal line to indicate spacing or structural divisions in the pupils' written work. In mathematics lessons, however, she relied on small crosses to indicate

how many squares pupils had to leave open between calculations or exercises. These codes, as shown in Figure 15 appeared to support pupils in transferring the structure of the blackboard accurately into their notebooks and contributed to a highly organised layout of written work.

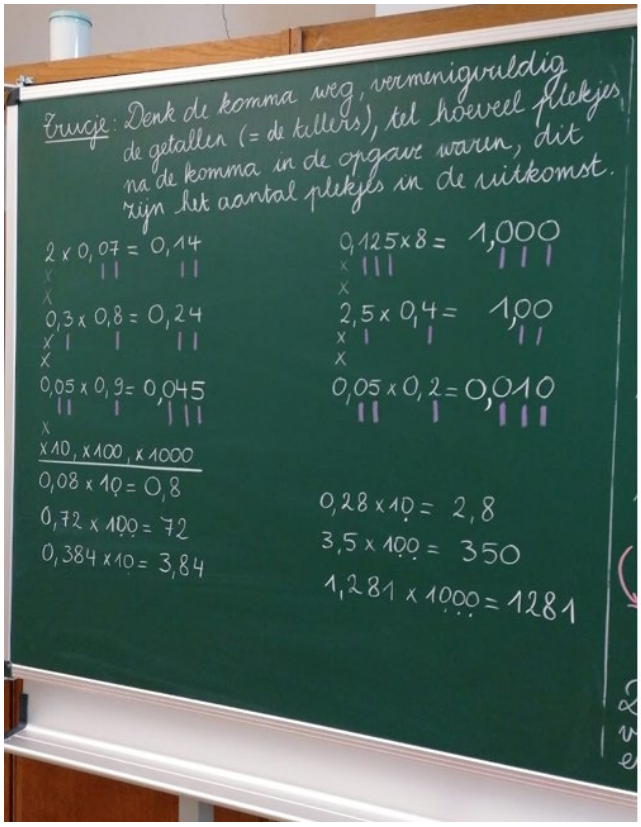


Figure 15. *Blackboard instruction during Anna's mathematics lesson.*

4.4 The blackboard and differentiation

One striking finding across the data was the relatively limited role of the blackboard in differentiation practices. Rather than functioning as a tool for directly addressing individual learning differences, the board is primarily used to establish a shared instructional foundation for the whole class. Across interviews, focus groups, and classroom observations, participants consistently described the blackboard as a collective point of reference that structures common explanations, lesson content, and classroom routines.

Lukas and Elise explicitly referred to the blackboard as a form of "broad basic care," emphasizing that its primary function is to support whole-class instruction rather than highly individualized learning pathways. At the same time, teachers acknowledged that the

increasing diversity of learning needs within classrooms has influenced how blackboard instruction is approached. Several participants described working with multiple instructional levels simultaneously, particularly in the higher grades, where pupils differ significantly in pace, concentration, motor skills, and academic ability. As a result, the blackboard often functions as a central starting point from which pupils continue working at their own level through differentiated materials or individual support.

In Sofie's classroom, pupils arrived at different moments throughout the morning, and the class itself was highly dynamic, requiring frequent movement breaks during lessons. To support structure and independence, each pupil had a laminated weekly schedule attached to their desk indicating which weekly exercises needed to be completed upon arrival in the morning. These exercises were organised according to three differentiated groups. Sofie explained that this approach forms part of a broader three-track differentiation system implemented throughout the entire school, as shown in Figure 16.

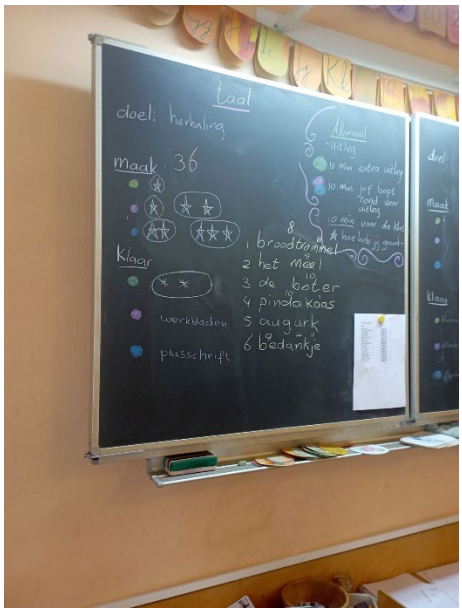


Figure 16*.Photo of the three-track differentiation system in Sofie's classroom.*

A similar approach was also observed in Anna's classroom. Elise, however, worked with a two-track system, distinguishing between "sun" groups representing the standard level and "moon" groups for pupils who required additional support and worked on simplified or

reduced sets of exercises, allowing for a pace and level better aligned with their learning needs, as shown in Figure 17.

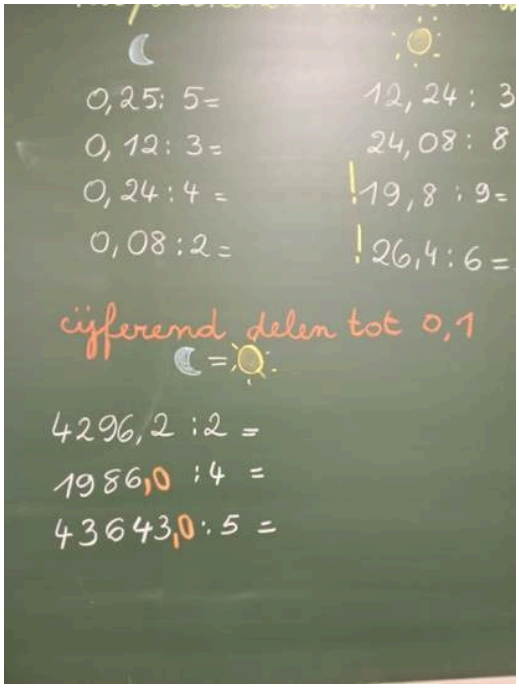


Figure 17. *Blackboard symbols used for differentiated groups in Elise's classroom.*

Eva, by contrast, was more accustomed to adding separate star symbols on the blackboard to indicate extension or challenge tasks for pupils who required additional stimulation.

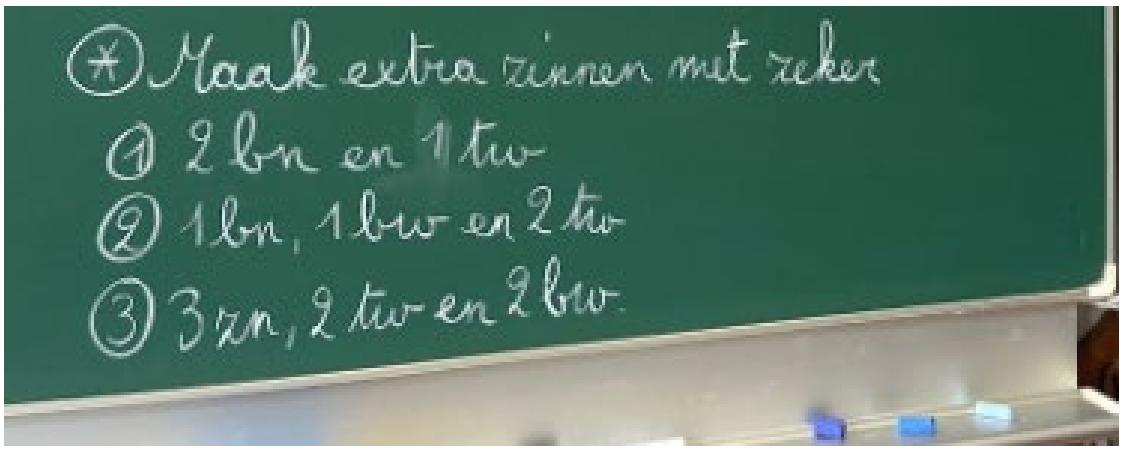


Figure 18. *Use of star symbols for extension tasks in Eva's classroom.*

4.4.1 Responsive and evolving pedagogical practices

Importantly, the findings suggest that the blackboard is not experienced as a fixed or static representation, but rather as something that continuously develops in interaction with the classroom. Teachers described adapting explanations, visual structures, and representations in response to pupils' questions, difficulties, and learning needs. As Lukas explained, "it is often the needs of a child that lead me to adapt my blackboard". The board therefore functions as a flexible pedagogical space that evolves throughout the lesson and is shaped by ongoing classroom interaction.

This responsive character of blackboard use also appeared to differ across grade levels. In the lower grades, the board mainly supported shared attention and collective engagement through drawings, colours, symbols, and visual guidance. Teachers often constructed lesson content together with the pupils, allowing the board to function as a highly visible and interactive learning space. In the higher grades, however, blackboard use became increasingly functional and condensed, with a stronger emphasis on independent work, abstract symbols, codes, and written structures.

Several teachers in the upper grades additionally explained that they write less extensively on the blackboard and rely more on dictation during lessons. Both Lukas and Elise described how pupils increasingly work from spoken instructions or previously prepared lesson materials rather than continuously copying directly from the board. Lukas, for example, digitally prepares all main lessons so that pupils can copy the material from printed or digital formats. Pupils who experience difficulties with writing or processing the material are allowed to glue printed texts into their notebooks instead.

The findings further show that blackboard use is closely connected to broader practices of differentiation and care within the classroom. Eva explained that four pupils in her classroom work with laptops because handwriting tasks are motorically too demanding for them. She also described how she originally intended to continue teaching grade 5 with her class group, but instead moved to grade 4 because of the large number of pupils with additional support needs and because the previous teacher struggled to manage these needs within the classroom.

Similarly, Lukas described having five to six different levels within his classroom. Some pupils attend a separate "nest class" in the morning together with the support teacher, where children from grades 4, 5, and 6 who cannot follow the regular main lessons receive

additional guidance. Pupils who experience difficulties concentrating within the classroom are seated separately at side tables to reduce distraction and support their focus during independent work.

These findings suggest that the pedagogical role of the blackboard cannot be separated from the increasing complexity of differentiation practices in contemporary classrooms. While the blackboard continues to function as a shared instructional and organizational space, its use is continuously adapted in response to diverse learning needs, support structures, and classroom realities across grade levels.

4.4.2 The blackboard in relation to other pedagogical tools

During classroom observations, it became noticeable that the additional materials used alongside the blackboard could broadly be divided into several pedagogical functions. Rather than functioning as isolated tools, these materials formed part of a wider classroom environment aimed at supporting behavior, structure, instruction, and differentiated learning needs.

A first category consisted of materials used to guide behavior and classroom participation. In several classrooms, teachers worked with visual symbols, movement cards, behavioral reminders, timers, or fixed classroom routines displayed near the blackboard. These tools, shown in Figure 19, included personalized visual cards developed by the learning support teacher and modeled after the class teacher, allowing pupils to recognize familiar pedagogical cues. The materials appeared to support pupils in maintaining focus, regulating transitions between activities, and navigating the rhythm of the lesson. Particularly in younger or highly dynamic classrooms, such visual supports helped create calm and collective orientation.



Figure 19. *Photos of a time timer and a behavioural reminder used for one pupil in Olivia's classroom.*

A second category included materials aimed at creating predictability and structure. During observations, many classrooms contained fixed schedules, agenda boards, laminated weekly plans, instruction cards, and visual planning systems that remained visible throughout the day or even across longer periods. In Sofie's classroom, for example, pupils used laminated weekly task schedules attached to their desks, organized according to differentiated groups within the school's three-track system. Such materials appeared to help pupils independently monitor tasks, understand expectations, and situate themselves within the progression of the school day. Figure 20 illustrates one of these visual planning systems used to support structure and independent task organisation in the classroom.



Figure 20. *Photo of a weekly task schedule in Sofie's classroom.*

A third category involved materials intended to clarify instruction and support understanding during lessons. Teachers frequently combined blackboard explanations with instructional cards, schemas, visual examples, and step-by-step guidance. Particularly in mathematics and language lessons, pupils relied on visual structures that were consistently reproduced both on the board and in their notebooks. Learning support booklets (*kijkwijzers*) containing multiplication tables, spelling rules, grammatical structures, or procedural steps were also commonly used as reference tools during independent work, shown in Figure 21.

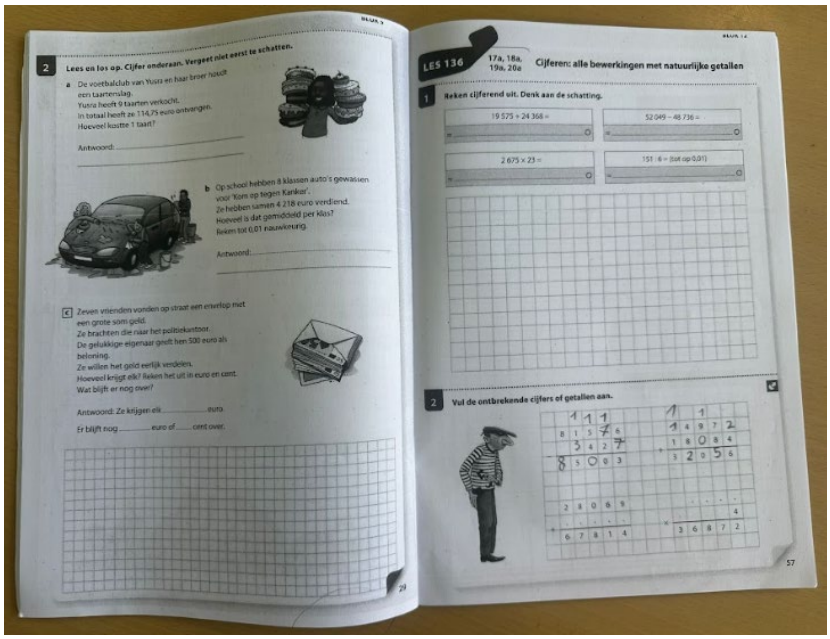


Figure 21. *Learning support booklet used in Lukas' classroom.*

Finally, a fourth category consisted of materials specifically aimed at addressing learning difficulties or additional support needs. During observations, several pupils worked with adapted materials such as laptops, printed lesson texts, differentiated exercise booklets, or separate guidance tools. Additional support structures, including "nest classes" and individual instruction moments, further illustrated how teachers attempted to respond to diverse learning needs within increasingly differentiated classrooms. In Sofie's grade 2 classroom, for example, one pupil worked with a separate "study buddy" support tool because he became overstimulated quite quickly, which negatively affected his ability to process and retain the lesson content. This additional support, as shown in Figure 22, appeared to help the pupil maintain focus and participate more calmly during classroom activities.



Figure 22. *Study buddy with instructional cards used in Sofie's classroom.*

The findings therefore suggest that the blackboard operates within a broader network of pedagogical materials and classroom supports. While the board remains a central instructional and organizational medium, it continuously interacts with additional tools that support behavior, predictability, instructional clarity, and differentiated learning needs.

5. Discussion

Building on the findings from classroom observations, interviews, focus groups, and reflective journals, this chapter reflects on the pedagogical meaning of blackboard use within contemporary classroom practice and formulates recommendations for more meaningful and differentiated board work. Rather than presenting fixed methods or prescriptive guidelines, these recommendations should be understood as pedagogical orientations that may help teachers use the blackboard more consciously, flexibly, and responsively within increasingly diverse classroom contexts.

The findings of this study demonstrate that the blackboard functions as far more than a surface for presenting information. Across classrooms, it emerged as a dynamic pedagogical space in which structure, interaction, imagination, classroom culture, and differentiation continuously intersect. At the same time, the findings revealed important tensions within contemporary educational practice. Teachers are increasingly confronted with large differences in learning levels, concentration, motor development, and support needs within the same classroom, making meaningful differentiation both necessary and challenging.

Within this complexity, the blackboard appeared to function primarily as a shared pedagogical anchor that supports collective instruction, visibility of thinking processes, predictability, and classroom orientation. The findings suggest, however, that meaningful differentiated blackboard use does not necessarily require fully individualized board instruction. Instead, differentiation can emerge through flexible visual supports, structured use of colour and symbols, layered instruction, additional guidance materials, and the interaction between the blackboard and other pedagogical tools within the classroom environment.

5.1 The blackboard as an inspirator: wonder, curiosity and visual expression

5.1.1 Balancing aesthetic richness and clarity

Although the original focus of this research centered more strongly on differentiation, participants consistently associated experiences of wonder particularly with blackboard drawings and visual compositions. Across interviews, focus groups, and classroom observations, teachers described the blackboard not merely as a functional instructional

surface, but as a pedagogical space capable of awakening curiosity, fascination, emotional involvement, and imaginative engagement.

Within contemporary educational contexts increasingly characterized by standardization, efficiency, measurable outcomes, and accelerated learning processes, the cultivation of wonder may be understood as a form of pedagogical resistance. The findings suggest that blackboard pedagogy creates opportunities for slowing down, lingering with questions, and engaging pupils in open-ended processes of observation and exploration. The temporary and revisable nature of chalkboard work — where drawings can evolve, ideas can remain visible, and representations can continuously be adapted — appeared to support a more process-oriented and exploratory approach to learning.

This perspective strongly resonates with Steiner's critique of purely outcome-oriented education, which, according to Steiner (1919/2007d, GA 293), risks reducing education to functional proficiency while neglecting imagination, creativity, ethical development, and inner engagement. Contemporary research similarly emphasizes that creativity and curiosity flourish particularly within learning environments that tolerate ambiguity, openness, and experimentation (Sawyer, 2011; Craft, 2005). The findings of this study suggest that the blackboard may provide such a space within classroom practice.

During classroom observations, almost every classroom contained some form of blackboard drawing or visual decoration. These ranged from colorful seasonal illustrations and nature scenes to mathematical visualizations, story-related drawings, decorative borders, and carefully hand-lettered lesson titles. In several classrooms, the middle board functioned as a central visual space in which drawings, colours, and written content were deliberately combined into larger compositions. Written lesson content and visual elements remained visible on the board throughout the week, creating a layered and evolving visual learning environment. At the same time, considerable differences emerged between teachers regarding the extent to which aesthetic elements were integrated into classroom practice. Some teachers worked extensively with drawings and visual compositions throughout the day, while others used drawings more selectively or only during specific themes or main lessons.

Teachers consistently described these visual elements as important sources of engagement and curiosity. Sofie explained how pupils react when entering the classroom and noticing new visual additions on the board: "Then they come and then 'oh, there is something new on the

board'". Participants in both focus groups similarly emphasized that visual richness stimulates pupils more strongly than text alone. Elise described how "the middle board is full of drawings… that gives me energy and the children too", while Olivia explained that "if there is only text, they are not stimulated".

5.1.1.1 Passion and pedagogical engagement as conditions for wonder

An important insight emerging from this study concerns the strong connection between pupils' experiences of wonder and the teacher's own passion, motivation, and pedagogical engagement. The findings suggest that wonder does not arise automatically through the blackboard itself, but rather through the teacher's capacity to use the board as a living, expressive, and meaningful pedagogical medium. Across interviews and classroom observations, pupils' curiosity and fascination appeared closely connected to the enthusiasm, artistic involvement, attentiveness, and personal investment of the teacher leading the lesson.

This finding raises broader questions about motivation and meaning-making within contemporary education. For learners, it is often not self-evident why they should learn something or what significance school knowledge may hold for them (Deci et al., 1999). Contemporary educational systems frequently emphasize measurable outcomes, predefined objectives, and efficiency, based on the assumption that clearly articulated goals strengthen motivation and improve learning effectiveness (Hattie, 2009). The findings of this study, however, suggest that engagement may emerge not only through goal orientation, but equally through experiences of wonder, imagination, aesthetic attention, and meaningful pedagogical encounter.

This finding can be further understood through the framework of Deci et al. (1999), in which relatedness is considered an essential condition for intrinsic motivation and learning. The results suggest that this sense of relatedness manifests itself at two levels: on the one hand, in the relationship between pupil and teacher, where the teacher's enthusiasm, attentiveness, and personal involvement support a sense of connection; on the other hand, in the relationship between the pupil and the subject matter and pedagogical medium itself, where aesthetic, imaginative, and meaningful forms of instruction contribute to experiencing the learning content as relevant and valuable.

In this light, the observations concerning blackboard use also acquire a deeper significance. Teachers who actively integrated artistic and aesthetic elements into their board practice

demonstrated a clear sense of personal engagement and pedagogical attentiveness throughout the lesson. Participants described how they consciously invested time, creativity, and care in the preparation and gradual development of the board. In this sense, the board did not function merely as a technical instructional tool, but as a meaningful medium through which this dual relatedness became visible: it reflected both the teacher's relationship to the lesson content and to the pupils, thereby contributing to a pedagogical space in which engagement and meaning-making could emerge.

From both Waldorf pedagogical and narrative inquiry perspectives, teaching is not understood as a neutral or purely technical activity, but as something deeply connected to the teacher's lived experiences, imagination, and ways of making meaning (Clandinin & Connelly, 1996; Steiner, 1923/2007b, GA 302). Within Waldorf pedagogy specifically, colour, composition, rhythm, and visual balance are not regarded merely as decorative choices, but as pedagogical means through which perception, feeling, and thinking become interconnected (Steiner, 1919/2007d). In this sense, the blackboard carries the visible imprint of the teacher's pedagogical imagination and contributes to the atmosphere and identity of the classroom itself (Gran, 2018).

This perspective also helps explain why pupils seemed particularly fascinated not only by finished blackboard drawings, but by the live process of drawing, correcting, adjusting, and constructing ideas together during the lesson. Participants repeatedly emphasized that pupils were captivated by observing the teacher while creating visual representations in real time. Eva described this impact by stating that "the children look at you as if you were a God… and what you do makes an impression". At the same time, she highlighted that pupils also appreciate the spontaneity and imperfection of the process itself: "They also enjoy seeing me struggle". The findings therefore suggest that wonder emerges not simply through aesthetic products, but through participation in a shared and evolving pedagogical process in which creativity, vulnerability, and thinking processes become publicly visible within the classroom.

This resonates with Bruner's (1960) and Miller's (2003) understanding of playfulness as a condition for exploration, curiosity, and creative engagement. Within such a pedagogical framework, the blackboard may function as a space for experimentation and shared meaning-making, where unfinished ideas, evolving representations, spontaneous drawings, and visual thinking coexist alongside more structured forms of instruction. Gran (2018) similarly argues

that blackboard images acquire meaning through their relationship to pupils and the unfolding pedagogical process itself. When pupils are invited into the gradual emergence of text, drawings, and ideas on the board, blackboard work may support collective discovery and imaginative participation rather than passive reception alone.

At the same time, these findings also point towards a possible limitation of the study itself. The teachers who participated in the research were generally highly motivated and open to reflecting on and sharing their classroom practice. It is therefore likely that participants already possessed a stronger-than-average interest in blackboard pedagogy, aesthetic teaching, or reflective educational practice more broadly. Teachers who feel less confident, less engaged, or less passionate about their classroom practice may be less inclined to voluntarily participate in research involving classroom observations and reflective interviews. As a result, the findings may primarily represent relatively strong or consciously developed examples of blackboard practice rather than the full range of classroom realities.

5.1.2 Openness to digital tools

An additional dimension that emerged from the comparative observations concerns the broader pedagogical culture surrounding the use of digital tools. In the Flemish context, a strong attachment to the traditional chalkboard remains prevalent. Outside of Lukas' school, several instances of resistance toward digital media were noted, often rooted in concerns about preserving pedagogical authenticity or avoiding technological distraction. By contrast, in the Dutch school context observed in Sofie's practice, there appeared to be a more open stance toward digital tools. Although their initial implementation was cautious and limited to higher grades, the perceived pedagogical benefits led to a school-wide adoption.

This contrast does not point to differences in pedagogical quality, but rather highlights how institutional culture and school policy shape what is considered legitimate or appropriate classroom practice. Decisions regarding the use of digital media are often framed as matters of principle rather than as contextual pedagogical choices. The findings of this study suggest that such binary positioning may obscure opportunities for meaningful integration.

Within the concept of wonder, this raises an important consideration. If wonder is understood as the capacity to invite pupils into attentive, imaginative, and meaningful engagement with

the world, then digital tools should not be dismissed categorically, nor embraced uncritically. Instead, they call for deliberate and reflective use. When digital visualization supports imagination, clarifies complex phenomena, or increases accessibility for diverse learners, it can contribute to experiences of wonder rather than diminish them.

From this perspective, the resistance observed in some Flemish settings may reflect a broader lack of pedagogical guidance and shared reflection at the school or network level. Teachers and school leaders are often left to navigate these tensions individually, without clear frameworks that articulate when, why, and how digital tools can serve pedagogical aims. This study therefore points to the need for greater openness toward the conscious and purposeful use of digital media, grounded in pedagogical intent rather than technological enthusiasm or ideological rejection.

Reframing the chalkboard as a "window of opportunities" allows space for such openness. The window metaphor does not imply replacement, but expansion: it invites educators to consider how different tools, when used thoughtfully, can open diverse pathways to wonder, understanding, and participation in contemporary classrooms.

5.1.3 Using colour intentionally

One of the clearest findings of this study concerns the deliberate and structured use of colour within blackboard practice. Across classroom observations, interviews, and focus groups, colour emerged not merely as a decorative element, but as a pedagogical tool that supports structure, recognition, orientation, imagination, and engagement within the learning process. Teachers consistently used colored chalk to organize lesson content, distinguish concepts, highlight key elements, and visually support pupils' understanding.

In Waldorf pedagogy, colour is understood as more than a visual attribute; it mediates perception, feeling, and imagination (Steiner, 1919-1924/2007a, GA 345). The findings of this study strongly resonate with this perspective. Teachers frequently described using colour intentionally to create visual clarity and emotional engagement within the classroom. Particularly in language and mathematics lessons, colour functioned as a stable visual system through which pupils could organize and process information more effectively.

Classroom observations demonstrated that teachers often developed highly consistent colour conventions. Clara, for example, explained that she mainly works with red and blue as

instructional colours, while other teachers associated specific colours with particular subjects or categories. In mathematics lessons, colour coding frequently helped pupils visually structure abstract concepts. During lessons on the decimal place-value system, positional values were consistently represented through fixed colours, which pupils were expected to reproduce identically in their notebooks. A similar practice was observed during Anna's lesson on prime numbers, where both the visual structure and colour composition of the blackboard were carefully transferred into pupils' written work.

The same principle appeared in language lessons. During Eva's grammar instruction, colours systematically distinguished grammatical categories: articles were underlined in red, nouns in blue, verbs in purple, and adjectives in green. These recurring visual structures appeared to support recognition, orientation, and consistency within pupils' learning processes. The findings therefore suggest that colour can function as an important mediating tool between blackboard instruction and pupils' notebook work, reducing ambiguity and strengthening visual coherence within the classroom.

At the same time, the findings indicate that colour also fulfils a broader aesthetic and imaginative function. Within Waldorf education, carefully chosen colours are believed to transform abstract concepts into sensory-rich and emotionally meaningful experiences (Steiner, 1919/2000). Warm colours such as red, orange, and yellow may attract attention and energize classroom activity, while cooler colours such as blue, green, and purple can support calmness, reflection, and inward orientation. The observations suggest that teachers intuitively or consciously work with these effects when organizing the visual atmosphere of the blackboard.

This aesthetic dimension additionally appears connected to the teacher's own artistic sensitivity and capacity for wonder. When teachers engage consciously with colour, composition, and visual balance, the blackboard becomes more than a technical instructional surface. Instead, it functions as a pedagogical medium through which curiosity, imagination, and attentiveness are cultivated within the classroom. This aligns with research on embodied cognition and visual thinking, which suggests that pupils process and retain information more effectively when learning is connected to multisensory and emotionally meaningful experiences (Ritchhart & Perkins, 2008; Engel, 2011).

At the same time, the findings also point towards the importance of restraint and clarity in the pedagogical use of colour. While colour can strengthen orientation and engagement, excessive or inconsistent colour use may reduce visual clarity and increase cognitive load for pupils. Several teachers therefore appeared to work with relatively fixed and limited colour systems that remained stable across lessons and subjects. In some schools, these conventions formed part of broader school agreements concerning lesson book organization, title formatting, and visual lesson structure, while in other contexts they developed more informally within individual classrooms or teaching teams.

Taken together, the findings suggest that colour fulfils a dual pedagogical role within blackboard practice. On the one hand, it structures information, enhances visibility, and supports recognition and comprehension. On the other hand, it contributes to the aesthetic, imaginative, and affective dimensions of classroom learning by creating emotionally resonant and visually meaningful learning experiences. From this perspective, colour may support the blackboard in functioning as a dynamic pedagogical medium that invites curiosity, orientation, participation, and differentiated engagement within contemporary classroom practice.

As one contemporary reflective statement captures it: “In the quiet of childhood lives a sacred kind of light.” This image echoes the findings of this study, which suggest that pedagogical practices, whether mediated through the chalkboard or digital tools, can either nurture or diminish the sense of wonder that shapes children’s engagement with learning.

5.2 The blackboard as a co-creative pedagogical instrument

A recurring theme throughout this study concerns the important role of the blackboard in creating structure, orientation, and predictability within the classroom environment. Across interviews, focus groups, and classroom observations, teachers consistently described the blackboard not merely as a surface for presenting information, but as an organizational center that helps pupils navigate the rhythm, expectations, and progression of the lesson. At the same time, the findings revealed considerable variation in how teachers structured and organized the board, suggesting that blackboard pedagogy is strongly shaped by individual teaching styles, classroom needs, and pedagogical beliefs.

Several participants emphasized the importance of maintaining clear and stable spatial structures on the board. Lukas, for example, explained that certain sections of the board always retained the same function: “For example, I have a separate agenda board that is distinct from my instruction board, so it always remains visible.” Such fixed structures appeared to support familiarity and predictability for pupils throughout the school day. Similarly, Sofie described how leaving specific instructional elements visible over longer periods contributed to calmness and continuity within the classroom: “the other elements remain on the board for a longer period… that creates a sense of calm”. Classroom observations confirmed this pattern, showing boards where schedules, keywords, instruction cards, and reference materials remained visible across multiple lessons or even entire teaching periods.

The importance of spatial organization also extended beyond the blackboard itself to the arrangement of desks and movement within the classroom. In the classrooms of Eva, Anna, and Sofie, a separate instruction table was positioned at the front of the room for pupils who required additional support or closer guidance during lessons. Teachers regularly shifted pupils between seating places depending on concentration, understanding, or support needs at specific moments during the lesson. This suggests that the spatial organization of the classroom functioned dynamically in relation to the blackboard and broader instructional practices, allowing teachers to adapt support and proximity according to the needs of the group.

The inclusion of the illustrative classroom image, Figure 23, is intended to make visible how differentiated instruction is not limited to the use of the blackboard alone, but is embedded within a broader spatial and pedagogical organization of the classroom. The depicted setting reflects the dynamic ways in which space, proximity, and seating arrangements interact with instructional practices.



Figure 23. *Ai-generated classroom layout illustrating the dynamic spatial organization of differentiated instruction, including a central blackboard, a front instruction table, grouped seating, and individual desks.*

At the front of the classroom, the blackboard functions as a central pedagogical anchor. Through its combination of pictorial elements and curricular content, it supports both rhythmic structure and shared focus during instruction. Close to the blackboard, a separate instruction table accommodates a small group of pupils, allowing for increased proximity, targeted support, and guided clarification at specific moments within the lesson.

The central area of the classroom is organized around double desks, emphasizing collective work and shared engagement with the lesson content. Along the sides of the classroom, individual desks create space for more independent work, temporary reorientation, or adjusted support. Importantly, these seating arrangements are not presented as fixed or hierarchical, but as flexible and responsive, enabling teachers to shift pupils according to concentration, understanding, or momentary support needs.

By visualizing this spatial configuration, the image highlights that differentiation unfolds not only through instructional strategies, but also through the deliberate organization and reorganization of classroom space. The classroom thus emerges as a dynamic pedagogical

environment in which movement and adaptability support meaningful engagement with the learning process.

These findings strongly resonate with broader research on classroom interaction and spatial organization. Studies on classroom design suggest that clearly defined visual center's support shared attention, participation, and collective cognitive engagement by providing pupils with a common focal point for interaction and learning (Higgins, Beauchamp, & Miller, 2007; Jewitt et al., 2011). Within Waldorf classrooms specifically, the blackboard often occupies this central organizing role. Classrooms are typically arranged spatially around the board, which functions not only as a practical instructional surface, but also as a pedagogical center that shapes classroom atmosphere, orientation, and rhythm. Johnson (2011) similarly identifies the blackboard as one of the defining characteristics of Waldorf education, contributing to a recognizable sense of pedagogical identity and place across Waldorf schools.

5.2.1 Spatial organization and the pedagogical logic of *bansho*

At the same time, the findings suggest that effective blackboard organization depends not only on fixed structures, but also on flexibility, responsiveness, and the teacher's pedagogical attentiveness within the unfolding classroom situation. As Ranjan (2016) argues, the effectiveness of blackboard use relies not merely on technical skill, but also on the teacher's capacity to consciously organise space, rhythm, visibility, and interaction. Within Waldorf pedagogy specifically, blackboard work therefore involves more than instructional competence alone; it also requires sensitivity to what unfolds between teacher, pupils, and the shared visual field during the lesson. In this sense, the blackboard can function as a pedagogical bridge that connects collective classroom interaction with individual meaning-making by making thinking processes publicly visible and shared. Through images, words, symbols, rhythm, and gesture, it links inner experience with outward expression and supports the gradual movement from shared classroom encounters towards individual understanding.

This perspective resonates strongly with Van Manen's (2008) understanding of pedagogy as something shaped both by embodied routines and by responsiveness to the lived contingencies that emerge within classroom situations. Many teachers appeared to work intuitively with recurring spatial divisions, often separating the board into zones for drawings, instructions, concepts, or activities. Such organization closely resembles the CSA-model

(concrete–schematic–abstract), in which learning gradually progresses from sensory and experiential representations towards more abstract understanding. Figure 24 illustrates an example of this type of threefold blackboard structure inspired by both Waldorf pedagogy and the Japanese concept of bansho.

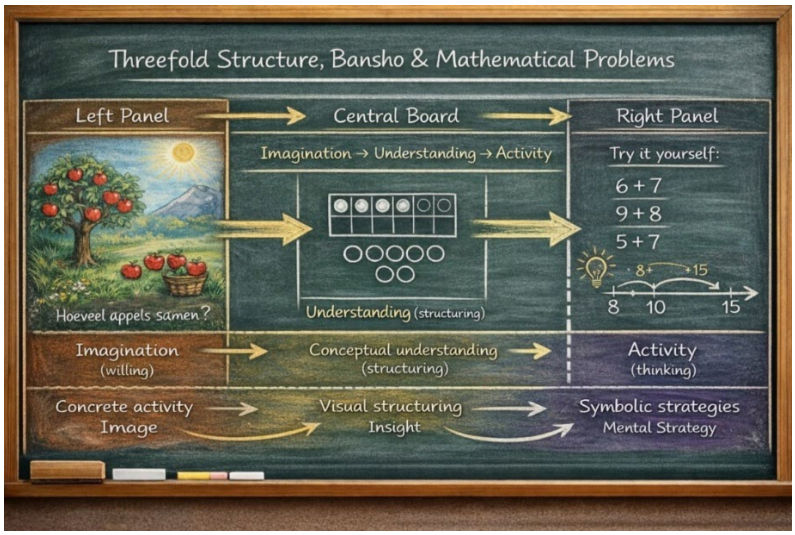


Figure 24. *AI-generated example of a threefold blackboard structure (image–concept–activity) inspired by Waldorf pedagogy and the Japanese concept of bansho, illustrating the progression from concrete experience to abstract thinking.*

Interestingly, this spatial structuring also aligns with insights from Waldorf pedagogy. As one participant noted, “Steiner suggested working future-oriented on the board, from left to right, just as we write” (Lukas, focus group 2, paraphrased). This left-to-right movement introduces a temporal directionality into the spatial organization of the board, in which the unfolding of the lesson becomes visually traceable as a progression over time. From this perspective, the CSA structure is not only conceptual but also spatially and temporally enacted: concrete elements often emerge at the beginning of the board, gradually giving way to more schematic representations and ultimately to abstract formulations.

Such practices can be understood as embodied pedagogical routines (Van Manen, 2008) that both structure and remain responsive to the dynamics of the classroom. The board thus becomes a medium through which thinking is not only represented, but also temporally organized and collectively experienced. In this way, spatial layout, temporal sequencing, and conceptual progression come together, allowing pupils to follow the development of ideas as an unfolding process rather than as a fixed outcome.

This pedagogical bridging function also becomes visible in the way blackboard structures can support pupils in following and participating in thinking processes during the lesson. Rather than presenting only final answers or completed representations, the blackboard can function as a space in which intermediate steps, reasoning processes, and the gradual development of ideas become publicly visible. In this way, thinking itself is externalized and shared within the classroom. The findings suggest that such gradual and visible forms of blackboard work are particularly supportive for pupils who require additional guidance, as they allow learners to follow step by step how understanding is constructed throughout the lesson. Blackboard organization therefore not only structures content, but also supports orientation within the learning process itself.

This interaction between visual representation and conceptual understanding strongly resonates with Paivio's (1971) dual coding theory, which proposes that learning is strengthened when verbal explanations and visual representations are meaningfully connected. When pupils are able to combine written language, diagrams, colours, symbols, and visual structures with spoken explanations, multiple pathways towards understanding become available. Research suggests that such combinations increase retention, conceptual understanding, transfer, and long-term consolidation of knowledge (Paivio, 1971; Hattie, 2009; Wammes et al., 2016; Weinstein, Madan, & Sumeracki, 2018; Weinstein et al., 2019). From this perspective, the pedagogical value of the blackboard lies not only in what is presented, but also in the rhythm, repetition, sequencing, and gradual unfolding through which understanding is allowed to develop over time.

5.2.2 A Cornell-inspired approach to blackboard organization

One possible way of supporting this process is through the use of a Cornell-inspired blackboard layout, illustrated in Figure 25. By dividing the board into distinct yet interconnected zones — such as cues, notes, visual representations, and summaries — the teacher creates a structured visual framework that may support orientation, comprehension, retention, and reflection. At the same time, such organization does not exclude the aesthetic and imaginative dimensions central to Waldorf pedagogy. On the contrary, drawings, colours, diagrams, and visual compositions can be meaningfully integrated within this structure,

allowing the blackboard to remain simultaneously a space for clarity, imagination, and engagement.

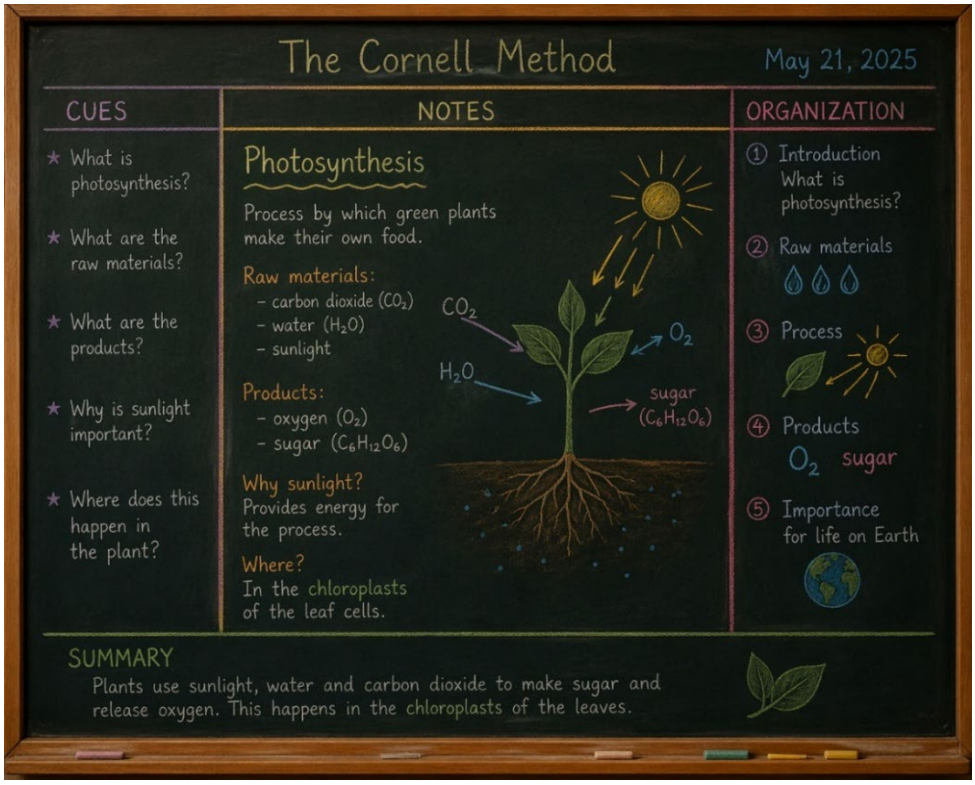


Figure 25. *AI-generated example of a Cornell-inspired blackboard layout, where structured note-taking (cues, notes, summary) is combined with visual representations and artistic expression in line with Waldorf pedagogical principles.*

This type of layout may additionally support pupils in developing broader learning strategies, such as identifying key concepts, making connections between ideas, organizing information, and reflecting upon their own understanding. Particularly the summary section can stimulate metacognitive processes by encouraging pupils to revisit, synthesize, and reformulate lesson content in their own words.

At the same time, the findings suggest that such structures should not become overly rigid or prescriptive. Meaningful blackboard pedagogy still depends on the teacher's ability to remain responsive to the needs of the group throughout the lesson. Teachers continuously need to adjust pacing, simplify explanations when confusion emerges, or expand visual and verbal explanations when pupils require additional clarification or support. Rather than striving for a "perfect board", teachers may therefore focus more strongly on pedagogical presence,

responsiveness, and maintaining connection with the class during the unfolding learning process.

The gradual unfolding of blackboard work during lessons also highlights an important temporal dimension within learning processes. Rather than immediately confronting pupils with completed representations, teachers can gradually construct ideas together with the class through drawings, annotations, diagrams, corrections, and visual sequencing. This strongly resonates with theories of slow teaching, which emphasize that meaningful learning cannot be rushed and that attentiveness, reflection, pacing, repetition, and the gradual emergence of understanding are essential educational conditions (Berg & Seeber, 2016; Payne & Wattchow, 2009). Gran (2018) similarly describes blackboard work as a pedagogical process in which understanding develops progressively through the unfolding of text, drawings, and signs in real time. In this sense, blackboard pedagogy may invite pupils into a shared "journey of discovery" in which meaning emerges collectively through attentiveness, improvisation, dialogue, and participation.

5.2.3 Visual codes as a shared classroom language

However, teachers also emphasized that these structures could not remain overly rigid. Blackboard organization continuously evolved in response to the needs of the group, the dynamics of the lesson, and unexpected classroom interactions. The board therefore functioned simultaneously as a structured framework and as a flexible pedagogical space that could adapt throughout the learning process.

Another important finding concerns the use of personal visual systems and instructional codes. Across classrooms, teachers developed highly individual ways of structuring information through colours, symbols, spacing markers, and visual cues. These codes appeared to function as a shared classroom language that supported orientation, clarity, and the transfer of information from the board to pupils' notebooks. In Sofie's grade 2 classroom, for example, stars were used to indicate spaces between words, vowels were consistently marked in blue, consonants in pink, and magnets indicated pupils' current place within an exercise. These visual supports reduced the need for pupils to search extensively on the board and appeared to make the transfer from blackboard to notebook more accessible and structured. In the higher grades, teachers used increasingly abstract symbols and coding

systems. Clara and Elise, for example, used black “>” symbols to indicate spacing between lines of text, deliberately choosing black because pupils did not possess black pens and therefore understood that these markings should not be copied into their notebooks. Similarly, Anna developed subject-specific visual codes based on the structure of the pupils’ main lesson notebooks, using horizontal lines in language lessons and crosses in mathematics to indicate spacing and organization.

These findings suggest that blackboard organization operates simultaneously on pedagogical, cognitive, and social levels. On the one hand, visual structures support orientation, predictability, and cognitive clarity for pupils. On the other hand, they also contribute to the development of shared classroom routines and collective learning practices. Over time, pupils appeared to internalize these visual systems as part of the broader classroom culture.

At the same time, the findings indicate that such visual systems are most effective when they are introduced consciously and consistently. Teachers are therefore encouraged to reflect deliberately on the visual codes, colours, symbols, and structuring principles they use before implementing them within classroom practice. Rather than functioning as arbitrary markings, these codes ideally emerge from the teacher’s own pedagogical identity, teaching style, and understanding of pupils’ learning processes. A clear and stable visual language may help pupils navigate lessons more independently and reduce unnecessary cognitive load.

The study additionally suggests that collective reflection among colleagues is particularly important, especially in schools where pupils transition between different classrooms or teachers across grade levels. Shared conversations about blackboard organization, colour systems, notebook structures, and instructional symbols may support continuity and coherence for pupils while still allowing space for individual teacher expression and creativity. In this way, blackboard codes can function not only as personal pedagogical tools, but also as part of a broader shared classroom culture within the school community.

5.2.4 From instructional tool to relational pedagogical medium

Importantly, the study also highlights the strongly teacher-dependent nature of blackboard pedagogy. Each teacher developed a distinctive blackboard style shaped by personal experience, artistic confidence, pedagogical beliefs, and classroom context. Some teachers

worked with highly elaborate visual compositions and carefully structured colour systems, while others preferred more minimalist and functional approaches. Rather than suggesting that one approach is inherently superior, the findings indicate that meaningful blackboard practice emerges through the relationship between structure, authenticity, and responsiveness to the needs of the group.

This perspective resonates with contemporary educational theory, which increasingly understands learning as a socially situated, dialogic, and participatory process rather than as a linear transfer of information (Bakhtin, 1981; Vygotsky, 1978; Alexander, 2008). From this viewpoint, meaning does not reside in the instructional material itself, but emerges relationally through interaction, shared attention, and participation. The observed diversity in blackboard practices can therefore be understood not as variability in effectiveness, but as different ways in which teachers mediate and co-construct meaning with their pupils within specific classroom contexts.

From this perspective, schools may benefit from developing shared pedagogical frameworks around blackboard use while still preserving space for teacher individuality and professional creativity. The insights suggest that it can be valuable for teachers to consciously develop their own “blackboard code”: a relatively consistent way of structuring information, organizing space, using colour, and guiding pupils visually through lessons. At the same time, collective reflection within teaching teams may help create coherence for pupils across classrooms while also supporting professional dialogue and the sharing of pedagogical expertise. This balance between shared structure and individual expression appears particularly important within increasingly complex and differentiated classroom contexts. Blackboard pedagogy therefore emerges not as a fixed method, but as a dynamic pedagogical practice situated at the intersection of classroom organization, teacher identity, collective culture, and responsive teaching.

Viewed more broadly, these findings suggest that the blackboard cannot be understood as a neutral or purely instructional tool. Rather, it emerges as a relational and dynamic pedagogical medium that is deeply embedded in everyday classroom practice. The blackboard not only structures information, but also shapes classroom rhythm, interaction, participation, imagination, and pedagogical relationships. Its meaning therefore does not reside solely in the visual content displayed on the board itself, but also in the ways teachers and pupils engage

with it collectively throughout the unfolding lesson process. This temporal and relational character of blackboard work can be further illuminated through Dewey's (1938) notion of the continuity of experience, which emphasizes that each pedagogical moment both builds upon previous experiences and shapes those that follow. In this sense, blackboard practice becomes part of an ongoing pedagogical flow in which meaning is continuously constructed, transformed, and deepened over time.

5.2.5 Pedagogy of slowness and relational responsiveness

Beyond structure and organizational clarity, the insights suggest that meaningful blackboard pedagogy depends strongly on the teacher's ability to establish and maintain connectedness with the class through what may be understood as a pedagogy of slowness. Blackboard work emerged not merely as a technical or instructional activity, but as a relational pedagogical process in which rhythm, pacing, attentiveness, and shared participation play a central role.

This temporal dimension strongly resonates with theories of slow teaching, which emphasize that meaningful learning cannot be rushed and that attentiveness, reflection, repetition, and the gradual unfolding of understanding are essential to educational processes (Berg & Seeber, 2016; Payne & Wattchow, 2009). Gran (2018) similarly conceptualizes blackboard work as a pedagogical process in which understanding develops progressively through the unfolding of text, drawings, and signs in real time. Rather than confronting learners with finished representations, this evolving form of blackboard work invites pupils to follow and participate in a shared "journey of discovery," allowing meaning to emerge collectively through attentiveness, improvisation, and dialogue.

The findings of this study strongly align with this perspective. Beyond issues of structure and organizational clarity, meaningful blackboard pedagogy appears to depend on the teacher's ability to establish and sustain connectedness with the class through what may be understood as a pedagogy of slowness. Blackboard work emerged not merely as a technical or instructional activity, but as a relational pedagogical process in which rhythm, pacing, attentiveness, and shared participation play a central role.

A recurring theme throughout the data concerns the importance of constructing the blackboard together with the pupils rather than simply presenting finished representations. Teachers consistently described the board as something that develops dynamically during the lesson in interaction with the class. As one teacher explained, although a clear pedagogical

intention may guide the lesson, “the way the board develops emerges during the lesson” (Elise, paraphrased). The blackboard therefore appears not as a fully predetermined structure, but as a flexible pedagogical space that evolves through classroom interaction, questions, explanations, and pupils’ responses.

This dynamic became particularly visible during observed mathematics and language lessons, where teachers gradually built up calculations, sentence structures, visual schemas, and conceptual relationships step by step while pupils actively followed the progression. Intermediate stages often remained visible on the board, allowing pupils to retrace the reasoning process throughout the lesson. The frequent use of arrows, colours, symbols, and spatial grouping further supported this unfolding process by making relationships between ideas perceptible and by rendering abstract thinking more concrete and accessible. In this sense, the board functions not only as a surface for representation, but as a temporal and relational medium through which thinking becomes visible, shared, and collectively constructed over time.

5.2.5.1 Embodied presence and maintaining connection

The findings additionally suggest that meaningful blackboard work depends strongly on the teacher’s ability to remain pedagogically connected to the class while writing or drawing. Several participants emphasized the importance of maintaining visual and relational contact with pupils during blackboard instruction. Sustaining visual contact with the class while writing on the board can be considered an important pedagogical practice, as it allows the teacher to remain attentive to pupils’ responses and to support ongoing engagement (Johnson, 2011). Elise, for example, described practical strategies such as positioning herself slightly to the side while writing as a right-handed teacher and adjusting the writing height on the board in order to maintain visibility, connection, and lesson flow. These seemingly small embodied practices appeared pedagogically significant, as they enabled teachers to remain responsive to pupils’ concentration, understanding, and participation throughout the lesson.

Blackboard work therefore emerged not simply as the presentation of information, but as an ongoing form of pedagogical interaction requiring attentiveness to both the visual field and the social dynamics of the classroom.

5.2.5.2 Pacing, rhythm, and temporal space

At the same time, the findings indicate that this co-constructive approach must be balanced with clarity, pacing, and support for pupils who require more structure or processing time. Several teachers described consciously considering which elements should already be prepared on the board, which parts would emerge gradually during the lesson, and what content should remain visible over longer periods.

This temporal dimension strongly resonates with theories of slow teaching, which emphasize that meaningful learning cannot be rushed and that attentiveness, reflection, repetition, and the gradual unfolding of understanding are essential educational conditions (Berg & Seeber, 2016; Payne & Wattchow, 2009). Gran (2018) similarly describes blackboard work as a pedagogical process in which understanding develops progressively through the unfolding of text, drawings, and signs in real time. In this sense, blackboard pedagogy may invite pupils into a shared "journey of discovery" in which meaning emerges collectively through attentiveness, dialogue, improvisation, and shared pacing.

The observations additionally demonstrated that maintaining connection with the class also involves creating moments of temporal space for pupils themselves. During lessons observed in the classrooms of Lukas and Eva, teachers regularly paused while pupils copied or processed information in their notebooks. They used this time to walk around the classroom, observe pupils' work, respond to confusion, provide individual guidance, and monitor understanding. Giving pupils sufficient time to write, process, ask questions, and receive clarification appeared equally important as the construction of the board itself.

5.2.5.3 Repetition, remembering, and internalization

The findings additionally suggest that blackboard pedagogy plays an important role in processes of repetition, remembering, and gradual internalization within classroom learning. Across observations, pupils were frequently asked to carefully reproduce blackboard content within their main lesson books, often including not only written information, but also colours, spatial organization, symbols, diagrams, and visual structures. In several classrooms, the transfer from blackboard to notebook was approached with considerable precision. During mathematics lessons on the decimal place-value system and prime numbers, for example, pupils were expected to reproduce the exact colour structures and visual organization of the board in their notebooks. Similar patterns were observed during language lessons, where

grammatical categories, sentence structures, and spelling conventions were consistently linked to specific colours and visual codes.

Importantly, the findings suggest that this copying process was not experienced merely as mechanical reproduction. Rather, the gradual reconstruction of blackboard content appeared to function as a form of cognitive and visual repetition through which pupils actively processed, organized, and internalized subject matter. Intermediate stages often remained visible on the board for extended periods, allowing pupils to repeatedly revisit explanations, structures, and conceptual relationships throughout the lesson or teaching period.

This strongly resonates with literature emphasizing the pedagogical importance of repetition within meaningful learning processes. When learning does not occur naturally or immediately, repetition becomes crucial in supporting long-term retention and understanding (Lemov et al., 2012). At the same time, repetition should not be reduced to passive listening or mechanical copying alone. At the same time, repetition should not be reduced to passive or purely mechanical copying practices, as meaningful learning depends on active cognitive engagement and the reconstruction of understanding (Caviglioli, 2019; Weinstein et al., 2018).The findings of this study, however, suggest a more active and reconstructive form of repetition in which pupils gradually rebuild visual structures, relationships, and conceptual connections through observation, copying, discussion, and later recall.

This perspective closely aligns with Caviglioli's (2019) work on visual learning structures, in which repetition functions as a process of active reconstruction rather than simple reproduction. Through the gradual development of blackboard work and the careful transfer towards main lesson notebooks, pupils appeared to internalize not only factual knowledge, but also visual organization, conceptual relationships, and thinking processes themselves.

The insights additionally resonate strongly with Waldorf main lesson block teaching, in which subjects are explored intensively over longer periods before being revisited at later moments in time. Several teachers deliberately left instructional elements, reference materials, or visual structures visible on the board across multiple lessons or even entire teaching periods. In this sense, the blackboard appeared to function as a visible and shared classroom memory through which pupils could revisit earlier thinking processes and reconnect new learning to previous experiences.

Similarly, the main lesson book emerged not merely as a reproduction of blackboard work, but as a personal processing space in which pupils reorganized, illustrated, and reinterpreted lesson content in their own way. The insights therefore suggest that repetition within blackboard pedagogy supports not only memorization, but also gradual meaning-making, internalization, and the development of long-term understanding.

5.2.5.4 The limits of collective rhythm: towards differentiation

Taken together, the results suggest that meaningful blackboard pedagogy depends not only on visual organization or instructional clarity, but also on the teacher's pedagogical presence and ability to remain relationally connected to the class throughout the lesson. Blackboard work therefore emerges as a shared and embodied process in which thinking, pacing, interaction, and collective meaning-making continuously unfold together.

At the same time, the findings also reveal that such connectedness cannot be taken for granted for every pupil. For some learners, establishing and maintaining a connection with the teacher, the rhythm of the lesson, the blackboard, or the transfer towards the notebook proved considerably more challenging. For pupils experiencing concentration, sensory, motor, or broader learning difficulties, the collective rhythm of blackboard work did not always automatically result in meaningful participation or understanding.

This suggests that effective blackboard pedagogy requires more than organizational clarity, visual structure, or shared pacing alone. While these elements may support orientation and collective learning processes, some pupils require additional scaffolding, adapted materials, individual guidance, or alternative forms of support in order to participate meaningfully within classroom practice.

Lukas' remark remained particularly significant throughout the research process: "learning follows wellbeing." This observation highlights that participation in blackboard pedagogy depends not only on cognition, but also on pupils' sense of safety, regulation, and belonging within the classroom environment. The following section therefore explores how differentiation and additional support structures interact with blackboard pedagogy in increasingly diverse classroom contexts.

5.3 The blackboard as a mirror for differentiation: a Waldorf-informed perspective

One of the clearest findings emerging from this study is that the blackboard alone cannot accommodate the full range of individual differences present within contemporary classrooms. Although the blackboard remained a central pedagogical and organizational tool across all observed classrooms, teachers primarily described it as a shared reference point that supports collective instruction, orientation, and classroom rhythm. The findings therefore suggest that blackboard pedagogy cannot be understood separately from the broader care policy and organizational structures of the school.

5.3.1 Blackboard alone is insufficient

The data revealed considerable differences between schools regarding how differentiation and educational support were organized in practice. In some schools, pupils remained together within the classroom while working at different levels through differentiated assignments, visual codes, or adapted materials. Other schools organized additional support outside the classroom itself. Lukas, for example, described how several pupils attended a separate “nest class” during the morning main lessons when they experienced difficulties following the regular classroom instruction. According to the teachers involved, this system often functioned effectively because pupils could gradually reconnect with the regular classroom group after receiving additional support.

These insights resonate with Waldorf perspectives on differentiation, in which differentiation is understood not primarily as a technical strategy, but as a responsive and developmental orientation that seeks to attune education to diverse rhythms, capacities, and forms of participation within a shared learning process (Steiner, 1919/2007d, GA 293). Similarly, Good (2006) emphasizes that differentiation should not consist of isolated individualized activities, but of interconnected approaches through which pupils can reach shared educational understandings in different ways.

At the same time, the findings indicate that meaningful differentiation must remain both pedagogically and practically manageable. Several participants described the growing complexity of simultaneously addressing multiple learning levels, care trajectories, accommodations, and support needs within one classroom group. Clara, for example,

explained that her “head sometimes feels like exploding” because of the many simultaneous questions and support demands emerging during lessons. Teachers repeatedly referred to the increasing number of support tools and accommodations introduced through care policies. While such interventions may support pupils individually, the findings also suggest that too many parallel systems can create cognitive and organizational overload for both teachers and pupils, reducing overview and coherence within the classroom environment.

Research similarly shows that within-class differentiation is often shaped by teachers’ practical judgments and ongoing classroom observations rather than by fixed models alone (Van Gasse & Van Acker, 2023). Tomlinson (2017) therefore argues that differentiation should be understood not merely as a set of strategies, but as an ongoing pedagogical mindset requiring continuous reflection and responsiveness. The results of this study strongly support this perspective, as teachers continuously negotiated between collective classroom rhythm and individual support, pedagogical ideals and practical feasibility.

At the same time, some school-wide approaches appeared to create greater continuity and clarity. Sofie’s school, for example, worked consistently with a three-track differentiation system across classrooms, while Lukas’ classroom systematically used learning support booklets familiar to pupils throughout the school context. These shared pedagogical structures appeared to reduce uncertainty and support both teacher manageability and pupil orientation. The results therefore suggest that meaningful differentiation depends not only on individual teacher effort, but also on coherent organizational structures and shared pedagogical agreements within the school environment. In this sense, the blackboard functions less as an individualized tool and more as a shared pedagogical anchor within a broader relational and organizational ecology of care.

Sofie’s remark remained particularly significant throughout the research process: “learning follows wellbeing.” This observation highlights that participation in classroom learning depends not only on cognitive instruction, but also on pupils’ emotional security, regulation, sense of belonging, and ability to remain connected within the classroom environment.

5.3.2 Supporting differentiation through complementary tools and materials

Within this broader pedagogical and organizational context, teachers frequently combined blackboard instruction with a wide range of supporting tools and materials aimed at strengthening accessibility, structure, independence, and participation. These materials appeared not as replacements for the blackboard, but as complementary supports that helped pupils navigate classroom learning more successfully. This perspective also resonates with Brown's (2020) understanding of the classroom environment as a "*third teacher*," in which classroom furniture, spatial organization, material arrangements, and the broader school environment actively shape learning and instructional processes. From this viewpoint, differentiation is not only enacted through verbal instruction, but also through the ways pedagogical space is organized, structured, and experienced within classroom life.

The observed use of supportive materials can therefore be understood as part of a broader spatial and material pedagogy, in which teachers intentionally design the learning environment to respond to diverse learner needs. Within such an environment, the blackboard does not function in isolation, but operates in dynamic relation with other material and spatial elements in the classroom. It may thereby offer multiple possibilities for supporting diverse forms of participation, attention, pacing, and engagement within shared learning processes.

Based on the classroom observations and interview data, these materials were grouped into four broader categories: materials supporting behaviour and emotional regulation, materials creating predictability and orientation, materials clarifying instruction and learning transfer, and materials supporting pupils with additional learning difficulties or educational needs. When viewed through the lens of the classroom as a "third teacher," these categories can be interpreted not merely as practical tools, but as expressions of an intentionally structured pedagogical environment that guides, scaffolds, and differentiates learning in subtle but meaningful ways.

5.3.2.1 Materials supporting behaviour, concentration, and emotional regulation

A first category included materials aimed at supporting behaviour, concentration, and emotional regulation. During observations, several teachers used visual timers, behaviour reminders, separate instruction tables, or adapted seating arrangements for pupils who struggled with focus, overstimulation, or sustained attention. In Sofie's classroom, for example, one pupil used a separate "study buddy" containing instructional cards and visual

supports because he became overstimulated relatively quickly and consequently struggled to process the lesson content effectively within the larger classroom environment.

5.3.2.2 Materials supporting predictability, structure, and orientation

A second category involved materials designed to create predictability and orientation throughout the school day. Classroom observations revealed the frequent use of visual schedules, agenda boards, laminated weekly plans, instruction cards, and planning systems that remained visible over extended periods. In Sofie's classroom, pupils worked with laminated weekly schedules attached to their desks indicating which differentiated tasks needed to be completed independently upon arrival in the morning. These schedules were organized according to the school's broader three-track differentiation system. Similar approaches were also observed in Anna's classroom, while other teachers worked with systems such as stars, suns, moons, or colour coding to distinguish between support, standard, and extension tasks.

5.3.2.3 Materials supporting instructional clarity and learning transfer

A third category consisted of materials aimed at clarifying instruction and supporting the transfer between the blackboard and pupils' notebooks. Teachers frequently relied on instruction cards, learning support booklets, visual codes, spacing symbols, colour systems, and step-by-step guidance to structure learning processes more explicitly. In Lukas' classroom, pupils regularly used learning support booklets containing multiplication tables, spelling rules, mathematical procedures, and visual reference materials that could be consulted independently whenever difficulties emerged.

5.3.2.4 Materials supporting learning difficulties and additional educational needs

Finally, a fourth category consisted of materials and support structures specifically aimed at addressing broader learning difficulties and additional educational needs. During observations, several pupils worked with adapted materials such as laptops, printed lesson texts, differentiated exercise booklets, or separate guidance tools. Additional support structures, including "nest classes" and individual instruction moments, further illustrated how teachers attempted to respond to increasingly diverse learning needs within the classroom.

In Sofie's grade 2 classroom, for example, one pupil worked with a separate "study buddy" containing instructional cards and visual supports because he became overstimulated

relatively quickly, which negatively affected his ability to process and retain the lesson content within the larger classroom environment. Similarly, Eva described how several pupils in her classroom worked with laptops because the motor demands of handwriting had become too difficult to manage. Other pupils received simplified assignments, adapted timelines, or additional individual instruction depending on their specific needs and learning trajectories. These findings suggest that differentiated classroom participation often depends on a broader network of adapted materials, individualized supports, and flexible pedagogical interventions extending beyond the blackboard itself.

At the same time, the findings suggest that supporting materials are only effective when they remain manageable, coherent, and meaningfully integrated within classroom practice. Teachers repeatedly emphasized that tools should support orientation and independence rather than create additional complexity or fragmentation. In this sense, the effectiveness of differentiation appeared to depend less on the quantity of materials available and more on the clarity, consistency, and pedagogical coherence with which they were implemented.

Taken together, the findings indicate that the blackboard functions primarily as a shared pedagogical anchor within the classroom, while differentiation emerges through the broader interaction between collective instruction, school care policy, complementary materials, and responsive pedagogical relationships.

6. Conclusion

This study set out to explore how Waldorf primary teachers use the blackboard as a pedagogical medium to support interaction, differentiated learning, and the structuring of knowledge during the main lesson. Drawing on classroom observations, interviews, focus groups, reflective diaries, and visual material, the findings suggest that the blackboard plays a far more complex role than that of a neutral instructional surface. Rather, it emerges as a relational, dynamic, and pedagogically responsive medium that supports classroom interaction, visual organization, collective meaning-making, and differentiated participation within everyday classroom practice.

In relation to the research question, the study demonstrates that Waldorf teachers use the blackboard not only to structure lesson content and make thinking visible, but also to create rhythm, shared attention, imagination, and pedagogical connectedness within the classroom. At the same time, the findings reveal that the blackboard alone cannot fully address the growing diversity and complexity of contemporary classrooms. Instead, meaningful differentiated blackboard pedagogy depends on the interaction between the teacher's pedagogical presence, the relational dynamics of the classroom, and the broader organizational and support structures surrounding classroom practice.

6.1 Passion, motivation, and the pedagogical capacity for wonder

It is not self-evident that pupils experience the learning content offered to them as meaningful; this sense of meaning can be fostered by awakening their curiosity. A first essential condition concerns the teacher's own passion, motivation, and pedagogical engagement. The findings strongly suggest that wonder does not arise automatically through the blackboard itself, but through the teacher's ability to use the board as a living, expressive, and imaginative pedagogical medium. Across observations and interviews, pupils' curiosity and engagement appeared closely connected to the enthusiasm, attentiveness, artistic involvement, and care demonstrated by the teacher throughout the lesson process.

The blackboard therefore functioned not merely as a surface for transmitting information, but also as an expression of the teacher's pedagogical imagination and personal relationship to the subject matter. Particularly in the lower grades, drawings, colour, rhythm, and visual

composition appeared to create important entry points into learning, imagination, and emotional engagement. At the same time, pupils seemed fascinated not only by the final visual result, but by the live process of drawing, constructing, correcting, and thinking together with the teacher during the lesson itself.

These findings suggest that successful blackboard pedagogy depends fundamentally on the teacher's capacity to communicate wonder, curiosity, and meaningful engagement. In this sense, the blackboard becomes not simply an instructional device, but a pedagogical medium through which aesthetic experience, imagination, and shared attention can emerge.

6.2 Connectedness and the blackboard as a co-creative pedagogical medium

A second central condition concerns the relational connectedness between teacher, pupils, and pedagogical materials. The findings consistently demonstrate that meaningful blackboard pedagogy is deeply relational and co-constructive in nature. The board functions not merely as a place where finished knowledge is presented, but as a shared pedagogical space in which thinking processes gradually unfold through interaction, pacing, dialogue, visual representation, and collective meaning-making.

Teachers repeatedly described the importance of constructing the board together with pupils rather than confronting them immediately with completed representations. Blackboard work emerged as a process of gradual unfolding in which intermediate steps, reasoning processes, visual structures, and conceptual relationships remained visible over time. In this sense, the blackboard supported not only the organization of content, but also the visibility of thinking itself.

The findings additionally highlight the importance of pedagogical attunement and connectedness during blackboard work. Effective board use depended not only on structure and visual clarity, but also on the teacher's ability to remain responsive to the rhythm, understanding, and participation of the group. Blackboard pedagogy therefore appeared closely connected to pacing, slowness, repetition, and the creation of temporal space for pupils to process, copy, ask questions, and participate actively within the lesson process.

Within this perspective, the blackboard emerges as a co-creative pedagogical instrument that mediates between collective and individual learning, imagination and abstraction, structure

and flexibility. Its pedagogical value lies not solely in the information displayed, but in the shared relational process through which meaning is gradually constructed together.

6.3 Feasibility, school culture, and coherent support structures

A third important condition concerns the practical and organizational feasibility of differentiated blackboard pedagogy within increasingly complex classroom realities. One of the clearest insights of this study is that the blackboard alone cannot accommodate the full range of individual differences present within contemporary classrooms. Rather than functioning as a tool for complete individualization, the blackboard primarily serves as a shared pedagogical anchor around which differentiation is organized.

Teachers consistently relied on additional support structures such as learning support booklets, differentiated assignments, visual schedules, instruction cards, adapted materials, and individual guidance in order to address diverse learning needs. At the same time, the findings also revealed the growing tension between pedagogical ideals and practical classroom realities. Several participants described the increasing difficulty of simultaneously managing multiple learning trajectories, accommodations, support tools, and care structures within one classroom group.

The findings therefore suggest that successful differentiation depends not simply on the number of available tools or interventions, but on the coherence, manageability, and shared implementation of these supports within the broader school culture. School-wide structures such as shared differentiation systems, consistent visual codes, or collectively supported learning materials appeared to create greater continuity, clarity, and pedagogical sustainability for both teachers and pupils.

Importantly, the study also indicates that an excessive number of parallel support systems may risk creating cognitive and organizational overload for both teachers and learners. Meaningful differentiation therefore requires careful balance: support structures should strengthen orientation, participation, and wellbeing rather than increase fragmentation or complexity.

One participant's remark remained particularly significant throughout the research process: "learning follows wellbeing." This observation captures an important underlying insight emerging across the study: successful blackboard pedagogy depends not only on cognition or

instruction, but also on pupils' emotional security, sense of belonging, regulation, and ability to remain connected within the classroom environment.

Taken together, the findings suggest that the pedagogical significance of the blackboard lies precisely in its openness, flexibility, and relational character. The blackboard is not a fixed method or a universal solution for differentiation, but a pedagogical medium through which teachers continuously mediate between imagination and structure, collective and individual learning, pedagogical ideals and classroom realities. In this sense, the blackboard reflects the broader nature of teaching itself: relational, situated, imperfect, and continuously evolving.

6.4 Implications for practice

The findings of this study have several implications for educational practice within Waldorf education and beyond.

First, the study highlights the importance of intentional blackboard use. While many teachers develop their board practices intuitively over time, making these practices more explicit and shareable could support both novice and experienced teachers. Creating opportunities for professional dialogue and exchange around blackboard use may therefore strengthen pedagogical practice.

Second, the study suggests that the blackboard should be understood as part of a broader pedagogical ecology. Rather than positioning it in opposition to digital tools or other materials, its value lies in how it interacts with these elements. A balanced and reflective integration of different tools can support both differentiation and engagement.

Third, the developmental dimension of blackboard use calls for increased awareness in teacher education. Supporting teachers in adapting their use of the board across different age groups may help maintain both clarity and imagination throughout the learning process.

6.5 Limitations and directions for future research

This study is limited by its qualitative design and relatively small sample size, focusing on a specific educational context. While the findings offer rich and in-depth insights into classroom practices, they cannot be generalized to all educational settings. In addition, the study focuses primarily on the perspectives and practices of teachers, which may limit the extent to which pupils' lived experiences and interpretations of blackboard pedagogy are fully represented.

Furthermore, the findings are based on observations and interviews conducted within a particular pedagogical tradition and school context. As such, the results may be influenced by context-specific practices, values, and institutional cultures, which may differ across other educational systems or settings. The interpretative nature of qualitative analysis also implies that the findings are shaped by the researcher's analytical lens, and alternative interpretations of the data remain possible.

Future research could expand this study by including a larger and more diverse sample of schools across different educational contexts. Longitudinal research could provide further insight into how blackboard practices develop over time and across different grade levels. Additionally, incorporating pupils' perspectives would allow for a deeper understanding of how blackboard pedagogy is experienced from the learner's point of view.
Further research could also investigate the relationship between traditional blackboard practices and emerging digital technologies, exploring how these different media interact within contemporary classrooms. Finally, more systematic investigation into the impact of blackboard practices on learning processes, engagement, and differentiation could contribute to strengthening the empirical and theoretical foundations of this field.

6.6 Visual synthesis

The visual synthesis presented below, illustrated in Figure 26, brings together the core insights of this study at a higher conceptual level. By foregrounding the interrelated notions of passion, connectedness, and feasibility, the figure integrates the analytical findings into a coherent framework for understanding differentiated blackboard use within Waldorf education. Rather than introducing new interpretations, the image functions as a conceptual closure: it highlights how meaningful blackboard pedagogy emerges at the intersection of pedagogical commitment, relational classroom processes, and practical-organizational conditions. As such, the figure encapsulates the central contribution of this research in an accessible yet theoretically grounded manner.

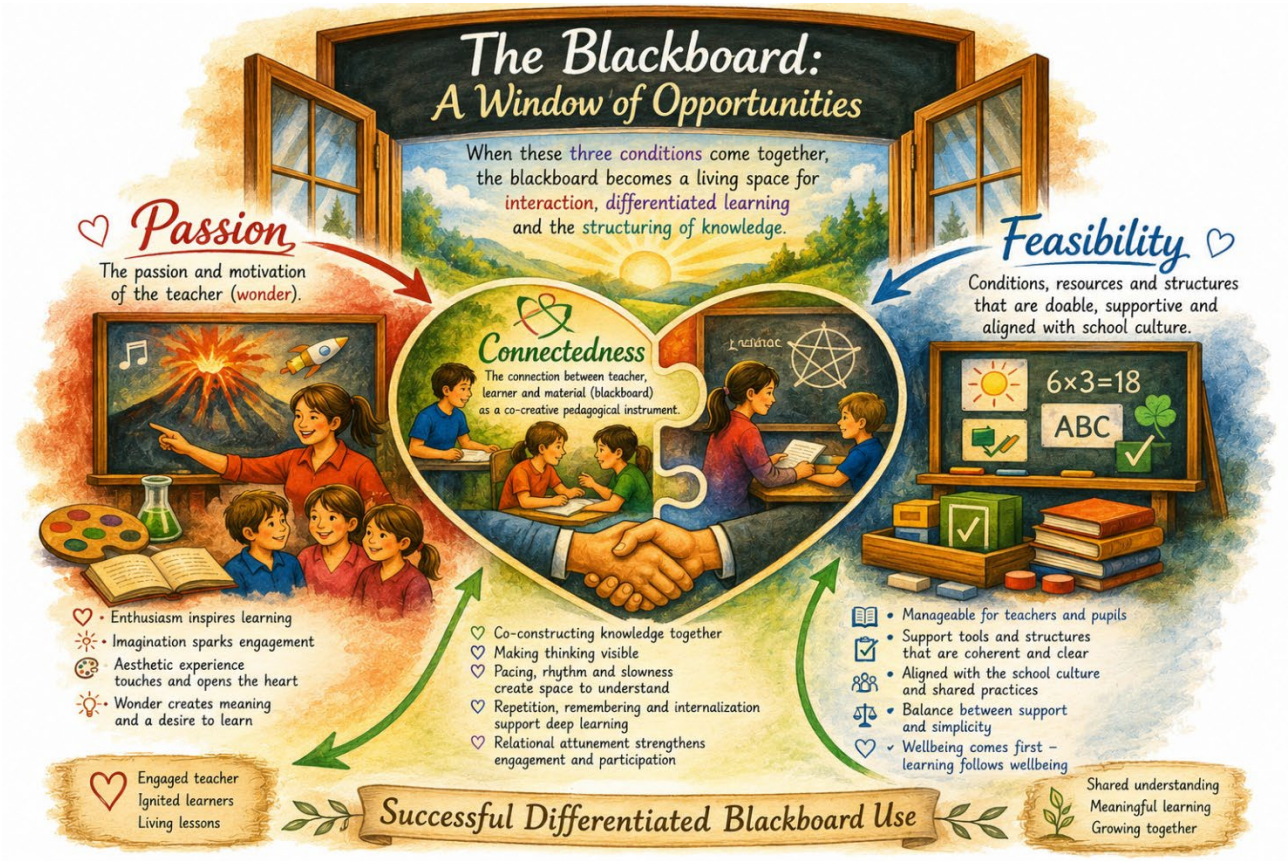


Figure 26. *AI-generated visual synthesis of differentiated board use in Waldorf education, summarized through the core concepts of passion, connectedness, and feasibility.*

6.6 Final reflection

This study has fundamentally broadened my understanding of educational practice, not only within Waldorf education but within contemporary schooling more generally. Through sustained classroom observations and in-depth interviews, I became increasingly aware of the complex interplay between pedagogical intentions, classroom realities, and the structural conditions within which teachers operate. What initially appeared as a focused inquiry into differentiated blackboard use gradually evolved into a deeper reflection on how differentiation is shaped, supported, or constrained at multiple levels of the educational system.

In an educational landscape increasingly shaped by standardization, efficiency, and digitalization, the blackboard may appear to be a traditional or even outdated tool. However, the findings of this study suggest the opposite. Precisely because of its material, temporal, and relational qualities, the blackboard continues to offer unique pedagogical possibilities. It is a space where thinking becomes visible, where imagination can take form, and where teaching unfolds in direct response to the presence of students. In this sense, the blackboard does not simply support learning; it embodies an understanding of education as a living, relational, and meaningful process.

At the same time, this research has made clear that the pedagogical potential of the blackboard cannot be understood in isolation from its broader context. Meaningful differentiated practice requires shared pedagogical agreements within schools, particularly regarding how diversity in learning needs is acknowledged and addressed. The study revealed that while individual teachers often demonstrate strong commitment and creativity, there is frequently a lack of coherent guidance at both the school and supra-school levels. Teachers and school leaders alike are expected to respond to increasing complexity and heterogeneity, yet are provided with limited structural support, concrete tools, or specialized expertise to do so.

This tension points to a broader systemic challenge: primary school teachers are increasingly required to be “of all trades,” adapting to diverse demands without sufficient scaffolding. Observing this dynamic throughout the research process has been eye-opening. It has highlighted how differentiation is often treated as an individual responsibility rather than as a shared pedagogical and organizational endeavor. This realization has sharpened my awareness of the importance of developing supportive frameworks, materials, and professional learning

structures that enable teachers to engage in differentiated practice in a sustained and reflective manner.

On a personal level, this research has been both clarifying and motivating. It has deepened my appreciation of pedagogical craftsmanship, particularly within the Waldorf tradition, while simultaneously exposing the need for more explicit support structures. The process has inspired me to think concretely about future contributions to the field, such as the development of learning support booklets or other practice-oriented materials that could assist teachers and school teams in translating differentiated ideals into everyday classroom practice.

Ultimately, this study has reinforced my conviction that differentiated education does not rest on tools alone, but on the relationships, expertise, and collective responsibility that surround them. The blackboard, viewed as a window of opportunity rather than merely an instructional surface, symbolizes this broader insight: education as a shared, evolving process in which both teachers and learners are continuously becoming.

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Appendices

Appendix 1: Observation protocol

1. General information

   Observation date / Time / Class 5 or Class 6 / Teacher: name / Any further identification / Lesson subject

2. Observation categories

A. Lesson preparation and structure

• How is the teaching material introduced?

• Is there differentiation (in the use of materials)?

B. Didactic techniques and teaching methods

• Which teaching methods are used (e.g., whole-class explanation, group work, individual assignments)?

• Are visual or auditory techniques employed?

• How is student engagement stimulated?

C. Teacher perspective and attitude

• What beliefs seem to be reflected in the lesson?

• How are questions and responses from students handled?

• To what extent is the teaching material adapted to the students?

D. Teaching materials and resource use

• What materials are used?

• How is the material used to support the teacher's perspective?

• Is the material used as a guideline or as a flexible tool?

E. Student engagement and interaction

• How does the teacher respond to students?

• Are students encouraged to contribute actively?

• How is the relationship between the material and the interaction made visible?

3. Observation techniques

• Taking notes: Detailed written notes during the lesson, including observations about behavior, techniques, and interactions.

• Conversation notes: Brief notes on the teacher’s statements and choices when possible.

• Reflection: Briefly reflect after each observation on notable connections between the teacher's perspective and the use of materials.

4. Remarks and additional notes

• Space for unexpected observations or special circumstances.

• Notes on any contextual factors influencing the lesson (e.g., class size, technical issues).

Appendix 2: Interview guide

1. Introduction
2. Questions about diversity and educational needs:
   - How would you describe the current diversity within your classroom or school?
   - What new or increasing educational needs have you noticed in recent years?
   - What factors do you think contribute to this increased diversity?
   - To what extent do you notice that this diversity influences your way of teaching?
3. Response and approach
   - How do you adapt your teaching methods to meet the diverse needs of students?
   - Can you provide examples of specific strategies or methods you use to promote inclusion and differentiation within Waldorf education?
   - What challenges do you experience when adjusting your teaching to accommodate diverse students?
   - What support or resources would help you better manage the increasing diversity?
4. Reflection and future
   - How do you see the role of Waldorf education in addressing increasing diversity in the future?
   - Are there changes or innovations you would like to implement to better meet the diverse needs?
5. Closing
   - Do you have any other comments or suggestions regarding this topic?

Appendix 3: Template reflective diaries

- Date and lesson topic
- Goals of the lesson

- What went well?
- What was challenging?
- What would I do differently?
- Student response and engagement
- Personal feelings and thoughts
- Remarks or follow-up actions
- Photo of the blackboard (and materials)

Appendix 4: Information letter and consent form

Are you interested in taking part in the research project "*The blackboard, a window of opportunities*"?

Purpose of the project

You are invited to participate in a research project where the main purpose is to to investigate how a teacher's perspective on the use of the blackboard and their approach to conveying it influence students' learning experiences. As part of my Master of Education at Rudolf Steiner University College in Oslo I conduct a research that tries to answer the following question: How does the teacher experience and reflect on the role of using the blackboard as an interaction and knowledge transfer tool between teacher and student during main lessons in elementary school?

Which institution is responsible for the research project?

Rudolf Steiner University College Oslo is responsible for the project (data controller).

Why are you being asked to participate?

You are asked to participate since you are a primary school teacher at a Waldorf school with more then 5 years experience.

What does participation involve for you?

If you chose to take part in this project, this will involve a triangulation approach according

by combining reflective diaries, interviews, and an additional survey. The interview will be recorded.

Participation is voluntary

Participation in the project is voluntary. If you chose to participate, you can withdraw your consent at any time without giving a reason. All information about you or your school will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

Your personal privacy – how we will store and use your personal data

We will only use your personal data for the purpose(s) specified here and we will process your personal data in accordance with data protection legislation (the GDPR).

- I as the researcher will have access to your personal data.
- I will replace your name and contact details with a code. The list of names, contact details and respective codes will be stored separately from the rest of the collected data.
- In the publication you will not be recognizable; your occupation will be published.

What will happen to your personal data at the end of the research project?

The planned end date of the project is 30 June 2026. After this date the digital sound recordings will be deleted, and the personal data be anonymized.

Your rights

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you
- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability), and
- send a complaint to the Norwegian Data Protection Authority regarding the processing of your personal data

What gives us the right to process your personal data?

We will process your personal data based on your consent.

Based on an agreement with Steinerhøyskolen, The Data Protection Services of Sikt – Norwegian Agency for Shared Services in Education and Research has assessed that the processing of personal data in this project meets requirements in data protection legislation.

Where can I find out more?

If you have questions about the project, or want to exercise your rights, contact:

- Julie Mertens
- Torbjørn Eftestol,
- Our Data Protection Officer: Torbjørn Eftestol,

If you have questions about how data protection has been assessed in this project by Sikt, contact:

- email: (personverntjenester@sikt.no) or by telephone: +47 73 98 40 40.

Consent form

I have received and understood information about the project "*The blackboard, a window of opportunities*" and have been given the opportunity to ask questions. I give consent:

☐ to participate in an interview

☐ to participate in a survey

☐ to participate in reflective diaries

I give consent for my personal data to be processed until the end of the project.

I understand that selected extracts from my interview may be quoted in the report and subsequent publications.

(Signed by participant, date)