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A LIFELINE THROUGH LEARNING

Results of Qualitative Analyses of the Art of Learning Program

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Sammendrag

Denne rapporten presenterer funnene fra en omfattende kvalitativ analyse av "Kunsten å lære" (KÅL)-programmet, som ble gjennomført i barneskoler i Norge og Ungarn som en del av Erasmus+-prosjektet AoL4STEAM. KÅL-programmet har som mål å fremme kreativitet, eksekutive funksjoner og sosial inkludering ved å integrere kunstbaserte og kreative pedagogiske metoder i den formelle utdanningen. Studien bygger på individuelle intervjuer og fokusgrupper med elever, lærere, kunstnere, skoleledere og foreldre. Det er benyttet refleksiv tematisk analyse for å utforske programmet sin innvirkning i ulike utdanningskontekster.

Resultatene viser at KÅL-tilnærmingen representerer et tydelig brudd med tradisjonell undervisningspraksis, med vekt på erfaringsbasert, multisensorisk og samarbeidsorientert læring. Deltakerne rapporterte gjennomgående at KÅL skapte et engasjerende, åpent og støttende læringsmiljø, der utforsking, nysgjerrighet og selvutfoldelse ble prioritert fremfor pugging og riktige svar. Kunstneriske aktiviteter i programmet bidro til å styrke kreativitet, motivasjon og emosjonell trivsel. Det ble også observert en positiv utvikling av eksekutive funksjoner – som kognitiv fleksibilitet, selvregulering, problemløsning og utholdenhet.

Samarbeidet mellom lærere og kunstnere ble fremhevet som en avgjørende faktor for programmets suksess, selv om det innledningsvis bød på utfordringer knyttet til ulike pedagogiske tilnærminger og behov for tilpasning. Over tid rapporterte både lærere og kunstnere om faglig utvikling, økt åpenhet for nye undervisningsmetoder og en dypere forståelse for elevenes ulike styrker. Programmet førte også til endringer i klassemiljøet, med økt elevmedvirkning, selvtillit og inkludering som resultat.

Tilbakemeldingene fra elever og foreldre understreket programmets positive effekter på engasjement, mestring og overføring av læring til andre sammenhenger. Elevene beskrev KÅL som gøy, meningsfullt og minneverdig, og mange rapporterte at de i større grad turte å ta sjanser, samarbeide og uttrykke seg. Foreldrene la merke til økt selvstendighet, kreativitet og sosiale ferdigheter hos barna sine, samt en sterkere lærelyst.

Til tross for enkelte utfordringer – som behov for egnede fysiske læringsrom, balansen mellom struktur og fleksibilitet, og tilrettelegging for individuelle forskjeller – viser KÅL-programmet tydelige og langvarige fordeler for både elever og undervisere. Funnene understreker verdien av kunstintegrasjon og kreative pedagogikk i å fremme helhetlig utvikling, utdanningsmessig likestilling og livslang læringskompetanse i grunnskolen.

Emneord: Kunst, pedagogikk, eksekutive funksjoner, kreativitet, læring

Abstract

This report presents the findings of a comprehensive qualitative analysis of the Art of Learning (AoL) program, which was implemented in primary schools in Norway and Hungary as part of the AoL4STEAM Erasmus+ project. The AoL program aims to foster creativity, executive functioning, and social inclusion by integrating arts-based and creative pedagogies into formal education. The study draws on individual interviews and focus group discussions with students, teachers, artists, school leaders, and parents, employing reflexive thematic analysis to explore the program's impact across diverse educational contexts.

The results indicate that the AoL approach represents a significant departure from conventional classroom practices, emphasizing experiential, multisensory, and collaborative learning. Participants consistently reported that AoL created an engaging, open, and supportive environment where exploration, curiosity, and self-expression were prioritized over rote learning and correct answers. The program's integration of artistic activities was found to nurture creativity, motivation, and emotional well-being. There are also indications of enhancement of executive functions—including cognitive flexibility, self-regulation, problem-solving, and perseverance.

Collaboration between teachers and artists emerged as a critical factor in the program's success, though it also posed initial challenges related to differing pedagogical perspectives and the need for adaptation. Over time, both teachers and artists reported professional growth, increased openness to innovative teaching methods, and a deeper appreciation of students' diverse abilities. The program also prompted shifts in classroom dynamics, fostering greater student autonomy, confidence, and inclusivity.

Feedback from students and parents highlighted the program's positive effects on engagement, mastery, and the transfer of learning to other contexts. Students described AoL as fun, meaningful, and memorable, with many noting increased willingness to take risks, collaborate, and express themselves. Parents observed improvements in their children's independence, creativity, and social skills, as well as a greater enthusiasm for learning.

Despite some challenges—such as the need for suitable physical spaces, balancing structure with flexibility, and accommodating individual differences—the AoL program demonstrated robust, long-term benefits for both students and educators. The findings underscore the value of arts integration and creative pedagogies in promoting holistic development, educational equity, and lifelong learning competencies in primary education.

Keywords: Art, pedagogy, executive functioning, creativity, learning

Content

1. Introduction

The integration of arts into formal education has emerged as a cornerstone of pedagogical innovation, driven by global calls to equip students with the cognitive, social-emotional, and creative competencies required to navigate an increasingly complex world. Organisations such as the OECD and UNESCO have underscored the urgency of reimagining curricula to prioritise creativity, critical thinking, and interdisciplinary learning. The OECD's Future of Education and Skills 2030 framework emphasises the need for education systems to foster "agentic learners" capable of applying knowledge in novel contexts, while UNESCO's Sustainable Development Goal 4 advocates for inclusive, equitable education that promotes lifelong learning opportunities for all (OECD, 2024; UNESCO, 2015). These frameworks align with constructivist theories of learning, which posit that knowledge is actively constructed through experiential, collaborative, and contextually rooted activities (Vygotsky, 1978; Bruner, 1961).

Education systems worldwide are at a critical juncture, recognising the imperative to prepare learners for rapidly changing and uncertain futures. The growing consensus around cultivating creativity, critical thinking, and holistic development reflects a profound shift in educational goals and practice. By understanding the connections between developmental factors, promoting equity, and recognising our shared environmental context, education can fulfil its transformative potential. Educational frameworks are evolving to emphasise creativity, critical thinking, and holistic development while recognising the complex interplay between executive functioning, participation, and environmental factors. This shift represents a fundamental reimagining of education's theory and practice for the 21st century.

1.1 The Imperative For Educational Transformation

In today's complex societies, creativity and critical thinking have become essential skills for both individual and collective success (Vincent-Lancrin et al., 2019). Traditional educational approaches, which primarily focus on knowledge acquisition, are proving insufficient for preparing learners to address the unprecedented challenges of today. Education systems worldwide are acknowledging this, recognising that their curricula must evolve to develop competencies that extend beyond basic literacy and numeracy.

The adoption of the Sustainable Development Goals (SDGs) in 2015, particularly SDG 4 on quality education, marked a significant shift in the global education agenda. Unlike previous international education frameworks that emphasised access, SDG 4 brings learning outcomes to the forefront, with five of its seven targets including indicators on learning, knowledge, and skills (UNESCO, 2015). This represents a critical pivot toward recognising that education must cultivate a broader range of competencies to enable **learners** to thrive in rapidly evolving contexts.

The concept of "21st century skills" has gained substantial traction in educational discourse, representing competencies considered essential for success in modern societies. These skills are often categorised into four fundamental domains: core subjects with 21st century themes, learning and innovation skills, information/media/technology skills, and life/career skills. Within these

categories, specific competencies such as global awareness, literacy, critical thinking, problem-solving, flexibility, and creativity are emphasized as crucial for navigating contemporary challenges (Global Partnership for Education, 2020).

While traditional academic subjects remain essential, the 21st-century skills framework recognizes that proficiency in reading, writing, and arithmetic alone is insufficient. Learners must develop the capacity to apply knowledge beyond classroom settings to authentic, real-world contexts. This represents a significant shift from educational approaches that prioritise "knowing all of the answers" toward those that nurture problem-solving capabilities, creative thinking and creative solution generation.

A holistic approach to education recognizes the interconnections between people and their shared environment while promoting equity across diverse contexts. This perspective acknowledges that learning does not occur in isolation but is embedded in social, cultural, and ecological systems that shape educational opportunities and outcomes.

The new educational paradigm emphasizes that equity goes beyond providing equal access to existing educational models. It requires reimagining education itself to value diverse ways of knowing, learning, and contributing to collective knowledge. This includes recognizing education as a right that encompasses access to information, culture, science, and the collective knowledge resources of humanity accumulated across generations (UNESCO, 2021).

1.2 Excutive functioning

Central to this discourse is the concept of executive functions (EF) that underpin self-regulation, problem-solving, and adaptive learning (Diamond, 2013). Emerging research highlights the role of arts-integrated pedagogies in enhancing these functions by engaging students in multimodal, sensory-rich tasks that bridge abstract concepts with tangible experiences (Winner et al., 2013). EF refers to a set of interrelated cognitive processes that are essential for purposeful, goal-directed activity. These processes are crucial for children's social, cognitive, and psychological functioning, and they play a foundational role in academic achievement and lifelong success (Alloway, 2009; Diamond, 2013; Zelazo, 2020). EF enables children to regulate their emotions, control their impulses, adapt to new situations, and solve problems creatively, skills that are increasingly recognized as vital (Diamond, 2013; Zelazo et al., 2016).

A widely accepted definition of EF, provided by Miyake and Friedman (2012), describes it as "a set of general-purpose control processes that regulate one's thoughts and behaviors". These processes are not tied to any specific content or context but are instead domain-general skills that support a wide variety of tasks and learning situations. The core components of EF include:

- **Inhibitory control of attention:** The ability to focus attention selectively, ignore distractions, and sustain concentration.
- **Inhibitory control of behaviour (self-control):** The capacity to resist impulses, delay gratification, and act in socially appropriate ways.
- **Working memory:** The ability to hold and manipulate information in mind over short periods, which is essential for following instructions, problem-solving, and reasoning.
- **Cognitive flexibility:** The skill of shifting attention, adapting to changing rules or demands, and thinking about multiple concepts simultaneously (Diamond, 2013; Best & Miller, 2010).

These core EF skills are considered the building blocks for more complex, higher-order processes such as planning, reasoning, and abstract thinking (Diamond, 2013).

Strong executive functioning is associated with numerous positive developmental outcomes. Children with well-developed executive function (EF) skills tend to perform better academically, have more successful social relationships, and are better able to manage stress and regulate their emotions (Moffitt et al., 2011; Morgan et al., 2018; Ursache et al., 2021). Conversely, difficulties with EF can have far-reaching negative consequences, including: Academic underachievement and learning difficulties; Behavioural and emotional problems; Poor social integration and difficulties forming friendships; Increased risk for mental health issues such as anxiety, depression, and conduct disorders; Challenges in later life, including problems with employment, interpersonal relationships, and even increased risk of involvement with the criminal justice system (Moffitt et al., 2011; Zelazo, 2020; Ursache et al., 2021).

Research has shown that EF skills are more predictive of school readiness and later academic success than IQ or socioeconomic status (Blair & Razza, 2007; Alloway, 2009). Furthermore, early interventions that target executive function (EF) can have lasting effects, improving not only cognitive outcomes but also social and emotional well-being (Diamond & Ling, 2016).

1.2.1 Developmental Trajectory and Plasticity:

EF skills develop rapidly during the preschool years and continue to mature throughout childhood and adolescence (Best & Miller, 2010; Zelazo et al., 2016). The prefrontal cortex, which underlies executive function (EF), is highly plastic during early childhood, making this a sensitive period for interventions aimed at strengthening these skills (Diamond, 2013). Importantly, EF is not fixed; it can be nurtured and improved through targeted experiences and teaching strategies (Diamond & Ling, 2016).

There is growing evidence that engagement with the arts, such as music, dance, drama, and visual arts, can be a powerful means of supporting the development of EF in young children (Diamond, 2013; Winner et al., 2013; Williams et al., 2016). Arts-based activities naturally integrate opportunities for children to practice and enhance EF skills:

- **Inhibitory Control:** Participating in music or dance requires children to control their impulses, follow rhythms, and wait for their turn, all of which strengthen inhibitory control (Williams et al., 2016).
- **Working memory,** which involves remembering song lyrics, dance steps, or lines in a play, exercises the ability to hold and manipulate information in real-time (Diamond, 2013).
- **Cognitive Flexibility:** Engaging in creative arts often involves switching between roles, adapting to new ideas, and solving problems in novel ways, all of which foster cognitive flexibility (Winner et al., 2013).

Moreover, arts-based learning environments are typically collaborative and emotionally engaging, providing rich opportunities for social interaction, perspective-taking, and emotional expression (Goldstein & Winner, 2012). These experiences not only support EF but also contribute to broader social-emotional development.

A growing body of research supports the connection between arts education and EF development. For example, Williams et al. (2016) found that preschool children participating in a music and movement program showed significant improvements in inhibitory control and cognitive flexibility

compared to their peers in a standard curriculum. Similarly, a review by Winner et al. (2013) concluded that drama and theatre activities enhance children's self-regulation, working memory, and perspective-taking abilities.

Arts-based interventions have also been shown to benefit children with executive function (EF) difficulties, including those with ADHD and autism spectrum disorders, by providing structured yet flexible environments in which to practice self-control and adaptive thinking (Srinivasan & Bhat, 2013; Goldstein & Winner, 2012).

The AoL intervention's broad impact on EF is attributed to its holistic approach: rather than isolating specific cognitive skills, it embeds EF training across diverse, real-world, and socially interactive artistic experiences. This dynamic, context-rich method may lead to more generalized and lasting improvements in EF compared to narrowly targeted interventions (Diamond & Lee, 2011)

1.3 The Impact of Creativity on Development in Young Children

Creativity plays a pivotal role in the cognitive development of young children, influencing a wide array of mental processes and skills that are foundational for learning and adaptation. Creative activities foster innovation and enhance cognitive flexibility, all of which are essential for healthy cognitive growth (Russ & Wallace, 2013; Kim, 2021).

Engagement in creative tasks encourages children to generate novel ideas, consider alternative solutions, and make independent decisions. This process strengthens problem-solving abilities and critical thinking skills, as children learn to approach challenges from multiple perspectives (Harris, 2016; Kim, 2021). Divergent thinking, a key component of creativity, is closely linked to cognitive flexibility and the ability to adapt to new situations (Guilford, 1967; Runco & Acar, 2012).

Creative expression, particularly through storytelling, role-play, and art, supports language development by expanding vocabulary, enhancing narrative skills, and improving the organization of thoughts (Nicolopoulou, 2010). These activities also provide opportunities for children to practice both verbal and non-verbal communication, thereby further supporting their cognitive and social development (Russ & Wallace, 2013).

Participation in creative activities such as music and pretend play has been shown to improve memory, attention span, and information processing (Moreno et al., 2011; Goldstein & Winner, 2012). By engaging multiple senses and requiring sustained focus, these activities help children develop the cognitive control necessary for academic success (Diamond, 2013).

Creativity nurtures cognitive flexibility, or the ability to shift thinking and adapt to changing demands. Through activities that encourage exploration and experimentation, children learn to generate multiple solutions and consider different viewpoints, which are critical skills for lifelong learning (Kim, 2021; Runco & Acar, 2012).

Creative experiences also support emotional regulation and the development of social skills. As children express their feelings through art or collaborate in group projects, they develop empathy, self-awareness, and the ability to work with others—skills that are intertwined with cognitive development (Goldstein & Winner, 2012; Russ & Wallace, 2013).

Creativity has a significant influence not only on cognitive development but also on the emotional and social growth of young children. Engaging in creative activities, such as art, music, imaginative play, and storytelling, stimulates curiosity, innovation, and mental flexibility —foundational elements for cognitive advancement (Kim, 2021; Russ & Wallace, 2013). Creative expression encourages children to experiment, solve problems, and think divergently, strengthening their ability to adapt to new challenges and environments (Diamond, 2013; Runco & Acar, 2012).

Beyond cognitive benefits, creativity plays a crucial role in emotional development. Through creative outlets, children learn to express and process their feelings, which helps reduce stress, build self-awareness, and foster emotional resilience (Goldstein & Winner, 2012; Harris, 2016). Artistic activities provide alternative channels for communication, allowing children to convey emotions they might not yet have the words for. This process supports emotional regulation and helps children cope with complex feelings such as anger, fear, or anxiety (Better Kids, 2024; Innovation Kit).

Creativity also fosters essential social skills. Collaborative creative projects, such as group art, music ensembles, or dramatic play, encourage teamwork, communication, and mutual respect (Williams et al., 2016). Working together on creative tasks helps children learn to share ideas, negotiate roles, and resolve conflicts —essential components of social competence. Furthermore, storytelling and role-play activities promote empathy by allowing children to see the world from different perspectives and understand the emotions and experiences of others (Goldstein & Winner, 2012; Jagers et. al, 2025). According to Lannert and Németh (2024), the arts provide a foundation for creating a creative learning environment where exploration, creativity, and individual expression are encouraged and valued.

1.4 Theoretical Framework

The present study is grounded in the World Health Organisation's International Classification of Functioning, Disability and Health framework (Simeonsson & Lee, 2017; World Health Organisation [WHO], 2007). It provides a comprehensive biopsychosocial model that conceptualizes functioning as a dynamic interaction among an individual's health condition, environmental factors, and personal factors (WHO, 2007). This model represents a significant difference from traditional biomedical perspectives by emphasising that health and disability are not solely determined by medical conditions, but are also shaped by contextual and social influences (Simeonsson & Lee, 2017). Within the framework, functioning is understood as a multidimensional construct, reflecting the complex interplay between biological, psychological, and environmental factors (WHO, 2025).

Recent research has also highlighted the significance of art and cultural engagement as mediators of health and well-being within the framework (Fancourt & Finn, 2020). Participation in artistic activities has been shown to foster social inclusion, self-expression, and resilience, which align with the ICF's domains of activity and participation (Fancourt & Finn, 2020; WHO, 2022). These findings highlight the significance of both environmental and personal factors in promoting holistic health.

The emphasis on dynamic interaction is consistent with Sameroff's (2009) developmental transactional theory, which posits that individual development is shaped by continuous, bidirectional exchanges between the person and their environment. This perspective underscores the importance of considering both individual and contextual factors in understanding developmental trajectories (Sameroff, 2009; Furlong et al., 2009).

Furthermore, Vygotsky's (1978) sociocultural theory underscores the foundational role of social interaction in cognitive and developmental processes. The concept of scaffolding, as described by

Davis and Miyake (2004) and Shabani et al. (2010), illustrates how optimal alignment between individual needs and environmental resources can promote development and self-efficacy. When there is a “good enough agreement” between the individual and their environment, this relationship provides adequate support and opportunities for growth in school children (Shabani et al., 2010).

Self-determination theory (SDT) provides a robust framework for understanding how school environments can either facilitate or hinder student growth and well-being (Deci & Ryan, 2004; Ryan & Deci, 2020). SDT posits that the positive development of intrinsic motivation for learning is contingent upon the fulfilment of three fundamental psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 2002; Ryan & Deci, 2020). When these needs are met, learners are more likely to demonstrate enhanced performance, persistence, creativity, vitality, self-esteem, and overall life satisfaction (Ryan & Deci, 2000; Howard et al., 2021).

Recent research has emphasised the critical role of educational environments in supporting these needs, particularly through pedagogical approaches that prioritize student agency, meaningful engagement, and supportive relationships (Jeno et al., 2023; Ryan & Deci, 2020). In this context, integrating art and creativity into early childhood education has emerged as a powerful strategy for nurturing intrinsic motivation and holistic development (Bamford & Wimmer, 2022; Williams et al., 2022). Artistic and creative activities offer opportunities for self-expression, exploration, and collaborative learning, all of which are closely aligned with the core tenets of Self-Determination Theory (SDT). For example, participation in creative arts fosters autonomy by allowing children to make choices and express their individuality, supports competence through skill-building and mastery experiences, and enhances relatedness by facilitating social interaction and shared meaning-making (Williams et al., 2022; Bamford & Wimmer, 2022).

Research on educational equity further contextualises the AoL program’s significance, emphasising the importance of inclusive pedagogical frameworks that accommodate diverse learners, particularly marginalised groups, by leveraging experiential and culturally responsive methods (Németh, 2018; Németh, 2023). AoL’s emphasis on democratizing participation, enabling students with varying abilities to contribute meaningfully reflects this ethos, offering a model for reducing disparities in educational outcomes.

Moreover, the literature on innovation emphasises the importance of co-creation and the active involvement of recipients, in this case, children, in the design and delivery of educational experiences (Lusch & Nambisan, 2015; Osborne, 2020; Osborne et al., 2021). The quality of interaction between teachers, artists, and learners, as well as the broader service system in which these interactions occur, are critical determinants of successful implementation and positive outcomes (Vargo & Lusch, 2016; Osborne, 2020). Recent studies have shown that when young children are engaged as active participants in creative, collaborative learning environments, their motivation, engagement, and well-being are significantly enhanced (Jeno et al., 2023; Williams et al., 2022).

2. Introduction to the Art of Learning approach

The Art of Learning (AoL) approach was developed and tested by Norwegian and Hungarian partner organisations within the AoL4STEAM Erasmus+ project. The programme aimed to build creativity and executive functions, thereby reducing educational disparities and supporting social inclusion. The AoL method supports learning through the arts and creative activities, while specifically strengthening children's cognitive control skills – the so-called "brain control system." Six primary schools in Norway and three in Hungary participated in the programme during the project. The Norwegian schools were: Fåset School (Tynset), Tylldalen School (Tynset), Alvdal Elementary School (Alvdal), Jørstadmoen School (Lillehammer), Søre Ål School (Lillehammer), and Aurvoll School (Øyer); while in Hungary, the Bártfa Utcai Primary School in Pécs, the Pécsi Sebestyén Primary School in Budapest and Mikszáth Kálmán Primary Schools in Soroksár were involved in testing the innovative educational model.

The implementation of the project was accompanied by quantitative and qualitative research. The qualitative study aimed to map the program's operation in schools and gain a deeper understanding of the participants' experiences and perceptions. Within this framework, individual interviews were conducted with principals, teachers, artists, and parents, as well as student focus group discussions. Based on these, the research reconstructs the program's reception, explores its operational characteristics, and summarises its effects so far. In the following chapters, the main themes emerging during the research are presented in detail.

3. Methodology

3.1 Methodological Approach

This study applies a qualitative methodological framework to explore the impact of Art of Learning programme across diverse school contexts in Hungary and Norway. The primary data collection method consisted of semi-structured interviews and focus group discussions, analysed using reflexive thematic analysis, informed by Braun and Clarke's framework (2023). The research design prioritised depth, reflexivity, and cross-contextual comparison to uncover patterns that transcend national boundaries.

3.2 Data Collection Procedures

Data were collected from a range of participants, including students, teachers, artists, and school leaders, across multiple schools in Hungary and Norway. Each country's dataset included both individual interviews and focus group discussions (See Figure 1). Participants were selected purposively to ensure representation of key stakeholder groups in each institutional context. All interviews and focus groups followed a semi-structured guide tailored to participant roles (see Appendix A), allowing for consistency across cases while also enabling flexibility to probe context-specific themes[1].

[1] Participants from both Norwegian and Hungarian schools are numbered consecutively in a single sequence. Therefore, no distinction is made between the two countries when citing quotes. Only the participant's role and their assigned number are indicated in parentheses following the quotation.

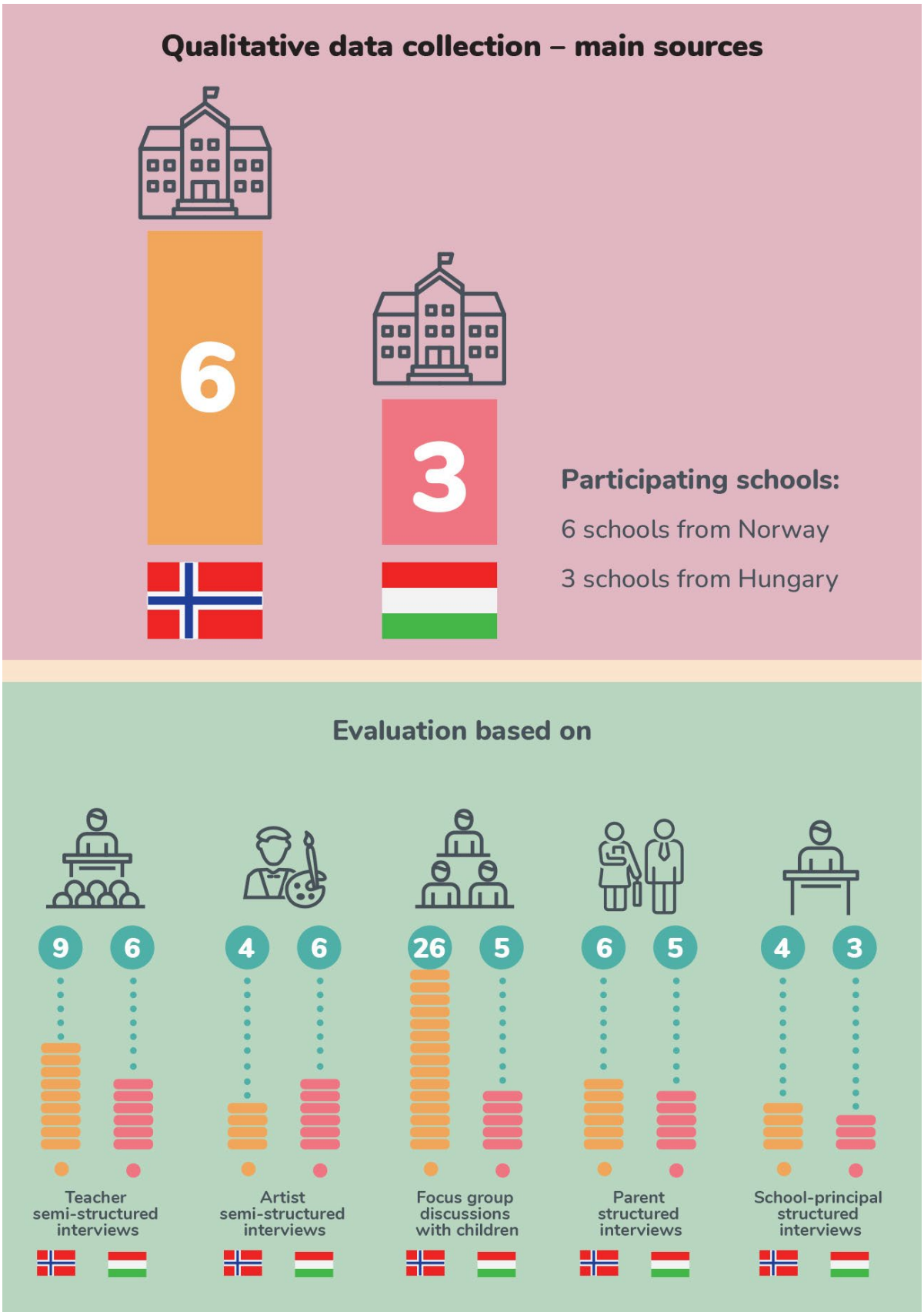

Figure 1. Main data sources and techniques of qualitative collection

3.3 Differences Between the Schools

The schools involved in the study represent distinct institutional environments. The Hungarian schools varied in size, pedagogical approach, and access to resources, ranging from urban schools with strong arts integration to more traditional rural institutions. The Norwegian schools, by contrast, operated within a centralized education system, but also demonstrated differences in implementation, particularly in how external artistic collaboration was integrated into the curriculum. These differences were considered during both data collection and analysis, providing a nuanced comparative framework.

3.4 Transcription and Data Preparation

All interviews and focus group discussions were audio recorded with informed consent, then transcribed verbatim and anonymized. Transcripts were analysed in their original language by researchers' native to each context. The transcribed material was coded using content analysis principles, with edge coding techniques applied to ensure precision. Codes were grouped into thematic code families, which provided the analytical basis for this study.

3.5 Analytical Strategy

The data analysis followed the principles of reflexive thematic analysis, as outlined by Braun and Clarke (2023). Initially, an inductive approach was adopted, allowing themes and patterns to emerge organically from the data. However, the analysis was not purely inductive; given that predefined questions guided the research, deductive elements were also present. This hybrid approach reflects an abductive analytic stance, combining data-driven insights with theory-informed understanding (Braun & Clarke, 2006).

3.6 Coding and Code Famililes

All coding was performed collaboratively by two researchers in each country, using an iterative process that allowed for refinement, removal of redundant codes, and thematic consolidation. Codes were organized into thematic families such as "Pedagogical Practices," "Collaboration and Roles," "Institutional Constraints," and "Student Engagement." These families formed the structural foundation for the main findings presented in the next chapter. A cross-national thematic comparison was also conducted, focusing on codes and themes that appeared in both the Hungarian and Norwegian datasets and were interpretable within a shared analytical framework.

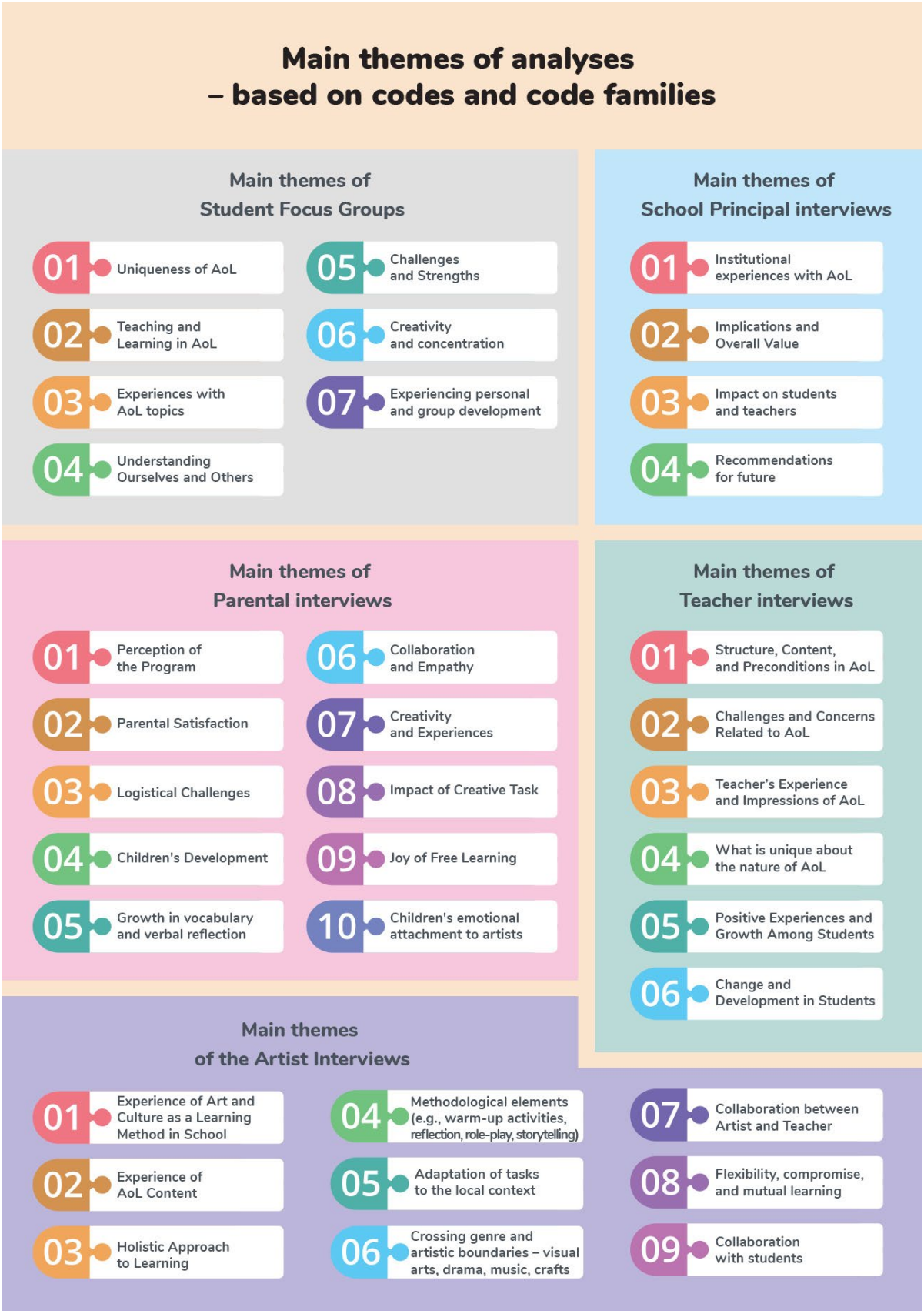

Figure 2. Main codes and code families by respondents

3.7 Collaborative and Reflexive Analysis

Each interview group (students, teachers, artists, school leaders, focus groups) was analyzed separately to retain contextual depth before cross-group and cross-country synthesis. Coding was conducted as a collaborative activity, in line with Braun and Clarke's (2022) emphasis on reflexivity. This process included critical reflection on researchers' own positionalities, potential biases, and disciplinary influences. Reflexive dialogue allowed the team to critically examine assumptions and interpretations, particularly during theme naming and the construction of cross-cutting analytical categories.

3.8 Reflexivity in Practice

Reflexivity was integrated into all stages of the research, from methodological design to thematic development. Both researchers analysing the Norwegian data come from a background in environmental psychology, which may have shaped their interpretations of the material. This common disciplinary lens necessitated ongoing reflection to avoid blind spots or implicit consensus. The researchers' perspectives were treated as evolving rather than fixed, allowing for adaptive reinterpretation of the data as themes emerged. Memos were kept throughout, as the researchers served as a check against over-interpretation and helped ground thematic categories in the actual data. The collaborative process, including iterative re-coding and cross-checking of interpretations, contributed to the trustworthiness of the findings.

This methodological approach allowed for the generation of robust, context-sensitive insights grounded in systematically coded qualitative data. The use of reflexive thematic analysis, combined with edge coding and the structuring of codes into thematic families, ensured that the analysis was both rigorous and responsive to the complexity of the educational settings studied.

3.9 Ensuring Rigor and Transparency

To ensure analytic rigour and transparency, all phases of theme development were documented, including memos and codebook updates. Critical dialogue between researchers served as a check against over-interpretation and helped to ground thematic categories in the actual data. The collaborative process, including iterative re-coding and cross-checking of interpretations, contributed to the trustworthiness of the findings.

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4. Main results

The results presented in the following chapter are derived from themes that emerged across both the Norwegian and Hungarian contexts and are interpreted in light of their shared and contrasting characteristics. These themes organise the experiences, opinions, and experiences that appear in the interviews, enabling a structured processing and interpretation of the data. In the following sections, we present these themes, as defined by the code families, in detail.

4.1 Pedagogical approach

Participants across groups described the pedagogical approach within The Art of Learning as notably different from standard/conventional classroom practices. A common theme throughout the data is that AoL represents a different way of learning, one that emphasises creativity, active participation and sensory engagement. Both artists and teachers noted how this approach uniquely captivates students, often more effectively than traditional instruction. The children's statements indicate that they experienced that AoL created an open and non-judgmental learning space, where exploration, curiosity, and self-expression are valued above correct answers. Several children reported that AoL felt more like play or free time than school, describing it as fun, engaging, and "magical." A recurring theme in the interviews with students is that AoL is experienced as multifaceted, where many subjects merge into a single entity. One student expressed how "it's sort of a subject made up of all of the subjects (Student Interview 22). Another student put it this way: *"It's more than just a subject, you know - it's sound, it's energy. It's a mix of different subjects." (Student Interview 3).* Students describe AoL as a space where they "learn many different things," "more than usual," and as "many subjects in one subject.". One student compared it to regular school: *"Regular school is pretty boring… because… in AoL we actually learn a lot more of the subjects we do in school. In AoL we have a whole lesson with lots of subjects at the same time." (Student Interview 23)*. The interviews highlight that learning in AoL happens in multiple ways: through making, playing, exploring, and creating. Reflected in the following quote: *"When we have AoL, we learn through imagination - using things, making things, finding things, playing things, all kinds of different things." (Student Interview 21).* Students speak about "learning with imagination," "learning through playing" and "making things," which they feel enhances their understanding. Some students also reflect on how they believe learning in Art of Learning is easier:

- *And it's more fun to learn in AoL than in math or Norwegian, because then it takes longer to learn.*
- *It takes more time to think in your head what something should become and stuff, but in AoL you just think it right away.*
- *Because you're having fun while you learn it.*
- *And if something is fun, then it's easier for your brain to figure it out.*
  (Student Interview 22)

The artistic dimension of AoL also contributes to the diversity of learning, as students note that the artists "knew so much" and introduced them to a variety of new topics and experiences. Hands-on, experiential learning stands out as particularly meaningful. Many express great enthusiasm for the

chance to build, invent, and create. Others describe how AoL enables them to learn through movement and activity, which they find both enjoyable and effective. Several students explicitly state that they learn more when they are physically engaged: *"I remember better when I am doing something in a subject. Then I understand what the point is and why we are going to learn this." (Student Interview 4).* There is also a strong awareness among the students that making mistakes is a part of the learning process. As one child put it, "*You learn when you get things wrong - then you know not to do it again." (Student Interview 9).* This openness to trial and error further supports the idea of AoL as a holistic and supportive learning environment.

Across groups, there were statements that AoL contributed to something different from regular practices. Artists reflected on the value of shifting the focus from outcomes to process, and from instruction to exploration, emphasising the importance of creating an open and exploratory environment that facilitates inspiration, curiosity, and engagement in students. This is illustrated in the following quote: *"It allows room for failure. Perhaps more so than subjects that are purely factual, only facts. It allows room for failure, it allows room to find your own path." (Artist 4)*. In AoL, this occurs through open tasks and shared engagement, rather than through explicit instruction and a set approach or procedure. Central to the pedagogical approach is the view of students as active contributors and co-creators, rather than passive recipients of knowledge. Several respondents emphasised that AoL supports deep understanding, even in complex subjects, by encouraging students to explore topics through multiple modes of learning. The practical and student-active approach to learning facilitates the application of theoretical knowledge in concrete and meaningful contexts. In interviews with artists, it is described how learning does not occur in isolation from real life, but within a contextual and holistic framework. Instead of learning subjects like mathematics, mother tongue and arts and crafts separately, the subjects are integrated into experiences that resemble real-life situations, such as planning and running a restaurant. In this example, students must make menus, calculate prices and prepare a budget. This creates opportunities for situated learning, where knowledge is applied in a tangible and relevant context. Respondents describe this approach as more comprehensible, as it enables students to see connections that may be difficult to grasp through textbooks alone. By "placing knowledge into situations", as one artist puts it, students are offered concrete illustrations of learning content. *"They get to learn so much more than just the academic and theoretical content we usually focus on in school." (Teacher 2)*

A student adds that *"In AoL, we get to use our bodies more instead of just sitting in a classroom learning things. Yeah, it's fun to learn math and stuff, but AoL is even more fun. In AoL, you don't just have to sit still at your desk - you get tasks to do…" (Student Interview 12).* The practical and playful elements - such as movement, improvisation, and material-based tasks - create excitement, curiosity and a sense of unpredictability that many found energising and inspiring. One student put it this way:

> *Norwegian is the same all the time, but AoL is like... we switch things up and do different stuff. We change every week. And Norwegian is just one straight line. But AoL goes like this (moves hands up and down) - it's way more fun, because you get to do different things. It's like having something new all the time. (Student Interview 3)*

This unpredictability was often seen as part of what made the learning captivating, although it also posed challenges. While the freedom and flexibility of AoL were described as empowering for many students, some teachers noted that those who rely heavily on structure or struggle with unpredictability found the format demanding. This was also highlighted as a challenge by some artists, with one citing: *"It has definitely been challenging with some children who struggle with sitting still - some need a greater degree of predictability than others. And of course, a program that changes so much from week to week has been a challenge we've had to deal with." (Artist 3*).

Nonetheless, the free structure was also viewed as a healthy challenge when embedded within safe and supportive conditions.

> *Yes, the downside is that it can be difficult for those who depend on structure. At the same time, they might actually have gained the most from AoL, because they needed to challenge themselves in that area — and they were able to do so in a safe environment. That's what I felt about the AoL project: the children got to practice being kids and individuals just as much as they worked on academic skills — only it was disguised. And you could see a huge transfer value later in regular lessons. It led to deep learning. (Teacher 2)*

At the same time, some students also reported experiencing boredom during AoL. In some cases, this was related to being asked to sit still, do something they didn't want to do or not being allowed to make their own choices: *"Sometimes it was fun, and sometimes it was a bit boring, because then we just had to sit still and were like, 'Why do we have to do this stuff', and it's kind of like that…"* (Student Interview 5). Another added: *"It's kind of boring to be inside for so long and just talk and stuff."* (Student Interview 14). The word boring is also used in connection with difficult tasks, or tasks they feel they cannot master. Others felt frustrated when their expectations of choice and influence weren't met: *"And when he promised us that we could decide a little, and then we don't get to decide anything. That's also boring" (Student Interview 15).* These reflections highlight the complexity of the experience of boredom among students, which is often tied to individual expectations and interpretations. It may indicate a lack of engagement, a mismatch between the task and the student's ability or preferences, or a desire for more autonomy and movement. In addition to boredom, the experience of noise was highlighted by students in one of the schools. Several described the sessions as "very noisy", and that chatter and disruption from other students affected their ability to concentrate and learn. *"It's fun but very noisy. They're talking all the time. It affects everyone. It's been like that every single time we've had AoL." (Student Interview 8)*. Another student commented: *"All of them are noisy, and noisy, and noisy... and the one who made noise had to be sent back to the classroom." (Student Interview 12)*. Others described how they wanted to learn but were repeatedly distracted by peers: *"It's been a bit bad with the boys. But most of the girls want to learn. But then I get disturbed by others." (Student Interview 12)*

Interestingly, other students from different schools reflected that AoL reduced noise and disruption, especially when the activities were engaging. One student described how this also affected the teacher, believing the teacher enjoyed AoL because of this: *"Like, then they don't need to do all the work with us, because we don't start making noise when we're doing something fun. Like math - not many think that's fun. There's a lot of talking and a bit of noise." (Student Interview 3).* This suggests that the level of disturbance may be closely tied to how relevant, motivating or engaging students find the content. Some teachers also highlighted noise and unrest as a challenge associated with the freer structures of AoL. One described how the program's unpredictability seemed particularly demanding for students who already struggled with concentration and regulation:

> *They ran around, screamed, couldn't sit still. It's unpredictable. They didn't know what was going to happen from one session to the next. We tried to prepare them, took them out with the artist beforehand to explain what would happen. But these are children who struggle in other areas too. So this becomes very unsafe. (Teacher 7)*

This was observed in connection with varying outcomes - while some students thrived in the dynamic and flexible environment, others found it overstimulating or chaotic, particularly those who were expected to benefit from the program. For some, this seemed to limit both participation and perceived benefit. Yet several teachers noted how, with time, some initially restless students began adapting to the structure and engaging more meaningfully.

Artists also found that their experiences of the program offered new perspectives on their own practice, with several describing the experience as both professionally and personally enriching. For many teachers, AoL challenged conventional pedagogical roles and traditional teacher-student dynamics and encouraged new ways of perceiving students' capabilities and needs. Several teachers spoke passionately about how the approach resonated with their own values and aspirations for education, describing it as deeply inspiring and even transformative for their own teaching practices. Some expressed that AoL filled a gap they had long felt in traditional schooling, offering a framework that allowed for greater creativity, depth and connection. Others took a more measured stance, acknowledging the value of the approach while also pointing to challenges in implementation, particularly related to structure, predictability, and ensuring academic depth. Some emphasised the importance of balancing AoL with more conventional teaching strategies, suggesting that AoL works best as a supplement rather than as an exclusive approach. In several schools, collaboration with artists sparked broader conversations about the culture of learning and the potential for integrating creative practices more systematically into the curriculum. Still, many participants also acknowledged that such a pedagogical shift requires time, adaptation and structural support, particularly when integrating AoL into established school structures.

4.2 Collaboration between teachers and artists

The collaboration between teachers and artists was one of the most important elements of the program. This method fundamentally determines the success of a given classroom activity and its impact on student development. For teachers, collaboration not only meant trying out new teaching methods but also provided an opportunity to integrate approaches derived from artistic practice into the teaching and learning process. For teachers, the involvement of artists posed serious challenges; however, the collaboration also brought new professional experiences that provided opportunities to enrich their teaching practice and make education more enjoyable for students.

> *At the same time, I think the sessions I got to take part in were really great. Lots of praise to our artist who has been with us. The collaboration has been absolutely superb. When you set aside time and plan together, things turn out better. So I felt it was a really wonderful addition to my own everyday work as well. (Teacher 9)*

One of the biggest challenges for educators was finding the right balance between their own pedagogical goals and the approach of the program, conveyed by the artists. In the interviews, several reported that they initially had difficulty finding common ground with the artists, as the pedagogical approach of the program was unusual for them and differed from their usual, traditional teaching methods.

According to one teacher, the program initially made her uncertain, but over time, she realised that the children were much more motivated and interested. Based on the interviews, it becomes clear that the teachers initially had to adapt to the new approach. Still, in the end, all of them reported that, after the initial uncertainties, once the practice of collaborating with the artist had developed and established itself, they all gained positive experiences and believed that they benefited greatly professionally from working together.

The artists, according to their account, sensed the teachers' initial uncertainty, but the students' positive reactions provided a sufficient basis for the establishment of mutual trust. One of the participating artists stated, *"The teachers were sceptical at first, but when they saw how well the children responded to the tasks, they also became more and more open (Artist 5)*." This suggests that

the first essential condition for establishing relationships between artists and teachers was the presence of patience, which was reinforced by the shared experiences in the lessons. The key to the success of teacher-artist cooperation was mutual respect, understanding, and a commitment to common goals. All of the teachers and artists recognised that the joint work had two basic goals: on the one hand, to provide a quality learning experience for the children, and on the other hand, to promote the development of the students' executive functions. Based on the interviews, they both emphasised that the program not only developed the students' creative skills but also contributed to their emotional and social development.

However, the same collaborative panels did not always lead to the achievement of common goals. The interviews also revealed differences in the way teachers and artists collaborated, especially when comparing the work taking place in the participating schools. While the relationships between teachers and artists working in one institution developed quickly and became more successful, for the pair working in another school, this process took longer. One teacher put it this way: "*It was more difficult for us to achieve the right common rhythm, as the tasks brought by the artist did not always follow the school customs, but then the collaboration became successful when we saw how well the children responded" (Teacher 11)*. This suggests that the differences between the schools, as well as the local environment and the students' needs, shaped the collaboration at varying rates.

> *As for me, I'm quite a bit of a polarist, let's admit it, so I'm quite, I wouldn't necessarily say Prussian, but I like it when things go well. For example, it was very difficult for me you can talk now, you can go there – in the beginning it was difficult for me. In this, I think I've changed quite a lot. I can accept that things are a little noisier or that things work a little differently. This is a plus for me, for example. (Teacher 10)*

The teacher quoted above explained in the interview that he enjoyed working with the artist. He said that they had worked together before, for example, in the Creative Partnership program, and the experiences there also helped them in their joint work. He emphasised that during their joint work, he learned a great deal from the artist in specific pedagogical issues, such as maintaining the children's attention and managing quiet moments. He said: "*I really enjoyed working together. For example, he was very good at how to make the children quiet, when to pay attention to them." (Teacher 10)*

The responding teacher also emphasized that despite their different habits, they were able to work well together: their differences and their distinct working styles did not cause any problems, but instead complemented each other. "*We are different, but the differences never bothered me. I learned from him how to approach things differently." (Teacher 10)*

For another participating teacher, sharing direct pedagogical experiences and exchanging opinions was particularly important. He and his artistic partner regularly discussed the tasks and shared their observations with each other. This type of communication meant a great deal to both during their collaborative work. The artist member of the pair also spoke positively about the collaboration with his teaching colleague, especially highlighting the communication practice developed in organising work processes and joint decision-making. They regularly discussed the experiences from the lessons and the tasks planned for the next time, which initially required more intensive coordination. However, as they got to know each other better, the joint work became smoother.

There were also minor disagreements in their working relationship, for example, the artist wanted to spend more time on a task, while the teacher felt that it would be too long, so they tried to find a balance:

There were a few times when we didn't understand each other, but it wasn't because it was difficult, but because our relationship to time was different. So, it was as if he wanted us to drag out the task, to do it differently, and then give it a little more time. And I said: no more! This is going to be long. (Teacher 13)

4.3 Teachers' and Artists' Perceptions of Their Role and Participation in the Art of Learning

The project's prerequisites and the teachers' well-being are directly linked to whether their experience of the project feels rigid and tied to it being a research initiative, or whether the teachers experience autonomy and ownership. Some challenges highlighted by participants related to the project's structure and framework. Being part of a research initiative was seen as contributing to a sense of rigidity, which at times made implementation difficult and led to frustration. There were concerns that the needs of the research and the Art of Learning were prioritised over those of students and teachers, even though the program was only meant to be one part of regular teaching. However, adjustments were made, and by the second year, the experience was described as significantly improved and more manageable. This is illustrated in the following quote:

> *I believe they are very positive about the content and format, but I think that the fact it was a research project somewhat ruined it. Precisely because the system became a bit too rigid. Consideration was given to the research. And that's how it is - or was. But at the same time, as I mentioned earlier, some of it was adjusted, which made things quite different in the second year. (Principal 3)*

According to teacher interviews, the program also had a significant impact on teachers' own pedagogical attitudes. Several reported that working with artists gave them a new perspective and an opportunity to rethink their relationship with students. One teacher put it this way: *"I learned to step back, it's better not to always be in control". (Teacher 14).* This change in perspective was powerful among those who were more open to experimental pedagogical approaches.

The program confirmed for teachers that students have many more hidden abilities than they can show within traditional pedagogical frameworks. Recognising this encouraged many to transform their everyday teaching practices into more flexible and creative ones. Several emphasised that the sessions changed their relationship with students, increased their trust, and reduced their need for control. One teacher put it this way: *"I thought that order had to be maintained, but here I realised that there were other ways to discipline." (Teacher 13)*

For the artists, the program served as a space for learning and professional development. Based on their feedback, participation in the program influenced their perspective on learning, children, and their creative roles.

While in the case of teachers, the transformation of pedagogical safety routines was primarily observed, the artists reinterpreted their own role perceptions, communication styles, and relationships with children. Personal experiences often emerged in the teacher interviews: several of them recalled with emotion the moments when a student did or said something that they had previously considered unthinkable. These experiences not only strengthened the students' development but also the teachers' commitment to their profession.

The program strengthened empathy, acceptance of spontaneity and inspired new approaches to managing student motivation in many teachers. They also received methodological tools and new perspectives, primarily through working with artists, which encouraged a more open and flexible approach to their work.

Feelings of gratitude, emotion, and inspiration marked the artists' responses. For them, an unexpected gesture, like a hug or a story they shared, had a deeper meaning than many of their previous professional experiences. These experiences not only reaffirmed the meaning of their schoolwork but also strengthened their creative sensibilities.

4.4 Coordination of Schedules and Integration of the Art of Learning

Another aspect described as a challenge during the initial phase in the Norwegian sample was coordinating the schedule and integrating the Art of Learning with the rest of the teaching. This involved, among other things, getting the artists and teachers to plan together - something that became easier over time as they got to know each other better. At the same time, it was noted that there were differences in collaboration across grade levels, partly due to one artist sharing a planning space with only one of the teams. This may indicate that for future guidelines in evolving AoL, it would be beneficial for the artist and the teacher to share a planning space to promote collaboration. This is illustrated in the following quote from a principal, who observed stronger cooperation between the artist and the teacher who shared a team room:

> *What was perhaps a bit challenging in the beginning was aligning the Art of Learning with the rest of the teaching - making it all fit together somehow and getting the artists and teachers to plan together, so that it wasn't a case of the artist planning Art of Learning and the teacher planning everything else and bringing them more together, in a sense. I'm not sure if it was a dilemma, but it was a challenge at first. It also became easier as people got to know each other. We also noticed a difference... at our school, the teachers sit in their own team rooms, and the artist sat together with one of the grade teams. And that created a slightly different connection there, compared to the other grade level that also had Art of Learning but didn't share the same team room. (Principal 3)*

This is an important finding, which emerged in various ways across the different analyses. In the Art of Learning, the interviewed groups express that the program places different demands on the learning environment. Several teachers, for example, noted that the large group sizes involved in the program require schools to have access to suitable spaces and to manage larger groups of children effectively. This was experienced as challenging for some. However, many reported improvements in the second year, as increased communication and adjustments to the program helped create a more manageable and supportive learning environment**.** Challenges related to the physical environment are also described in interviews with artists. Some experienced this as creating challenges during the learning activities; for instance, a room filled with toys and other distractions made it hard for the children to concentrate. One artist put it this way:

> *And then there was the classroom situation for first grade, which was maybe a bit unfortunate. We were in an after-school room (...), and they had just come from kindergarten. There were lots of tempting toys around, and they were supposed to sit in a circle... and they didn't have fixed seats. (Artist 2)*

In the previous example, a principal illustrated how having teachers and artists together outside of the classroom was a positive advantage that helped strengthen their collaboration and relationship. Teachers frequently highlight challenges related to how they are to implement and incorporate the Art of Learning into everyday routines and regular teaching. They experience that the program places demand on the physical environment, particularly in terms of needing large spaces, as illustrated in this quote: *"Then there's the issue of space - it's challenging to find suitable rooms for the Art of Learning. It requires a space where you can move around a bit. So that was a bit of a challenge." (Teacher 3.)*

4.5 Reflection and self-assessment

According to teacher interviews, an essential benefit of the program was that the students gradually learned to express their own thoughts and feelings, as well as to accept the opinions of others. Practising reflection and self-evaluation was not always easy, especially during the first few sessions. Still, according to the teachers' experiences, as a result of the sessions, it became increasingly natural for the children to form opinions about their own and others' work and their cooperative experiences. According to a teacher from one Hungarian school, "*They learned not to respond when they receive criticism, but to think about it.*" *(Teacher 12).* In the Norwegian material, respondents also describe how the children seem to develop a deeper understanding of themselves and others. The students themselves provide rich descriptions of how they perceive other people's feelings, motives, and body language. Often, these accounts relate to how they experience others, for instance, their teacher or classmates. Illustrated in the following quote by students reflecting on why their teacher enjoyed AoL: "*We could see it in their body language, that they were enjoying themselves. (...). They smiled a lot and were involved the whole time*." *(Student Interview 13)*

According to the teachers, the reflections were especially profound when the children were able to articulate their inner feelings and thoughts. The 90-minute time frame, the challenging environment, and the safe but exciting atmosphere, which the presence of the artists helped to create, were important for this. The tools for self-assessment were varied, including drawing, verbal, and movement forms, all of which allowed each student to provide feedback in a way that was appropriate for them.

According to the artists' reports, reflection and self-evaluation played an important role at the end of each session. For them, it was crucial that not only the creation but also the processing of it took place. For example, one of them put it this way: "*The last five minutes were often the most important – when they said what they felt or what they had learned." (Artist 7).* Another emphasised that "*when someone told us why something was difficult or good, that's when we connected.*" *(Artist 8).* These moments also provided feedback for the artists on their own work and how well they had reached the children.

There were interesting differences in who considered reflection important for what purpose. Teachers expected this exercise to develop students' metacognitive skills, while artists saw it as an opportunity for emotional sharing, connection, and closure of a shared experience. "*You didn't have to say 'smart things,' just what you were taking home with you that day. Honesty was the key*." *(Teacher 13)*

This topic was presented in a balanced way in the interviews of both teachers and artists. Both groups emphasised the importance of reflection, whether it was verbal or nonverbal forms, learning to give and receive feedback, the emergence of emotional self-reflection, or the temporal and organisational

frameworks of reflection. However, based on the detailed comparison, it is clear that while teachers primarily viewed reflection as a learning tool, for artists, it was more of a connection-building gesture. However, it is essential to emphasise that these two approaches are not mutually exclusive – on the contrary, they often complement and strengthen each other during the program.

4.6 Student and teacher feedback

Based on teacher interviews, the feedback received during the program was an important confirmation of the pedagogical effectiveness. On the one hand, the teachers observed the students' immediate reactions – for example, whether the children were looking forward to the sessions and were happy to talk about them – and on the other hand, they also interpreted longer-term impressions and behavioural changes as feedback. As one of the Hungarian teachers explained: "*When a little boy asked if the artist was coming today, I knew we were on the right track." (Teacher 14)*

Teachers also received feedback from parents and colleagues, which confirmed that the program had an impact not only on the children but also on the learning environment as a whole. Several mentioned that the children discussed their experiences at home, which piqued the parents' curiosity as well. A teacher highlighted: "*There was a parent who thanked me that his child was finally happy to go to school." (Teacher 10)*. This feedback was not only affirmative but also created an opportunity for the teachers to rethink their own work.

The artists primarily received their feedback from spontaneous reactions after class and emotional expressions during the sessions. For them, the children's smiles, openness, activity, attention, and attachment were the most important feedback. "*When they come over at the end and just give me a hug – that's the best feedback.*" *(Artist 5).* "*There was a little girl who drew me a sun. She said it was because she felt good. I keep it*." *(Artist 6).* For the artists, these gestures not only indicated that their work had had an impact on the children but also served as personal affirmation in building their own professional identity. Several of the artists mentioned that this feedback helped them believe that they could make a real impact in a school setting.

4.7 Teaching content and topic selection

Experiences related to the teaching content and the topics covered frequently arose. It was essential for the teachers that the themes included in the program aligned with the age characteristics and interests of the children, and that they were somehow connected to the curriculum content. Several highlighted that while the topics of the first year (e.g. friendship, loneliness) were too abstract for the lower grades, the more concrete and playful topics of the second year (e.g. energy, invention) were much more engaging for the children. A teacher from Hungary said: "*They couldn't understand the topic of friendship at this age, but in the energy session, everyone found something they could relate to." (Teacher 11)*. The concept of abstract thinking was also mentioned as a challenging aspect in the Norwegian sample. Some artists experienced that some concepts and content may be too hard to grasp for some children, and several pointed out that abstract thinking seemed particularly difficult for the students, especially in the first year:

> *We noticed that some of the tasks - or the themes, especially in the first year - were a bit too difficult. (...) For example, I remember being surprised about the abstract thinking. There was a theme called 'starting school,' and the children were asked to imagine what school would be like when they came back the next year. And they found that incredibly hard! And I was like... wow, is that really so difficult for them? So we had to make some adjustments. (Artist 2)*

By adapting their teaching methods, this artist reflects on how tasks that involved abstract thinking needed to be made simpler and more accessible. The artist had to use familiar concepts such as "What's your dream for the first day of school?" to help the children grasp the content of the exercise. This also highlights the important role the artist plays in making AoL understandable and engaging for the children:

> *We just had to make things more concrete. Did we make drawings? I can't quite remember. It was a while ago - a year. But I just remember they really couldn't picture the future, so we had to simplify things. Okay, what's your dream for the first day of school? Is your dream that the teacher hands out chocolate? Oh, that's super cool! They kind of got the idea, but not quite. Abstract thinking was definitely a challenge for them. (Artist 2)*

In addition, students themselves describe that abstract thinking and solving tasks and problems without clear instructions can be challenging. For instance, they express how it can be difficult to come up with or imagine something.

> *But there are some where I feel like... they're kind of like, what are we supposed to do now, what should we write, what are we supposed to draw. And then he just says, just draw. So everyone makes a little line on the paper, like, because we have no idea what we're supposed to draw. (Student Interview 15)*

From a practical perspective, teachers also observed how well the topics provided opportunities for subject integration. The best-performing sessions were those in which students not only gained experiences but also recorded new knowledge, for example, in fields such as natural history, environmental science, or literature. This was especially important due to the time frames, as teachers tried to maintain a curricular balance during the sessions inserted between lessons.

The artists approached the choice of topics for the sessions from a different perspective than the teachers. For them, connecting to the inner world of the children, reflecting on experiences and emotions, was a crucial aspect. However, individual differences can also be observed among the artists in this regard. While some preferred spontaneity and flexible content formation based on the students' reactions, for example, one of the responding artists required stronger structural frameworks and considered it essential to define the learning objectives in advance for each element of the given session, working with the teacher. This need became especially pronounced when the joint lesson planning with the teachers was not comprehensive or sufficiently detailed. Such different expectations sometimes generated tension, especially when the logic of the pedagogical and artistic thinking did not meet smoothly.

According to the interviews, the most successful topic for the artists was the "energy topic". This topic allowed for diverse associations, could be interpreted symbolically and playfully, thus enabling meaningful processing on both the level of the inner world of experience and social interactions. One artist stated: "*Everyone had something to say about the energy topic, also from their own experience. It was possible to talk about it playfully, but also deeply*." (Artist 8)

The teachers also highlighted the "energy" and "invention" topics as successful and effective activities. These were well-suited to the school curriculum and also suited the children's age-specific characteristics. "*With energy, it seemed that everyone could get involved, even those with weaker reading comprehension. And with the invention part, imagination soared*." (Teacher 10) The balance of the practical and creative aspects of the topics allowed the activities to be both developmental and experiential.

The creative nature of the program stimulated curiosity and exploration among the students through creative thinking and collaboration. Physical activity and movement can also be highlighted as another key aspect of *AoL,* providing opportunities for students to engage actively with their bodies in the learning process in a holistic manner. The themes «pizza» and «viruses» were the most frequently mentioned themes by students in the Norwegian sample. When the children described the pizza theme, they often used words like *"fun"* or mentioned that they were allowed to decide for themselves what toppings to put on their pizza. In their descriptions of the themes they were particularly interested in or enjoyed the most, they frequently highlight self-determination and autonomy, along with a sense of enjoyment. It also seems to be a positive experience for the children when they get to produce a tangible product: *"We drew pizzas with a partner, so we were just supposed to draw and have fun, and then one day we made real pizzas!"* (Student Interview 3)

> *"Because it was a really exciting theme, and I like pizza. So we had a warm-up, pizza pizza pizza, and then she just said pizza pizza, and then she held up a card with, for example... if it was ham, then everyone had to stand up if they liked it."* (Student Interview 1)

Several respondents' statements reflect that the themes in AoL have left a deep and lasting impression on the children. Through both excitement and emotional intensity, students recall specific experiences that have made a significant impact. In particular, some describe how creative and imaginative scenarios, such as encounters with a frightening troll, evoked strong emotional reactions, including fear and surprise. One student described falling off a chair in shock, some cried or hid, while another mentioned that someone might even have fainted. Both students and teachers vividly remembered these events: *"It was fun with the troll and pizza. Even though I started to panic." (Student Interview 2)*

Furthermore, some students' statements reflected strong impressions in the context of the end of AoL project. One student shared how the departure of the artist prompted tears among both students and adults, emphasising the strong relational bonds that had been formed: *"What I liked least was that it ended so quickly. On the last day, the artist had to leave, and we made a film for her. She started crying. Everyone started crying." (Student Interview 2)*. Another student expressed the program's importance in personal terms: *"I feel that AoL has been… almost the only thing I've had in life, because I had something that helped me a lot." (Interview 12).* These narratives illustrate that the Art of Learning was experienced as meaningful and with emotional value. Importantly, the depth of these impressions appears closely linked to the pedagogical approach and content. Both teachers, artists and principals stress that the program emphasises active and sensory-based learning, which seems to increase students' engagement and curiosity. In the group reflections interview, several highlighted how the use of concrete, physical elements in storytelling, such as footsteps outside the window and sound recordings, made the fictional topics feel real and accessible to the children. One of the respondents described how the artists managed to reach the students on a deep emotional level:

> *They weren't just told that there was a scared troll, there were physical clues. It was big, there was a mess, there were sounds, so they had a lot of impressions. I think you managed to truly*

reach their inner feelings, and work from that. (...) Some of them were anxious for days, and kept talking about the troll. (Focus group 3)

These statements suggest that AoL leaves lasting impressions on students. Rather than instructing the students on how to think or feel, the program creates situations where curiosity and emotions arise naturally, and students are allowed to utilise multiple senses. This approach deepens both engagement and learning outcomes.

According to parents' feedback, the *Art of Learning* program offered rich, varied and creative activities that provided a lasting experience for children. For example, one parent highlighted that "*He told me a lot about it. I was also aware of the individual program components. I knew about correspondence, viruses… And you just opened your mouth like that; those were good feelings." (Parent 7).* Several topics in the program captured the children's attention, such as the Solar System, about which one parent reported: *"He showed the Sun there, how they made it… It's still there, Mars is still there, Venus is still there… that's what he kept, it was the absolute winner*." *(Parent 8).*

One of the strengths of the program was that it aroused continuous curiosity: "*My daughter always said, 'This project is over now, but they didn't tell me what's next'.*" (Parent 10) The diversity and age-appropriateness of the topics were also outstanding: "*They covered really, really good topics… it wasn't categorised as only girls or boys were interested, but they found really good topics*." *(Parent 11).* For example, an eco-house building project helped to make environmental awareness understood:

The last time I built such an eco-house with one of my friends, I was really impressed when he told me that the window was that big, and that there was grass on the top, that it was a windmill, that it was something I don't know what, and when I looked, it was a really big structure built on a 40x50 cm piece of cardboard. And in the same way, when they built it out of pine cones, branches, and other things, it all had something to say, something to say. We discussed this at home as well, exploring why I bring a bag with me, why I don't ask for a plastic bag, why I fill my water bottle at home, and why I don't. But he also brought home a lot from inside, which was very positive for me, because these are the topics that I think we can use to build our future. (Parent 7)

According to parents, the program also supported the children's independence and self-expression, which had a great impact on them: "*For him, this was a field... something he thinks he can contribute to individually... he liked it*." *(Parent 11).* In addition, experiential learning was enriched by free, creative activities such as bunker building: "*Bunker building... was delightful and fun for them. They loved it, yes.*" *(Parent 11).* From another perspective, the so-called Lonely Dragon theme was mentioned as a favourite. "*The other big favourite was the Lone Dragon, which is about emotions. And so I think for him, this is exactly the beginning of adolescence, and now, or such problems are starting to emerge that I never thought would happen. But I think it was a huge help*." *(Parent 9)*. But the topic of the nature of viruses, the math block ending with baking pizza together, and the tasks processing the characteristics of the solar system were, according to every parent who spoke, their children's favourites.

This was our absolute favourite. I heard the most about it. Yes, he showed the Sun there, how they did it. Then they went out into the street and put the papers on the poles. After that, he displayed it in that manner for days. It's still there, Mars is still there, Venus is still there. So, that's what he kept, that was the absolute winner. (Parent 8)

According to the mother of a little girl, her child did not have a favourite subject because:

> "*She found her favourite moment in each one. So, like in the correspondence with the Norwegian children, she was writing a letter at that moment. And that she received a letter. And how can we imagine it, and she told us about it. Then the planets were also mentioned. "Mom, imagine, the whole room was covered with the Sun that we painted! See?" It was up for a long time. They tried to put it on the lamp for us, somehow, and the poor little Sun hung there, drooping a little, but it was very good, because every morning you could see it waiting for them. And any other program, like the pizza baking, when we went and were there, I also accompanied the group, and as I saw, the children really loved every single moment of it. So, she found beauty in each one. (Parent 7)*

Several parents highlighted that they also felt good about their children constantly reporting on the activities at home, as it allowed them to gain a better insight into their children's everyday lives.

> *He told me a lot about it. I was aware of the individual components of the program. I knew about the correspondence with the Norwegian children, about viruses. When he started to throw those words, Latin words that sounded completely foreign to me, here and there, saying them. And you just opened your mouth like that, those were pleasant feelings. (Parent 11)*

According to parents' feedback, one of the program's outstanding strengths was the effective collaboration between teachers and artists. One parent put it this way: "*The teacher and the artist were able to work together very well; they are very different, at least in our case, but they were amazingly good at bringing what was important from their own fields. They complemented each other very well." (Parent 10)*. This suggests that the different experiences and knowledge of the two professionals were well combined, enriching the sessions.

They also highlighted that artists worked with the children with extraordinary sensitivity and attunement: "*She was able to connect with the children very, very well… she already knows what to expect from everyone, how to approach them, but she connected with them very well.*" (Parent 9) This personal attention and care had a profound impact on the children, as shown by the fact that one of the girls expressed her gratitude with a gift on her own initiative: "*It has never happened in the past two years that she has given someone a gift like this on her own… I think this is the gratitude of positive experiences*." (Parent 7)

4.8 Teachers' personal experiences and change

A key finding in the analysis of the teachers' sample is that, for the vast majority, there is a clear shift in their experience of participating in the Art of Learning over time. The principals also noted this. Initially, the experience is overwhelming and challenging. A common thread across the analyses—whether of teachers, principals, or artists—is the shared perception that adaptation is essential for the program's success and feasibility. In the teacher analysis, this adaptation is linked to their experience of change. The two appear to be mutually reinforcing, with teachers' sense of change closely tied to the perceived adjustments in the program, which in turn foster a sense of security and ownership among the teachers.

A sense of uncertainty at the beginning and a gradual improvement in the program is shared by the vast majority. According to the teachers, a key factor in enabling this positive development is increased involvement and a sense of having the opportunity to influence the project. In this process, the collaboration between the artist and the teacher is also crucial, with both parties feeling that they actively contribute to the Art of Learning. Initially, some teachers feel that their role and pedagogy

are pushed aside, and that the Art of Learning framework does not sufficiently address important academic guidelines and requirements. This appears to improve over time, alongside the development of the relationship between the artist and the teacher, as illustrated by this teacher: *"But I think it worked itself out over time, and we found solutions together with the artists, so it got a bit better." (Teacher 5)*

Several teachers also felt that the experience of having an AoL contributed to their teaching and pedagogical approach:

> *At the same time, I think the sessions I was able to participate in were really good. We extend our sincere gratitude to our artist, who worked with us - the collaboration was excellent. When you set aside time and plan together, the result is better. So I felt it was a very welcome addition to my daily work as well."(Teacher 9). Some teachers also describe how they carry forward elements of The Art of Learning into other areas of their teaching. "(....)But I notice that I carry a lot of it with me—it's kind of always in the back of my mind, and I think, how can I approach this through The Art of Learning?. (Teacher 8).*

A central finding, spanning nearly all teachers across the different schools, was an initial concern about the children's academic results during their participation in the Art of Learning project. The teachers initially expressed personal concerns related to national assessments, curriculum objectives, and student progress. Several described an initial concern and uncertainty about whether the students would meet all their goals and whether they would miss out on something due to the length of sessions and having less time for other subjects.

> *I know that when we started, we were very unsure about whether we would achieve all the goals we had planned, and whether we would be able to fulfil the curriculum goals we were supposed to. Because we were very rigid at the beginning, with three days a week and an hour and a half, we were quite unsure about whether we were missing out on anything else. But then we gradually saw that we, the students, were where we wanted them to be. They were consistently performing where they should be. So we probably think that the way we worked, even though it was new to us... we didn't do that, considering the goals we were supposed to achieve. (Teacher 1)*

Over time, a shift occurs in the teachers, from their initial feelings and concerns about the project, to the experience they are left with. Most teachers report that their initial concerns regarding learning objectives are no longer present at the time of the interviews, and they feel that the children have met age-appropriate goals despite participating in the Art of Learning. AoL becomes part of the learning process. One teacher adds that: *"During an AoL session, they might have a little English, a little math, writing and reading practice, practising in collaboration, without it feeling very intrusive that we have to get this and that to cover a goal. In AoL, it comes very naturally." (Teacher 3)*

Several teachers also experienced change in the form of personal growth and a more profound sense of meaning in their professional roles through their participation in the Art of Learning. Both teachers and students have become more open to making mistakes and learning from them, and the teachers themselves speak about how they have become more willing to take risks. It represents a different way of working that pushes them out of their comfort zones. They describe gaining self-awareness and experiencing growth in their roles as both educators and artists.

> *But through AoL, I've seen what's possible. There are no limitations, such as the number of students. There are fifty-four in our class. We've had arts and crafts with all of them, and other teachers are just like, "What? How did you manage that?". Because arts and crafts with fifty-four children can sound like a nightmare. But through AoL, it's not a nightmare. It works really*

well. You just have to be open to the idea that it's possible. AoL has broken down some barriers, where you have thought, "oh no, you can't do that, how can you justify spending time on this?". There's so much more that's possible in a classroom than just sitting and reading at a desk. (Teacher 3)

4.9 Student skills and development – executive functioning

Across participant groups from Norway, the Art of Learning program was consistently highlighted for promoting the development of students' executive functions and abilities, including cognitive flexibility, problem-solving, inhibition, self-regulation, and self-awareness. A recurring theme in the interviews with artists was the observed improvement in students' self-regulation, including their ability to plan, adapt, and complete tasks despite setbacks. In both artist and teacher interviews, it was described how students increasingly demonstrated a willingness to make mistakes, reflect on outcomes, and, if necessary, try again - behaviours that were closely linked to the program's open-ended structure. Rather than relying on direct instruction or clear-cut answers, students were encouraged to engage independently with tasks, which in turn fostered ownership of their learning process. Both artists and teachers noted a gradual shift in students, from reliance on adult approval to increased autonomy and confidence. As one teacher put it:

> *There were many exercises that were like… You have the answer. Whatever you interpret it as, that's the right answer. And I thought that was so wonderful. That not everything is right or wrong. They're so used to a correct answer, like 'Oh, I have to do it right.' I think many kids get that constantly. So, to get that sense of 'I get to decide what a virus should look like, yeah, if I'm going to create a virus in shapes... I decide that myself.' It was very noticeable how, in the beginning, the children kept looking for a correct answer. They would come and ask, 'Can I do it like this? Is this okay?' But over the year, they understood that they got to decide for themselves. I thought that was fantastic. Especially that creativity. That childlike imagination that is so creative and magical - they got so much more room to express it. (Teacher 8).*

The development of independence and independent thinking was evident, among other things, in students' growing ability to take initiative and carry out tasks, use creativity, work together and provide feedback to themselves and their peers. An artist put it this way: *"Their first reaction during the first two or three months was to ask the teacher, 'What's right?' But then that changed - there were fewer and fewer questions like 'What are we supposed to do?'… I believe they started to give themselves their own validation." (Artist 4).* The students' ability to solve problems independently is also reflected in the following quote from a teacher: *"They can be told what to do, and then they get started and find their own methods to solve it, and I think the project has influenced that. Here's the path, there's no wrong way, and we can do it how we want, and then we find a solution…" (Teacher 1).* Students' ability to take initiative and work together in AoL was also highlighted by principals, for instance, in the following:

> *To see how good the children became at cooperating... When the children were given a challenge to work on, they got really good at delegating tasks among themselves. When they had to solve a group task, they could switch who did what. It worked - they became good at it without getting upset with each other. They became good at recognising each other's strengths and challenges, and delegated based on that rather than their own ego. They developed the ability to work together and to get started quickly. That was especially true for the grade levels that participated a lot in this. They managed to take on almost any kind of*

> *challenge and get started without wondering 'what do we do now?' They collaborate and delegate tasks to each other to solve the assignment. That's typical for those who've been involved. I also think that the children who have participated in AoL are good at taking responsibility for their own work in class. They're really good at working - both with desk assignments and tasks that involve collaboration or other types of activities. (Principal 2)*

Respondents emphasised students' enhanced problem-solving skills and cognitive flexibility, describing how they learned to adjust their strategies in response to changing circumstances and were able to switch focus between tasks. Students were described as gradually becoming more capable of adapting to new challenges, thinking creatively, and managing uncertainty. A key factor in this development was the open-ended nature of the activities, which often lacked a single correct answer and instead encouraged exploration, experimentation, and multiple approaches. As a result, students were prompted to rethink their strategies, remain open to new perspectives, and develop flexible thinking. This flexibility was particularly evident in problem-solving situations, where students had to explore solutions independently, adjust their approaches in response to setbacks, and tolerate ambiguity. Respondents emphasised that students became more accepting and tolerating of discomfort and mistakes, showing increased perseverance when tasks did not go as expected. As one artist reflected: *"It became more flexible when they realised we can't always plan or have answers ready, we have to think differently - if things don't work as expected, we try another way. Then we get that flexibility. I saw a lot of growth there." (Artist 4)*

Artists and teachers alike observed improvements in students' ability to switch focus between tasks and adapt to varying formats. The variety of learning activities and the frequent transitions between methods challenged students to adapt flexibly to changing environments. In addition, the unpredictable structure of the sessions, where students did not always know what to expect, helped them develop the capacity to handle change and consider new perspectives.

> *I've experienced that there's been a lot of development when it comes to, among other things, being able to transition from working on one task to moving on to another. … In the setup, it's built into the structure, even if it's not very visible, and of course, that's challenging at first. I've seen major development, and I've received feedback from teachers who've noticed the same. (Artist 3)*.

Reflection was also identified as a crucial component of the program. Respondents noted that each session included time for students to reflect on their experiences, which supported their ability to think about situations in more than one way, reflecting cognitive flexibility.

Finally, the program appeared to strengthen students' perseverance. Many respondents described a shift in students' ability to keep trying despite experiencing difficulties or failure. This resilience became a natural part of the learning process, as children learned not to give up when faced with challenges. One artist captured this development, stating:

> *I saw over time that there was more patience in not cracking the code right away, and that.. that they managed to do it despite things getting difficult, and that they didn't just give up! I really saw that they strengthened themselves, we won't give up. We do difficult things, and we can do it. It became something we said very often. I think the perseverance and the ability to just keep going even if it got difficult or not quite the way they wanted, I mean, that's important. I saw it grow in these kids. (Artist 4)*

Both artists and teachers expressed surprise at how long students were able to maintain both focus and concentration during sessions. Artists attributed this to the engaging and varied nature of the program, where students are actively participating and invested in their work. The open-ended approach was seen as particularly effective in supporting focus and perseverance, even in the face of frustration or difficulty. Teachers and principals noted that students often managed more advanced tasks than initially expected, many of which were different from what might be considered regular school tasks. Students themselves reported improved self-control, such as raising their hands rather than calling out and becoming more patient; one student described an experience of becoming "better at dealing with boredom." Artists also described episodes where the students entered states of deep focus or "flow" during creative activities, suggesting that the program supported executive functioning in embodied and meaningful ways.

Several respondents also emphasised the importance of memory in managing complex tasks, noting that students became increasingly adept at remembering and following multi-step instructions. Several emphasised the role of physical engagement and sensory experience in supporting memory retention, which is facilitated through the Art of Learning program. As one artist put it: *"Just the fact that you experience things with your body has something to do with it. It makes you remember things much better." (Artist 2)*. Children themselves also commented on how movement and physical activity helped them learn more effectively. Some shared that they remember more easily when being allowed to move, in contrast to sitting still behind a desk. While an artist reflected how the active and practical nature of the program seemed especially valuable for students who find traditional desk-based teaching difficult: *"And I recall some students who maybe… how should I say it, who maybe don't remember things so well by just memorising, they remembered a story really well because they had acted it out with their bodies." (Artist 2).*

According to Hungarian teacher interviews, one of the most striking benefits of the program was the development of students' skills, which was particularly evident in the areas of communication, self-expression, cooperation and self-reflection. Teachers highlighted in several cases that students were more courageous in expressing their opinions, were better able to express their feelings, and used longer, more coherent sentences. One of the teachers stated, "*Now they speak beautifully and coherently. They use rounded sentences, which was unthinkable at the beginning of the year*." Cooperation between students also improved, with an increasing number of students involving their peers in group tasks, learning to listen to others and adapt.

According to the teachers, the change was particularly noticeable in students who were previously withdrawn or quiet. These children became more active as a result of the program, and in many cases even took the initiative in working together. For example, a teacher reported this: "*He always sat in the back, didn't speak. Now he asks to say what he thought. This is a huge step forward*." *(Teacher 9).* Teachers often noticed such changes not only in the sessions but also in other classroom situations, indicating the transfer effect of the program.

The artists also repeatedly discuss the students' development of skills, but they emphasise momentary breakthroughs, as well as emotional and creative expressions. For example, one of them recalled: "*There was a girl who was silent for months, then suddenly she came forward and told her own story.*" *(Artist 5).* Another artist also reported that "*I saw her laughing for the first time, not just smiling, but dissolving*" *(Artist 7).* These experiences can be interpreted as signs of the students' self-confidence and emotional liberation, which reinforced the meaning and impact of the sessions for the artists.

There were also some differences in how the artists interpreted the concept of skill development. While one focused more on creating emotional expression and security, others emphasised the independence and decision-making that emerged during play. For them, development was truly noticeable when students not only participated passively but also shaped events. The spontaneity and creativity that emerged during the sessions gave space to the development of skills that are less emphasised in traditional education.

Based on the comparison, it can be concluded that teachers observe student development in the long term, at a systemic level. At the same time, artists interpret changes along individual moments and emotional breakthroughs. For teachers, the development of skills not only confirms the value of the program but also its pedagogical embeddedness. For artists, however, these experiences are a testament to the success of co-creation and human connection. Both perspectives are equally important, and together they provide a more comprehensive picture of the program's impact.

The emphasis of the topic is robust in both interview groups, but it appears more frequently and in more detail from the teachers. The subgroup thematization encompasses the development of verbal and nonverbal communication, teamwork and social skills, self-confidence and emotional openness, as well as the ability to self-reflect and make independent decisions.

Parent feedback indicates that the *Art of Learning* program has contributed to the development of children's executive functions, particularly in areas such as self-control, self-mastery, and teamwork participation. One parent put it this way: "I *see a lot of development points in my own little boy or some of his classmates, the same thing about working in a team, but still being able to contribute something to the common, self-control, self-mastery individually.*" *(Parent 10).* The children not only learned to cooperate in a group but also took on individual responsibility while working together.

The program also strengthened the ability to cooperate. According to the parents, it was an essential experience that the children learned to share tasks and give each other space: "*draw this part of the solar system together, and then let the other person draw too. I don't just dictate… but I let the other person have a little influence*." *(Parent 12)*. This kind of cooperation presented a challenge, especially for those children who had a harder time adapting, but they managed to improve during the program.

Parents highly appreciate the program's impact on developing creativity and repeatedly emphasise the vital role that children's creativity plays. For example, one parent highlighted: "*He is fundamentally very creative, and he received such confirmation that there is a place for this in the world.*" *(Parent 8).* They positively evaluate that the program not only provided an opportunity for creative development but also offered positive feedback, which reinforced the children's belief that creating is a valuable activity.

Another feedback stated that the program was not just a leisure activity, but also served functional, developmental purposes: "*not just a leisure activity, but also one that can be used for other purposes as well.*" *(Parent 7).* This suggests that parents perceived the practical, everyday life benefits of developing creativity. Parents also reported that during the creative tasks, the children were not only able to implement their own ideas but also worked together, with their individual contributions being valued. This joint work also supported creative thinking and problem-solving. *"I saw the creative approach, that it really wasn't based on a standard template, but that everyone could add their own flavour to it, as dictated by their personality. So, I was very happy about it." (Parent 11)*

4.10 Influence on learning motivation and creativity

Beyond executive functions and pedagogy, participants reported several broader effects and outcomes, which appear to manifest at both individual and group levels. One recurring observation is that students seemed to be more engaged in school and demonstrated a greater sense of mastery and self-confidence. Teachers and artists reported that open-ended tasks encourage the students to explore, think creatively, and make mistakes. This, in turn, contributes to a sense of mastery and development of self-efficacy and self-awareness. This development is also evident in interviews with the students, for example, when asked if they have noticed any changes in themselves during the years with AoL:

> *Yes, I've felt much more, like, much more like I can open up from inside myself. And also, kind of like… I've gotten more out of my body and dared to speak up more. Before, I really didn't like going up and speaking in front of the class. But now I dare to do it, no matter what. AoL has made me a more open person, so I feel much better when I have to speak in front of the class. I feel calmer than I used to." (Student Interview 12).* Another student adds: *"There are two things. The first is that I've become more… At first, I didn't always dare to stand and say a lot of things in front of other people, not even in front of the class. AoL has helped me dare to do that. And the second is that I feel bigger than I was when I started. Because they've helped us a lot in AoL. (Student Interview 13).*

Some students also describe how they believe they've become more curious during their time with Art of learning. AoL fosters experiences of mastery in a broader sense than traditional teaching by offering tasks that are broad in scope and invite exploration, collaboration, and reflection. Many describe how students surprise both themselves and the adults with what they can achieve. This may be related to the structure of the AoL-project, which allows students to meet tasks at different levels and from various perspectives. This promotes mastery for everyone, regardless of their starting point. As one child put it: "*AoL is something everyone can join in on. You don't really need to know that much*" *(Student Interview 25).* Students had the opportunity to participate, try, and contribute in various ways. Teachers describe how open-ended tasks reduce the fear of failure, enabling students to become more independent, confident, and willing to take initiative. At the same time, some teachers report that a few students appear to struggle with mastering the program. Often, the structure and lack of predictability are cited as reasons for this. These respondents, however, noted that most students appear to experience mastery in AoL.

Artists also highlighted that students experience mastery in areas not typically emphasised in the school day. Students show strength in practical tasks, creative exploration, and fantasy. Many describe how students develop a stronger sense of autonomy through AoL, observing that students become more self-directed and increasingly become co-creators in their own learning. They also note that tasks in AoL often result in tangible products, such as exhibitions or inventions, which help reinforce the sense of achievement. The students express pride in showing off what they have made, and talk about it at home and to others at school. In interviews with teachers, several report that students who struggle with traditional subjects "flourish" in AoL and take on new roles within the group, which also enhances their overall well-being and motivation at school. Several respondents from the Norwegian sample, in particular in the teacher analysis, use the expression "blossom", or flourish. It is used when describing an account of an exceptionally positive experience with the program, where some students benefit especially and truly thrive: "*I saw students who struggle with*

various things truly flourish in AoL. The other children really saw that student differently after AoL." (Teacher 5)

The experience of mastery is described as both individual and social in nature. On one hand, students experience that they can handle something themselves. On the other hand, they can contribute to the group and receive recognition for their efforts. Several principals and teachers note that AoL fosters a sense of inclusion and belonging in the classroom. Students work together and experience progress together. They help one another, learn from each other, and build relationships across traditional classroom groupings. Many children described forming new friendships or developing relations due to collaborative work, often with children they hadn't worked with before. This is also a form of social flexibility. Collaborative work is central to the program's structure and daily activities, and participants across groups have experienced an improvement in collaboration, including the students themselves.

Relationship-building also supports the development of social skills, such as cooperation, communication, and responsibility, as well as an understanding of oneself and others. Understanding different points of view, strengths and weaknesses. Students learn about themselves and become more aware of their own strengths and weaknesses.

> *When the children were given a challenge, they became very good at delegating tasks among themselves. When they had to solve a group task, they could take turns doing what? It worked; the children became good at it without getting mad at each other. They became adept at recognising each other's strengths and challenges, and delegated tasks based on that, rather than their own egos. They became good at working together and getting started quickly. (...) They collaborate and delegate tasks to each other to solve the task. That is typical of those who have participated. I also believe that the children who have participated in AoL are good at taking responsibility for how they function in class concerning their own work. (Principal 2)*

> *And that you don't separate students so clearly, because in AoL you take care of those who are socially strong, they can flourish musically, and in drama.. In other words, all other aspects of a person other than academics. And that children are also more aware that yes, you are strong physically and you are strong mentally. Yes, I think that part where you build up the children's strengths, they get to explore their weaknesses. They get to learn so much more than the purely academic and theoretical stuff that we often have in school. (Teacher 2)*

Several Hungarian parents reported that their child was intensely involved in specific program topics, which not only inspired them in terms of content, but also reflected in their home activities. (For example, a little boy shared what he learned in the sessions with his younger brother. "*When, let's say, they talked about the planets and outer space. Well, he was like that for a few days, and he taught his younger brother the planets one by one, how they are.*" (Parent 8) According to the experiences recounted by the parents, the experiential nature of learning continued at home. They also reported that several of the content learned during the program emerged in a completely different environment than at school. This was the case when one of the young children, during a playful task at an educational event for children organised by the medical students of the University of Pécs, called the lungs a respiratory factory.

My daughter is very interested in the functioning of the human body. And here in Pécs, I think it's the 13th time now; there was a Teddy Bear program that medical students participate in. So, we had to go there, and when there was such a task, where they gutted a teddy bear, so that in proportion, what organs it has, and then they asked each one, "Do you know what kind of organ this is?" And when she said that "the lungs are the respiratory factory," everyone was surprised by what this child was saying and why she was saying it. And then she told the medical students that 'We have the art of learning at school, and that's what we call the lungs there. ' And then I started thinking about it, so that not only did I like the fact that she uses this knowledge not only within the walls of the school, but that even though we go to a completely different environment, another person can do the same thing there, and the same thing there. "It comes to mind that this is the same thing. (Parent 10)

The mother also had a similar opinion, saying that after a while, the children felt strongly that they were able to use the so-called "*old knowledge, combining it with new things.*

According to another parent, the school experiences gained during the program had a liberating effect on his child: "*It was such a liberating part of school for him*," to which the parent also attributes a long-term impact. The freedom and creativity experienced within the framework of the program – in the parent's opinion – contributed to the increase in the child's internal motivation, which is also well indicated by the development of an independent interest in reading: "*now he takes out books on his own, so he doesn't have to be forced to read*." *(Parent 11)*

The more informal, friendly nature of the learning environment also appeared as a positive experience in the feedback: "Mom, it was so good that you didn't have to sit in a bench, so you didn't have to be so awkward, but where they fell, puffed, or sat around someone, and then they worked like that, or talked like that, or read like that." According to the parents, the dismantling of traditional classroom rigidity supported the children's freer participation and community cooperation. *"The benches were pushed apart, the children loved that the benches were apart, and then they rearranged them. It was really, really good that there was a lot of movement." (Parent 8)*

It was obvious that the child was fully motivated by the fact that it gave him a lesson, a framework for his life, where he could create, learn, learn through play, and he was not obligated to sit down and do 10 pages of math problems, all of which are written on the same piece of paper. (…) Here, the teachers and artists managed to arouse the children's interest in the individual topics to such an extent that they absorbed them like sponges. (Parent 7)

According to the parents' experiences, the *Art of Learning* program provided an experiential, creative, and inclusive learning environment that simultaneously supported the children's independence and self-confidence while promoting community cooperation. The feedback also shows that the program was free from traditional evaluation constraints: "*There is no grading, saying good or bad… this is my opinion, which I think is difficult to learn even as an adult*." *(Parent 11).* This contributed to the children being more courageous in sharing their thoughts and feelings and enjoying more informal learning situations: "*At least he told me… that he was much freer*." (Parent 11)

Parents often mentioned that the program created a safe, supportive environment. One of them put it this way: "*This program, it was like a refuge for them… a lifeline…a shelter… that we just had something to dissolve in*." (Parent 10) The children's motivation also remained high: "*It was obvious that the child was fully motivated by the fact that it gave them a lesson, a framework for their life, where they could create, learn, and learn through play*." *(Parent 8)*

4.11 Building creativity

Throughout the analysis of interviews and focus group discussions, creativity consistently emerged as a central and cross-cutting theme. Across all participant groups—including students, teachers, artists, and school leaders—creativity was frequently described not only as a pedagogical tool but also as a fundamental mode of expression, engagement, and connection. Within the context of the *Art of Learning* program, respondents offered rich accounts of how children were given space to express themselves creatively, and how this expression fostered emotional safety, self-confidence, and intrinsic motivation.

Teachers spoke about creativity from multiple angles: some emphasised how the program encouraged them to adopt new, more playful or student-centred approaches, while others reflected on how it validated and enhanced practices, they already considered creative. In several cases, creativity was not seen as an isolated activity, but as a pedagogical mindset—something that informed the structure, atmosphere, and relational dynamics of the classroom.

According to interviews with the children, the Art of learning program was experienced as a stimulating and creative learning environment, where a wide range of topics are explored through hands-on, imaginative activities. One student described AoL as follows: *"That's where we learn lots of different things, and that's where we use the creativity in our heads. We've had many topics, so many topics. And we've made so many things too!" (Student Interview 2)*

It is clear from the children's expressions that creativity means much more to them than simple inventiveness or handicraft. According to the focus group discussions, children primarily experience creativity as freedom of thought, an independent search for solutions, and persistent problem-solving. For example, a second-grade student defined creativity as follows: *“If he figures something out, he wants to do it until he can do it. He doesn’t give up.” (Student Interview 27).* This definition clearly shows that for children, creative thinking involves not only the birth of ideas, but also their consistent implementation. For example, third-grade children approached creativity this way: *"There's something missing, and I really need it. Then I just invent something and use it." (Student Interview 29).* Another student expressed it this way: *"I don't count with numbers, I count with butterflies." (Student Interview 31)*

These figurative expressions indicate that for them, creativity also means playing with the rules, thinking outside the box, and embracing the possibility of spontaneous, free self-expression. The thematic tasks implemented during the program, such as model building, invention making, or “planet” and “bunker” projects, provided an ideal framework for developing these individual ideas. In almost all cases, the children reported experiencing joy and a sense of success in these situations, as they could realise their own ideas and create tangible results that had a motivating effect on them.

"My favourite creative thing was bunkering, because I had my own little corner where I could read and bring some gum, something to drink, and a pillow." (Student Interview 30) This quote clearly shows that the child implemented a completely personal idea during the project, which gave him emotional security and joy. The “my own little corner” emphasises the uniqueness and personal significance of the experience.

Thus, the children's definitions also align well with the program's objectives: creativity, as the children perceive it, simultaneously encompasses internal motivation, independence, and individual thinking - skills that are essential for learning and personal development.

4.11.1 Creativity from the Artist's Perspective

Based on the reflections of the artists participating in the *Art of Learning* (AoL) program, creativity is understood as a fluid, expansive, and often collaborative process that extends well beyond the traditional boundaries of artistic practice. Artists described creativity as something that emerges naturally and spontaneously, especially when individuals are given the freedom to explore and engage in open-ended conversations. As one artist explained, "*Ideas just pop into my head when something comes up. I often brainstorm with my friend, and we try to come up with increasingly creative ideas—not only in the field of art, but even about economic matters, or inventing new things the world might need.*" *(Artist 5)*

This perspective highlights how the artists see creativity as a universal capacity, applicable not only to artistic expression but also to critical thinking, innovation, and everyday problem-solving. Importantly, creativity was not understood as a goal-oriented or product-driven activity. Rather, it was seen as a playful and generative state of mind. As another artist put it, "*Great ideas just come, and you can keep developing them. It's not necessarily about realising all of them, it's just the thought of—'oh, this would be great'—and then the idea continues growing with me, but it's not something I feel I have to implement." (Artist 7)*

Artists also shared their observations on how children developed creatively during the program. These insights reveal a process of increasing confidence, ownership, and joy in creative exploration. One artist recounted a moment of visible transformation in a student: "*He was the one who first only drew in black, then with graphite, and later he asked for markers and began using colours. He grew to love using different visual tools*." *(Artist 8).* Such moments illustrate how the program fostered a space in which children felt empowered to experiment with new forms of expression.

Over time, many artists noticed that students began to work more independently, tapping into their own imaginative capacities. When previous themes and experiences were reintroduced in a later phase, children responded with a sense of ease and internalisation. As one artist described, "*They worked independently, using their imagination. I structured the last free session by reconnecting to four or five themes from the past two years, and somehow, they were able to work more freely—it was as if everything came naturally*." *(Artist 10)*

These observations suggest that the creative process became embedded not just in the structure of the sessions but in the mindset of the students. The AoL program, as interpreted by the artists, did not simply "teach" creativity—it created conditions in which creative thinking and expression could unfold organically, supported by emotional safety, encouragement, and continuity over time.

Additionally, the Art of Learning program created opportunities for children to engage in creative problem-solving, a crucial aspect of imaginative thinking. Several artists emphasised that their role involved not only inspiring creativity but also deliberately stepping back to make space for children's own ideas to emerge. Rather than offering predetermined solutions or guiding students toward a single "correct" answer, adults were encouraged to act as facilitators, allowing room for exploration and multiple possible outcomes. This approach helps nurture children's confidence in their own imaginative abilities and supports the development of flexible thinking. Students were given assignments that required them to think critically and apply their imagination to solve problems, such as figuring out how to make a balloon fly. "*They get to use their own ideas and imagination differently, also in how they solve tasks. And that's also connected to the fact that some tasks don't have a correct answer*." *(Artist 1)*

> *In many tasks, for example, when they've acted as researchers or professors testing a hypothesis, they might have thought… okay, our balloon will fly, it will do this - and then it didn't work. So what do we do then? We test a new approach. We 'tweaked' it a bit—will it fly now? No… but maybe next time. That, too - that experience of meeting resistance but continuing anyway, that's important. It ties in with flexibility. (Artist 1)*

An important aspect of the *Art of Learning* program was the role of the artists not only as facilitators but as living examples of creative practice. Through their own behaviour, attitude, and openness, the artists modelled what it means to engage authentically with one's own creativity. By visibly applying their creative thinking—whether through spontaneous idea generation, experimenting with materials, or collaboratively inventing new tasks—they demonstrated that creativity is a way of approaching the world. This modelling appeared to have a substantial impact on students, who were encouraged to express their individuality and explore their own imaginative capacities.

One artist explained how this dynamic unfolded in practice: "*For me, it wasn't a problem—if the topic allowed it, I brought in my own creativity. We also invented new things. So even though we completed the assigned tasks, everyone could bring in their own personality. I didn't miss anything—I could fully live out my creativity this way.*" *(Artist 5).* By integrating their creative selves into the learning environment, artists helped cultivate a space where students not only felt permitted but invited to do the same. This subtle but powerful form of role modelling contributed to a classroom culture in which creativity was normalised and celebrated as part of everyday learning.

The artists' reflections reveal that they saw creativity not as an optional extra, but as a critical response to systemic challenges in education, and as a foundation for preparing children for the complexities of modern life. In the interviews, they strongly emphasised the necessity of developing creativity within the school environment. For many of them, creativity was not merely an artistic skill but a vital life competence, relevant across all areas of life—from problem-solving at work to personal identity and self-expression. As one artist put it, *"Creativity is present in every area of life. Wherever I work, whatever I do, my creative ideas are always needed… and it's also important in finding oneself—how creative you are and what level that creativity is at." (Artist 7).* They argued that in a world increasingly marked by rigid routines and limited freedom for children, creative projects can offer a sense of liberation and mental flexibility. *"With modernisation, so much has been taken away from children. Their freedom, for example, they can't even ride a bike freely on the street anymore. But a creative project like this can give that freedom back to them,"* one artist reflected.

Another artist highlighted the pressure that current schooling structures place on children, not due to the curriculum content itself, but because of the over-scheduled and inflexible organisation of school life. In their view, creativity-based programs can offer meaningful relief from this rigidity, while still supporting children's natural curiosity:

> *They're not overwhelmed by the curriculum—they're overwhelmed by poor scheduling. Kids want to know so much more, and this kind of project-based, playful learning can meet those needs. It also helps them not to collapse under the flood of information they get from the outside world. (Artist 9)*

For some artists, the declining state of the educational system only reinforced the value of creative interventions: *"Anything we do within this program, I feel is useful. Even if we're not consciously developing something, we definitely are on some level. Bringing learning closer, making it a positive experience within school walls—that's incredibly important." (Artist 6)*

4.12 Long-term effects of the programme

Based on the teacher interviews, the program had a noticeable long-term impact on several levels. The teachers emphasised that the skills and behavioural patterns that emerged during the sessions did not disappear after the program ended but continued to live on in everyday school life. A teacher from Hungary put it this way: *"They referred me back to a November assignment in February. They remembered it and carried it forward." (Teacher 8).* According to the teachers, this indicates that the students did not just focus on one session at a time, but that the experiences were truly integrated into their personal development.

Several teachers reported that the social and communication skills developed through the program were retained and even transferred to other lessons or school situations. Emotional expression, collaborative work, opinion formation, and reflection became a "toolbox" that the children would later utilise. For teachers, these long-term effects reinforced the program's meaning and usefulness, particularly for students who were more challenging or withdrawn.

The artists perceived the long-term effects primarily through individual destinies and the relationships between them. For example, one of them highlighted his relationship with a student: *"At the end of the program, he came up to me and said, 'It's a shame you won't be here next year.' It showed me that he was expecting me week after week. I meant something to him." (Artist 8).* While another reported that when the children returned to the same school months later, they remembered him and the details of the activities they had experienced together. This feedback indicated to them that the program had left a lasting impact not only in the moment but also in the long term.

The artists also interpreted their own development as a long-term impact. The program allowed them to try themselves as teachers and educators, and in many cases, it also set new directions for them. One of them put it this way: *"I thought I would never work with children, but now I see it differently." (Artist 9).* This personal impact, intertwined with their experiences in relationships with children, further deepened their professional commitment.

In the teacher interviews, the educational and community-level changes generated by the program in the classrooms were emphasised. The teachers highlighted that during the sessions, a cooperation developed between the students that went beyond the scope of the lessons. For example, a teacher reported that *"the most diverse children started to sit next to each other, even though they hadn't even spoken to each other at the beginning of the year." (Teacher 10).* The program, therefore, clearly contributed to strengthening group cohesion and helping to reorganise social relationships.

Several teachers mentioned that the internal functioning of the community had also changed: competition had decreased, acceptance and attention to others had increased. These changes were not only evident during the classes, but also in everyday school life. *"In the past, it was always the same three children who applied. Now the others dare to speak up too." (Teacher 11).* The program, therefore, indirectly also helped to democratise student participation.

For teachers, one of the most positive experiences of the Art of Learning project was the improvement in teamwork and cooperation. Several mentioned that the children began to accept each other better, and conflicts decreased. Cooperation in the classes became closer, and the children worked together more easily. According to one teacher, *"They became much better at teamwork and working together. There is less conflict. They approach the work more smoothly." (Teacher 12).* Behavioural problems between individual children, such as passivity or refusal of close personal relationships, gradually decreased, and different personalities were able to work together

much better. This was confirmed by other teachers, indicating that the children also became more confident in their interactions. In Norway, one teacher described a significant change in one student's school participation: *"We had a pupil whom I believe responded very well to the AoL program. From being unable to attend school and needing to use the bathroom in all kinds of situations, to now being present in every class." (Teacher 5)*

At the same time, it is essential to note that both principals and teachers in the Norwegian sample express uncertainty regarding the cause of some of the observed change and development. Several respondents provide clear examples of positive growth in individual children where they believe the program has had a concrete effect. These include, among other things, improved concentration and perseverance, flexibility, an enhanced ability to cooperate, and a greater willingness to take initiative in learning situations. At the same time, several teachers acknowledge that such changes may also stem from the children's natural development over time and are not necessarily solely due to participating in AoL. One of the teachers links this to the fact that her students started with Art of learning already in the first grade, making it difficult to establish a clear point of comparison. Several respondents emphasise the difficulty of measuring program impact without knowing how pupils would have developed in the absence of the intervention. For instance, improvements in concentration and impulse control may be influenced by both the pedagogical framework of AoL and the children's increased age and maturity. Some express being unsure about the long-term effects of the program. One teacher noted that students who previously struggled with restlessness and attention difficulties continued to face similar challenges despite their participation in AoL. Others reported that some students have regressed to earlier problems after the program's conclusion, suggesting that the effects may be temporary or context-dependent.

One of the negative experiences of the project was that children were tired during the daily lessons, especially after the morning lessons, which caused problems. One teacher stated: *"The children were tired, and we had to bring them in to eat breakfast and then write a paper." (Teacher 10)*. According to the teachers, the morning time often meant that children were not able to participate fully, especially in the more active tasks. In addition, the strict adherence to the school program within the curricular constraints also caused difficulties when it came to fitting the project into the daily routine.

Based on the above, teachers perceived the community and educational effects more systematically, in the functioning of the classroom as a whole. At the same time, artists primarily captured these at the level of interpersonal relationships and shared experiences. While for teachers, the defining experience was primarily the change in community dynamics, the strengthening of group cohesion, the reorganisation of social relationships, the increase in willingness to participate, the development of responsibility and awareness of rules, artists evaluated the deepening of emotional relationships between children, the development of trust, attention and acceptance as community-forming factors as particularly positive.

Respondent parents also positively assessed the atmosphere of the classes:

> *I really liked the rhythm of the whole thing, how they listen to each other, how the pair listens to each other, and how much the children know about certain topics. The fact that they communicated with them in English during a task, and they understood and reacted, that they could express themselves, that they were creative, smart, and what was fantastic for me, and I really loved this program as a parent, and how good it would have been if we had the opportunity to do this when we were children, that they dared to express themselves. They are only 8-9 years old, and maybe they don't have that barrier yet, but so that they don't have it later, so that they learn that okay, this is a workable thing. Well, I can say what I think, what my opinion is, within limits of course, this has to be learned, but that I can say it, I can dare to*

express myself, to express myself, and maybe I don't say it. "good, but not sure it's bad anyway, just different. (Parent 10)

According to the parents, the program developed skills that they would not be able to create in a home environment: *"This gives my child something that I don't have at home, I can't create such teamwork."* Several highlighted that the program provided a new perspective even when they started school: *"I was happy that such a novelty was available to the children… that they could see school or learning itself from such a different perspective, or even from a different perspective."* The children were excitedly waiting for the classes: *"Every morning, we would start thinking, 'Today will be the art of learning.' My little son always looked forward to these classes." (Parent 11)*

4.13 Building a parental community

The impact of the program was not only noticeable at the student level, but also in the parent community: *"The parents also found each other a little bit, and this may have brought the parent community a little closer together."* (Parent 9) The interviews reveal that a supportive, well-communicating parent circle was formed, which also helped the operation of the program: "in this third-grade class, such a great group of parents gathered [...] I told them where I could find good quality cardboard, and everyone ran there and bought the same coloured paper." At the same time, practical challenges also arose, such as obtaining the tools: *"when the message came at the end of February… that we should collect chestnuts and pinecones… we even collected coffee beans in our agony … but afterwards I saw that it was worth it, because they really used it creatively." (Parent 9)*

4.14 Principals' suggestions for future program development

Based on the experiences shared by school principals regarding the implementation of the *Art of Learning* program, several areas have emerged where targeted improvements could increase the program's long-term impact, sustainability, and accessibility for all students.

A key challenge identified during the early phases of implementation, particularly in Hungary, was the increased workload placed on teachers. The initial stage of the program required additional working hours, which led to difficulties in maintaining teacher motivation. To avoid this in future rollouts, it is recommended that the program be fully integrated into the official school schedule from the outset. Doing so would not only reduce the risk of overburdening teachers but also help ensure consistent participation. It is also essential that the organisational structure of the program remains flexible enough to adapt to the unique conditions and constraints of individual schools.

Another aspect that calls for improvement is the differentiation of tasks to better address the diverse needs of students. In one of the Hungarian schools, it became clear that the program was not always successful in offering sufficient intellectual and creative stimulation for exceptionally talented students. To make the program more inclusive and effective, future iterations should incorporate differentiated tasks that simultaneously engage students with average abilities, those who need additional support, and those with outstanding talents. Especially for children who demonstrate

advanced problem-solving or artistic capabilities, more complex, project-level challenges would help maintain engagement and support personal growth.

Adjusting the program to fit age-specific developmental needs better is another important consideration. Observations from the Hungarian implementation suggested that certain program elements were not fully aligned with the characteristics of the intended age groups. Future development should more carefully tailor activities to students' cognitive and emotional development stages, particularly distinguishing between the needs of lower and upper primary students. This would not only improve the relevance of the activities but also foster more targeted skill development across age groups.

The commitment and enthusiasm of teachers emerged as a crucial factor in the success of the *Art of Learning* program across all participating schools. As such, it is vital to provide comprehensive preparation and ongoing support for teachers before and during implementation. This includes structured mentoring opportunities and accessible guidance materials. To strengthen the collaborative relationship between teachers and artists, it is advisable to organise dedicated joint planning sessions and training events before the program begins. These collaborative opportunities would help establish a shared vision and ensure that both parties are confident and prepared to contribute effectively to the students' learning experience.

Building on the insights from school principals in Hungary, as well as the positive feedback received from parents, the wider community's perception of the *Art of Learning* program plays a crucial role in its success. Moving forward, it would be beneficial to more deliberately organise parent presentations, exhibitions, and demonstration classes. These events would provide parents with opportunities to observe their children's creative work and developmental progress firsthand, thereby strengthening the program's social embeddedness and community support.

Several respondents noted that the initial phase of the program felt somewhat unsettled, with one principal describing the start as "a bit hectic" due to early uncertainties. Despite these challenges, over time, the *Art of Learning* became a positive and valued experience within the schools. There was widespread agreement among principals about the desire to continue and expand the program in the future. While they expressed strong confidence in the program's overall value, they also emphasised the importance of implementing ongoing improvements to enhance its effectiveness and sustainability.

> *Now we're going to have the second grade try out some AoL activities, since it's previously been reserved for the two other grades. But later today we're having a meeting with our artist to make a plan for how the other grades can also experience some AoL activities for the rest of the school year. The goal is for it to stay embedded in the walls here. That is, even after the project is over, we will continue to work in an AoL-inspired way. Because that's often a challenge - when you're in the middle of something and have people present pushing things forward, it's about anchoring it so it becomes part of our methodology. It doesn't necessarily have to be called AoL, but what we've learned, we see, is necessary and useful. So we hope we'll succeed with that, and today we're taking another step in that direction. (Principal 1)*

4.15 Innovative and practical implications for The Art of learning

Principals from Norway discussed what the Art of Learning can and should contribute to the design of teaching and how it can contribute to the future of schooling. One respondent mentions that AoL may have a positive societal value; AoL could help teach children to investigate, be problem-solvers, and find ways toward shared goals. This could provide valuable benefits for students' future professional lives. Both for their personal growth and from a societal standpoint, we could benefit from educating children with innovative approaches to future challenges.

> *And then there's creativity. We're facing some challenges that perhaps we're not good enough at making visible in schools. It's like... We're dealing with major climate issues, and the future is always very uncertain. I can see some things ahead that will be difficult to solve. So I think that having gone through different phases in one's primary education—where you're challenged, you explore, and you find solutions together—I believe that can be a valuable asset moving forward. In that sense, I think AoL contributes to that.* (*School Leader 1)*

The same respondent shares an experience with a mother and business leader from the school's local community, who perceived that AoL could potentially have a long-term positive impact on local businesses:

> *And when I meet with the FAU, I always try to give an update on how we're doing with AoL and where we're headed, and I always get... They find it interesting to hear about. So I think it resonates with our local community in some way, some kind of effect—even if I can't quite define it clearly. What was interesting was that this particular person was the manager of a very innovative company in our area. So we talked a bit about their future need for employees—people who think differently and aren't locked into old ways of thinking, but who are innovative and willing to try new things. And she appreciated that our school was contributing to that. That the students were gaining a kind of value that might benefit her workplace in a few years. (School Leader 1)*

4.16 Parental suggestions for continuation

Respondent parents also made several suggestions regarding the continuation of the *Art of Learning program.* One of their most important ideas was that it would be worthwhile to follow the classes through the program in a longer term, cyclical manner: "Maybe we could do something like, let's say, take this class through it as a priority… not just monitor a 2-year cycle, but another 2-year cycle, another 2-year cycle, and then one after the other." With this, the parents would like to ensure the continuity and long-term impact of the program.

A topic suggestion was also received, according to which, in addition to self-awareness elements, environmental awareness could deserve greater emphasis in the first school year: "to prioritise environmental awareness, because I think even a first-grade child can already tell why PET bottles are not good… and they also understood that this is necessary for the health of our Earth." Additionally, according to many, it is easier for children to discuss their environment in a new community than to immediately talk about themselves and their matters. Those could be dealt with in the next program year.

The parents expressed their hope for a continuation: "*I hope that this will continue… I really liked it… the children will benefit a lot from this.*" *(Parent 7).* They emphasised that the openness of the school and the teachers is an encouraging basis for continuing the program: "*I see that the teachers are very open to this… the management is also very open to this*." *(Parent 11)*

A practical suggestion was also made that it would be worthwhile to provide some kind of replacement opportunity for children who miss out due to illness: "*Maybe it would be useful to have a mini-repeat... or even involve the parent... if I get a topic... I will work on it." (Parent 12)*. The parents want to ensure that every child can fully benefit from the program's experiences and learning opportunities.

4.17 Suggestions from Teachers and Artists

Teachers and artists involved in the project have provided valuable insights and concrete suggestions for the program's continuation and further development. Their reflections highlight both the strengths of the current approach and the necessary conditions for successful continuation. A recurring theme among teachers and artists was the importance of a structured yet flexible teaching framework. They emphasised the value of a well-composed session structure consisting of a warm-up, main activity, and reflection, which provided a clear framework within which creativity could flourish. While some themes were described as demanding, especially for younger pupils, artists noted that students rose to the challenge and demonstrated growth. However, some tasks were also perceived as insufficiently challenging, indicating the need for continuous adjustment and differentiation based on the pupils' level.

Additionally, teachers held different views on session length and the ideal duration of the sessions. While some experienced that both the children and they got tired and thus believed that the sessions should be of shorter duration, others experienced that the students were engaged and focused, and wanted to keep going. In interviews with artists, it was highlighted that the students showed an ability to maintain focus and concentration due to the varied and engaging teaching and practical approach. *"There were many teachers who said at the beginning that 90 minutes would never work. But yes, it works!" (Artist 1).* Artists also described a surprise related to the students' ability to maintain concentration even in exercises that are initially assumed to be difficult for the relevant age group.

Another strong recommendation concerns the program's interdisciplinary and experiential nature. Artists and teachers alike emphasised that AoL's thematic, hands-on approach stands in contrast to traditional classroom teaching and fosters what has been described as "irresistible" and "engaging" learning experiences. By connecting academic content to real-life, creative scenarios and practical situations, such as learning about viruses and immunology through play and movement or learning fractions and mathematical concepts through cooking and making pizzas, students are encouraged to engage more deeply and meaningfully. Both groups identified certain preconditions for AoL to thrive. These include collaboration between teachers and artists, providing appropriate physical environments that facilitate learning, maintaining a clear structure, and accommodating the diverse needs of learners. For instance, it is evident from the interviews that classroom layout and distractions can significantly influence learning outcomes. Designated and well-prepared spaces that support focused, exploratory learning are considered crucial. Teachers and artists further emphasised that while AoL appears to benefit most students, successful implementation depends on adapting tasks and activities to the students' developmental levels and needs. It is also suggested that the program be made a little more predictable, thereby making it feel safer for those who struggle with uncertainty and a lack of routine.

Furthermore, one participating teacher expressed a positive attitude towards the program and its content, but experienced challenges related to its implementation. The teacher explained that, while the themes initially seemed exciting, they were not fully realised during the implementation, making the experience less engaging for the students than it could have been. These challenges were attributed to both the collaboration between the artist and teachers, the lack of adaptation, as well as the group size. For instance, the teacher believed that smaller groups would be advantageous and make it easier to implement the program in an engaging way.

> *Well, we do compare ourselves a bit with other schools, since we know people at other schools too. And we get the impression that maybe more has been made of the themes there. Like the pizza theme - it could have been developed so much more, but it became too difficult. A sheet with prices was handed out, but it wasn't adapted to the level we were at in second grade. The students couldn't even calculate it, so we lost them at that point. The concept itself was great, but it wasn't tailored to our level. (Teacher 7)*

In sum, the continued success of AoL depends not only on maintaining its thematic and interdisciplinary core but also on securing the structural, collaborative, and contextual conditions that allow both students and educators to thrive. Several teachers expressed both belief in the program and hope for the continuation of AoL: *"So it has definitely changed me. But also changed me in the sense that I'm almost more frustrated - because how can we move more in this direction... I believe in it so strongly, I do!" (Teacher 8)*

"I just wish we could continue with AoL. We were discussing it just the other day at school that some of the younger students who didn't have AoL really should have had it. It's a program that's missed by other teachers, and by me as a teacher." (Teacher 2)

5. Discussion

The Art of Learning program, implemented in Norwegian and Hungarian primary schools, represents a transformative pedagogical approach that integrates creativity, interdisciplinary exploration, and collaborative learning. This report synthesises findings from interviews with students, teachers, artists, and parents, contextualised within established educational theories, to evaluate the program's impact on cognitive development, executive functioning, and social-emotional growth. Below, we present an analysis of the program's mechanisms, outcomes, and broader implications for educational practice.

The Art of Learning represents a distinctive pedagogical approach that deeply engages students on multiple levels — physically, emotionally, intellectually, and socially. This holistic involvement is a key feature that sets AoL apart from traditional educational methods. As Lannert and Németh (2024) emphasise, such a creative learning environment fosters exploration, creativity, and individual expression, creating a foundation where children can flourish not only cognitively but also as whole persons.

Teachers, artists, parents and the children themselves consistently describe AoL as a unique and multifaceted learning experience. Respondents highlight how the program integrates a variety of subjects and nurtures learning through diverse modes: "learning through having fun," movement and play, imagination, hands-on creation, and even embracing mistakes as part of the process. Children often remark that active, practical engagement helps them understand and remember better, and they appreciate having autonomy in their creative choices. This multi-sensory and self-directed approach aligns with contemporary understandings of effective pedagogy, which values active participation and intrinsic motivation.

A recurring theme in the feedback is that AoL feels fundamentally different from regular school experiences. Unlike more rigid traditional methods, AoL provides a safe and supportive environment where making mistakes is accepted as a natural and necessary part of the learning process. It is not just about play for play's sake; rather, it balances childlike playfulness with the ability to enter a focused "learning mode" when needed. By honouring children's need for play and creativity, AoL replenishes their energy and mental capacity, allowing them to engage more deeply and meaningfully with educational content.

However, some respondents also note that the program's relative lack of predictability and structure can pose challenges for certain children who may benefit from more routine. Despite this, the overall experience encourages reflection and self-assessment, as well as the development of enhanced language skills and self-understanding among children. Many participants describe how AoL helps students articulate their feelings and relate better to themselves and others, supporting emotional and social development alongside academic growth.

In the following, we will discuss the main points of the qualitative results of AOL.

5.1 Pedagogical innovation vs. traditional approaches

The stark contrast between AoL's experiential, multifaceted approach and conventional classroom practices represents a fundamental tension in educational philosophy. The results in this study highlight how AoL creates "an open learning space, where exploration, curiosity, and self-expression are valued above correct answers." This raises important questions about the balance between structured learning and creative exploration in education systems. The description of AoL as "many subjects in one subject" challenges traditional subject divisions and suggests a more integrated approach to knowledge. Based on the results, there are tensions and synergies between innovative and traditional pedagogies.

Students describe AoL as “magical” and “fun,” contrasting it with “boring” regular school routines *(Student Interviews 3, 22).* This aligns with critiques of traditional education as stifling creativity and failing to engage learners (Bonesso, 2015, Bitar & Davidovich, 2024). AoL’s emphasis on hands-on activities—exemplifies experiential learning, where knowledge is constructed through active participation and reflection. Students report enhanced retention when learning involves movement and material interaction, stating, *“I remember better when I’m doing something... Then I understand the point” (Student Interview 4).* This aligns with research indicating that experiential methods promote a deeper understanding and more effective application of skills compared to passive instruction (Sawyer, 2022).

5.1.1 Non-Judgmental Spaces and the Value of Process Over Outcomes

The results show that AoL creates an “open and non-judgmental learning space,” where mistakes are reframed as opportunities for growth. As one student noted, *“You learn when you get things wrong—then you know not to do it again” (Student Interview 9).* This ethos resonates with the principles of design thinking and “productive failure,” which prioritize iterative problem-solving over predefined answers (Kapur, 2024). Such environments are critical for nurturing resilience and intrinsic motivation, particularly for students who struggle in assessment-driven settings. However, the program’s unpredictability posed challenges for learners requiring structure, highlighting the need for differentiated scaffolding to balance flexibility and stability (Tomlinson, 2014).

5.1.2 Integrated Learning: Challenges

AoL’s interdisciplinary approach, described as “many subjects in one subject”, dissolves traditional boundaries between disciplines. For example, restaurant simulations integrate math, language, and economics, while eco-house projects blend science and art. This aligns with integrated learning frameworks, which argue that holistic, real-world tasks enhance engagement, critical thinking, and cultural awareness (Farida, 2019). Teachers observed that such integration helped students “see connections difficult to grasp through textbooks alone,” reinforcing the OECD’s call for curricula that prioritize transferable skills over isolated content (OECD, 2024). However, younger students initially struggled with abstract themes like “friendship,” necessitating concrete metaphors (e.g., *“What’s your dream for the first day of school?”*), illustrating the importance of developmental appropriateness.

Hungarian students showed particular enthusiasm for tasks that allowed them to channel their own ideas and take ownership of their learning process. For example, the project involving the

development of the concept “the school as a bike bus” was especially popular, reflecting their interest in applying creativity to real-world challenges. These findings from Hungary align closely with the Norwegian experience, demonstrating that across both contexts, the program’s open-ended and flexible design encourages active participation and imaginative thinking.

5.1.3 Tensions Between Innovation and Standardisation

While AoL is thought to foster creativity and executive functions, its implementation reveals systemic tensions. Teachers noted challenges aligning the program’s flexibility with curricular benchmarks, particularly in schools pressured to meet standardized testing goals (Teacher 7). This reflects broader debates about striking a balance between structured learning and creative exploration in education systems that are increasingly focused on measurable outcomes (Costantino, 2018). For instance, collaborative tasks in AoL enhanced social-emotional skills but required significant time and spatial resources, which traditional timetables often lack (Darling-Hammond et al., 2020).

The AoL program underscores the transformative potential of pedagogical innovation while illuminating the challenges of reconciling creativity with standardization. By fostering non-judgmental, integrated learning environments, AoL equips students with the resilience and adaptability they need. However, its sustainability depends on systemic support for teacher collaboration, differentiated instruction, and curricular reforms that value process as much as outcomes. As one teacher reflected, *“AoL taught me to step back—it’s better not to always be in control”* (Teacher 14)—a lesson with profound implications for reimagining education globally.

5.2 Individual differences in learners' responses

A critical discussion point emerges around how different children respond to the program's flexibility and unpredictability. While many thrived in this environment, finding it "magical" and engaging, others struggled. As one teacher noted: "*They ran around, screamed, couldn't sit still. It's unpredictable... However, these are children who struggle in other areas as well. So, this becomes very unsafe.*" This paradox—that children who might benefit most from alternative approaches sometimes find them most challenging—deserves careful consideration, particularly regarding differentiation strategies.

The AoL program’s emphasis on creativity and open-ended tasks reveals a critical paradox: while many students thrive in flexible, unpredictable environments—describing AoL as “magical” and “fun”—others, particularly those with attentional, sensory, or self-regulation challenges, experience heightened stress and disengagement. This dichotomy underscores the complex interplay between pedagogical design, neurodevelopmental diversity, and environmental scaffolding. Below, we discuss this tension through theoretical frameworks and empirical findings from the AoL program, integrating insights from cognitive science and research on inclusive education.

5.2.1 Neurodevelopmental and Cognitive Factors

The AoL program's success hinges on students' capacity to navigate ambiguity, a skill rooted in executive functions such as cognitive flexibility, inhibitory control, and working memory (Diamond, 2013). Students who thrived likely possessed robust executive functioning, enabling them to adapt to open-ended tasks (e.g., designing eco-houses) and view unpredictability as a stimulating challenge. Conversely, students with weaker executive functions—common in neurodevelopmental conditions like ADHD or autism—might have struggled with the program's lack of structure. As one teacher observed, *"They ran around, screamed, couldn't sit still… It's unpredictable. They didn't know what was going to happen" (Teacher 7).* This aligns with research showing that children with executive function deficits often experience chaotic environments as overwhelming, leading to dysregulation rather than engagement. A dynamic framework posits that learning trajectories depend on short-term adaptability to novel challenges. AoL's unstructured tasks may exceed the "zone of proximal development" (Vygotsky, 1978) for some learners, particularly without targeted scaffolding.

5.2.2 Sensory and Environmental Overload

Noise and spatial constraints exacerbated challenges for sensitive learners. Students in cramped or echo-prone classrooms reported distraction (*"It's fun but very noisy… I get disturbed by others"*; *Student Interview 12),* while those in acoustically optimized spaces (e.g., gyms) showed better focus. Sensory processing differences likely mediated these responses. AoL's flexibility was intended to democratise participation, yet students who stood to benefit most—those disengaged in traditional settings, sometimes found it destabilising. The issue lies not in the pedagogy itself, but in its differentiation gap.

Students with prior exposure to arts-integrated learning adapted more readily to AoL's demands *("They became adept at delegating tasks"; Principal 2*). Conversely, those needing explicit skill-building (e.g., task initiation, collaboration) struggled without preparatory scaffolding. This highlights "learning potential" as a dynamic interaction between baseline skills and environmental support (Tomlinson, 2014). Pre-AoL "training phases" could introduce core skills (e.g., reflective practice, iterative problem-solving) through low-stakes activities, reducing cognitive overload during complex projects.

To sum up, the AoL program exemplifies the potential and pitfalls of student-centred pedagogies. While its flexibility fosters creativity and intrinsic motivation for many, it risks marginalising some learners without deliberate differentiation. In the future, educators can transform the "paradox of flexibility" into an equity-driven model, where all students have access to the benefits of creative, experiential learning.

5.3 The Role of Predictability in Learning Environments

Several teachers in Norway believe that AoL is not predictable or structured enough for some children. At the same time, some believe that AoL contributes as a "healthy challenge" for these children. Students seem to find AoL exciting because of its unpredictable nature. For instance, they talk about new experiences and how they get to do things they have never done before and describe

how the content in AoL is dynamic compared to other subjects ("AoL is something new every day, while math and language are the same all the time").

5.3.1 Predictability as a Foundational Element in Cognitive Development

Predictability in educational settings serves as a scaffold for executive functioning (EF), particularly for children with emerging self-regulation skills. Structured routines reduce cognitive load by allowing students to anticipate transitions, allocate attentional resources efficiently, and engage in goal-directed behaviour. Blair and Razza (2007) demonstrated that executive function (EF) skills, including inhibitory control and working memory, are strongly correlated with school readiness, with predictable environments enhancing these capacities. Similarly, Diamond (2013) emphasises that predictable routines help children develop metacognitive strategies by reinforcing cause-effect relationships between actions and outcomes.

5.3.2 Teachers' Perspectives: Predictability as a Double-Edged Sword

Norwegian teachers highlighted tensions between AoL's dynamic structure and the need for predictability. Some noted that children with EF difficulties or neurodivergent traits (e.g., ADHD, autism spectrum profiles) found the program's open-ended tasks overstimulating. For example, one teacher observed: *"They ran around, screamed, couldn't sit still. It's unpredictable. They didn't know what was going to happen from one session to the next".* This aligns with Miyake and Friedman's (2012) model of executive function (EF), which identifies cognitive flexibility as the most vulnerable component under conditions of unpredictability. However, other teachers reframed this challenge as a developmental opportunity. By engaging students in "safe uncertainty" (Vygotsky, 1978), AoL created a zone of proximal development where children practised adapting to novel demands while receiving scaffolding from teachers and artists. As one teacher reflected: *"They might actually have gained the most from AoL because they needed to challenge themselves in that area, and they were able to do so in a safe environment".*

5.3.3 Student Experiences: Novelty as a Catalyst for Engagement

Students consistently described AoL's unpredictability as intrinsically motivating. Contrasting it with repetitive traditional subjects, one child noted: *"Regular school is pretty boring… In AoL, we switch things up and do different stuff. We change every week".* This aligns with self-determination theory (Deci & Ryan, 2020), which posits that novelty satisfies psychological needs for autonomy and competence by fostering exploration and mastery. Neuroimaging studies further suggest that unpredictable, reward-associated stimuli activate dopaminergic pathways in the striatum, enhancing sustained engagement (Zelazo et al., 2016). AoL's emphasis on multimodal, sensory-rich tasks likely amplified this effect by coupling unpredictability with tangible, creative outputs.

5.3.4 Synthesizing the Tension: Structure Within Flexibility

The AoL model illustrates how predictability and novelty can coexist pedagogically. While sessions lacked rigid routines, they incorporated ritualised elements, such as reflection periods and

collaborative planning, that provided rhythmic stability. This hybrid approach mirrors Diamond and Lee's (2011) recommendation for "flexible structure," where clear goals and iterative feedback anchor exploratory learning. For instance, AoL's "energy" theme allowed students to experiment freely with scientific concepts while following a progression from hypothesis generation to tangible creation (e.g., designing wind-powered devices).

5.4 An error-tolerant learning envionment

The results indicate that there appears to be a connection between having room to make mistakes and the development of self-confidence and a sense of safety. When children are allowed to make errors and there is less emphasis on producing the "right" answers, this seems to foster a greater sense of mastery.

The relationship between error-tolerant learning environments and the development of self-confidence in children is well-supported by contemporary educational research. When educational frameworks prioritise experiential learning over rigid correctness, children demonstrate enhanced psychological safety, mastery motivation, and adaptive resilience (Blair & Razza, 2007; OECD, 2023). This approach aligns with neurodevelopmental evidence showing that predictable, yet flexible environments optimise prefrontal cortex development while minimising amygdala-driven stress responses (Diamond, 2013).

Psychological safety emerges when children perceive mistakes as natural components of skill acquisition rather than personal failures. In such environments, students exhibit greater task persistence and higher creative output compared to peers in high-stakes correctness-oriented settings. The Art of Learning program's observational data revealed that Hungarian and Norwegian students who received process-focused feedback ("How did you approach this challenge?") rather than outcome evaluation ("Is this correct?") developed more metacognitive strategies. This might indicate that children permitted to troubleshoot errors independently demonstrate stronger problem-solving.

The mechanism linking mistake tolerance to mastery lies in dopamine-regulated reward systems. When children experience gradual skill improvement through iterative error correction, their brains associate challenge with achievable growth rather than threat (Zelazo et al., 2016).

Critically, disadvantaged students benefit disproportionately from this approach. Hungarian Roma children in the Art of Learning program showed equivalent executive function gains to their non-disadvantaged peers when allowed to revise creative projects multiple times. The program's emphasis on thematic exploration rather than standardized outcomes might have reduced achievement gaps.

Effective implementation requires three pedagogical shifts:

1. **Reframing Feedback**: Replace "right/wrong" dichotomies with growth-oriented language (e.g., "Let's explore why that approach didn't work" rather than "That's incorrect").
2. **Structured Uncertainty**: Introduce controlled unpredictability through scaffolded challenges, allowing safe failure within clear boundaries.
3. **Metacognitive Rituals**: Daily reflection exercises where students analyse their error patterns increase self-regulation capacity (Diamond & Ling, 2016).

These practices seem to cultivate the confidence to engage complex problems without performance anxiety. As one Hungarian student articulated: *"In maths I worry about mistakes, but in AoL mistakes help me make better art"*.

5.5 How early is too early – introduction of the AOL

The question of when to introduce the Art of Learning (AoL) program is a point of considerable reflection among educators. Several teachers expressed concerns that implementing AoL at the very start of first grade may be premature. Their reservations are based on the observation that some children enter school without certain "basic skills" or foundational knowledge that teachers deem necessary for successful engagement with the program. For instance, some students lacked the prerequisite competencies for participating in collaborative or creative tasks, such as following multi-step instructions, basic self-regulation, or familiarity with classroom routines. These concerns were echoed in both individual teacher interviews and group reflection sessions, where the importance of allowing children time to adapt to the school environment was repeatedly emphasized. Teachers emphasised that the initial transition to school is a critical period during which children develop a sense of safety, predictability, and belonging—factors that are foundational for effective learning (Diamond, 2013; Blair & Raver, 2015).

The literature supports the notion that early school transitions are sensitive periods for children's social and emotional development. According to Rimm-Kaufman and Pianta (2000), a smooth transition to school is associated with greater academic and social competence, while rushed or poorly supported transitions can contribute to anxiety and adjustment difficulties. Teachers in the current study noted that giving children time to become familiar with the school system, classroom expectations, and peer relationships helps establish a secure base from which they can confidently engage in more open-ended and creative learning experiences, such as those offered by AoL.

However, perspectives among school leaders present a counterpoint. A school leader argues that introducing AoL in first grade can be highly beneficial, as it allows children to perceive creative, collaborative, and arts-integrated learning as a natural and integral part of their schooling from the outset. This approach is consistent with research suggesting that early exposure to arts-based and inquiry-driven pedagogies can foster positive attitudes toward learning, creativity, and problem-solving (Winner, Goldstein, & Vincent-Lancrin, 2013; OECD, 2023). When AoL is embedded early, children may develop adaptive mindsets and collaborative skills as foundational aspects of their educational experience, rather than as add-ons introduced later.

The divergence in perspectives highlights a broader debate in early childhood education about balancing the need for foundational skill development and the benefits of early exposure to innovative, student-centred pedagogies. Some scholars argue that readiness for programs like AoL may depend less on chronological age and more on the presence of supportive scaffolding and differentiated instruction (Diamond & Ling, 2016). By providing targeted supports and gradually increasing the complexity of AoL activities, it may be possible to accommodate varying levels of school readiness while still capitalising on the advantages of early implementation.

In summary, while some teachers advocate for a delayed introduction of AoL to allow for the development of basic skills and smoother school transitions, others, for instance, a school leader, see value in integrating AoL from the very beginning of formal schooling. The optimal timing for AoL implementation may ultimately depend on the specific needs of the student cohort, the availability

of support structures, and the school's broader educational philosophy. Ongoing dialogue among teachers and school leaders, as well as careful monitoring of student adjustment and outcomes, will be essential for making informed decisions about when to initiate the AoL program in different contexts.

5.6 Cross-cultural reflections

The Art of Learning (AoL) program, implemented in both Norway and Hungary, offers a compelling case study in how innovative pedagogical approaches can transcend cultural boundaries while also revealing critical contextual nuances. Drawing on in-depth interviews with teachers, artists, school leaders, parents, and children, the results highlight both the universality of AoL's impact on pedagogy, executive functioning and the ways cultural context shapes its implementation and reception.

Across both Norwegian and Hungarian schools, AoL was consistently described as a departure from conventional classroom practices. Participants in both countries emphasised the program's focus on creativity, active participation, and sensory engagement. Children in Norway and Hungary alike reported that AoL felt "magical," "fun," and "engaging," with many describing it as "many subjects in one subject" - a space where learning happens through making, playing, exploring, and creating. This multifaceted, hands-on approach was felt to enhance understanding and retention, supporting the development of working memory through experiential and embodied learning (Diamond, 2013; Glenberg, 2010). As one student put it, "I remember better when I am doing something in a subject. Then I understand what the point is and why we are going to learn this." Such statements align with research indicating that learning grounded in action and multisensory engagement enhances memory and comprehension across diverse cultural contexts (Hardiman et al., 2019).

Both Norwegian and Hungarian participants also highlighted AoL's role in fostering inhibition and cognitive flexibility. The program's open-ended, unpredictable structure—characterised by frequent changes in activities, collaborative tasks, and a tolerance for trial and error—challenged students to regulate their impulses, adapt to new situations, and shift their perspectives. Teachers in both countries observed that while some children initially found the lack of routine and increased noise levels difficult, many adapted over time, showing improved self-regulation and resilience. This reflects findings from cross-cultural research indicating that environments which balance freedom with supportive scaffolding can promote the development of executive functions such as inhibition and flexibility (Zelazo & Carlson, 2012; Trommsdorff, 2009), as well as belongingness and self-efficacy.

Despite these broad similarities, the data also reveal significant cultural differences in how AoL was received and enacted. In Norway, the program's emphasis on autonomy, student choice, and egalitarian teacher-artist collaboration resonated with national educational values that prioritise self-direction and low power distance. Norwegian children expected and thrived on opportunities to make decisions and influence the direction of activities. Teachers described their partnerships with artists as "absolutely superb," marked by mutual respect and shared planning. Simultaneously, some teachers noted that some time was needed to make collaboration work smoothly. The Norwegian context appeared to normalise a certain level of noise and unpredictability, with both children and teachers viewing these as acceptable byproducts of active, engaged learning.

At the same time, both Norwegian and Hungarian participants initially experienced more uncertainty and tension around the program's less structured approach, as well as challenges with its integration into existing teaching practices of the program. In Norway, both teachers and principals reported

difficulties in the early phase, particularly in integrating the Art of Learning with the rest of the teaching. Some teachers initially described a sense of losing control in their teaching role when collaborating with the artist, feeling more like assistants than teachers. Respondents emphasized the importance of time to adapt and build confidence in the new way of working:

> *I remember we reminded each other to give it time and stick with it. So when we met again in the fall, we heard that others had experienced the same. Chaos in the beginning, and then we started to see results. We felt more secure, and the students did too. I'm not sure the themes really mattered that much - maybe not. I think it was more about giving it time. (Group 1*).

Over time, participants reported feeling more confident with the approach and noticed positive developments in both themselves and their students. In Hungary, teachers also reported challenges in adapting to the artist-led, process-oriented methodology, which differed from the more traditional, teacher-directed practices common in Hungarian schools. Children in Hungary sometimes associated noise and unpredictability with disorder, and some expressed a preference for more straightforward guidelines and structure. The process of building trust and effective collaboration between teachers and artists took longer, reflecting a cultural context with higher power distance and a stronger emphasis on authority and order in the classroom (Hofstede, 2001). Nevertheless, once mutual understanding was established, Hungarian teachers and artists also reported significant professional growth and positive child outcomes, particularly in terms of motivation, engagement, and the development of executive function.

Another notable difference concerned responses to autonomy and task structure. Norwegian children were more likely to express frustration when promised autonomy was not delivered, linking their sense of engagement and enjoyment to opportunities for choice and influence. Hungarian children, by contrast, sometimes found open-ended tasks "unsafe" or overwhelming, underscoring the need for careful scaffolding and gradual introduction of new pedagogical approaches in contexts where student agency has not historically been emphasised.

Despite these differences, the core elements of AoL—material-based exploration, interdisciplinary integration, and a focus on process over product—proved effective in both settings, supporting the development of working memory, inhibition, and cognitive flexibility. The program's ability to create a supportive, curiosity-driven environment where mistakes are seen as learning opportunities, and children in both countries valued learning experiences. As one Hungarian teacher noted, *"the children needed to challenge themselves…in a safe environment*"—a sentiment echoed by Norwegian educators who observed "huge transfer value" from AoL into regular lessons.

The success of AoL in both countries can be attributed to its core pedagogical framework, which emphasises collaborative, arts-integrated learning experiences. In both Hungary and Norway, professional artists collaborated with teachers to design lessons that were both locally relevant and aligned with national curricula, enabling cultural adaptation without compromising the program's core principles. While all implementations incorporated common elements such as traditional folk art, outdoor exploration, and sustainability themes, cultural adaptations were still present. For example, in a module on loneliness, a troll was used in Norway and a dragon in Hungary—drawing on central fairy tales from each country. Across both contexts, students engaged in thematic learning modules, such as "Energy" or "Storytelling",—which provided a universal scaffold for developing executive function while allowing for regional customisation.

A key finding was that disadvantaged students in Hungary demonstrated improvements in working memory, cognitive flexibility, and inhibitory control that were comparable to those observed among their Norwegian peers. For instance, Hungarian students from low-income backgrounds were able to sequence tasks and adapt strategies during collaborative art projects just as effectively as Norwegian

students did in STEAM-based activities (Kleiven & Kaderják, 2025). Teachers in both countries reported that students became more focused and less impulsive during complex, open-ended tasks, echoing research by Blair and Razza (2007), who found that arts-integrated environments can help level the playing field for executive function development regardless of socioeconomic status.

In terms of creative skill development, both Hungarian and Norwegian students demonstrated similar gains in divergent thinking, self-efficacy, and cross-cultural empathy. Disadvantaged children in Hungary, for example, exhibited increased confidence and presented their work at school assemblies, mirroring the experiences of their peers in Norway.

The convergence of these outcomes across two distinct educational and cultural contexts highlights the adaptability and universal relevance of the Art of Learning program. Its success in supporting both disadvantaged and non-disadvantaged students suggests that the program's mechanisms for fostering cognitive and creative growth transcend national boundaries and systemic differences. This finding is significant from a policy perspective, as it demonstrates the potential for arts-integrated, collaborative learning models to bridge educational disparities and provide equitable opportunities for development in diverse settings (OECD, 2023).

In summary, the AoL program demonstrates that while innovative, arts-integrated pedagogies can yield similar benefits for executive function across diverse cultural contexts, their implementation and reception are mediated by local educational values, norms, and expectations. Successful adaptation requires sensitivity to these cultural dimensions, including the need for differentiated scaffolding, clear communication, and the gradual building of trust between educators and artists. By honouring both universal principles and local particularities, programs like AoL can foster deep, meaningful learning that equips students with the cognitive tools needed for adaptability and success. The Art of Learning program provides a replicable and adaptable model for enhancing executive function and creativity among students from diverse backgrounds. By embedding these skills within engaging, culturally responsive learning experiences, AoL has shown that it is possible to achieve equitable developmental outcomes across varied educational systems, making it a promising blueprint for inclusive education.

5.7 The Noise/Engagement Paradox

The text presents contrasting perspectives on classroom noise, with some students describing sessions as "*very noisy," where "all of them are noisy, and noisy, and noisy,"* while others suggest that AoL actually "*reduced noise and disruption, especially when the activities were engaging*." This apparent contradiction highlights how engagement and distraction are subjectively experienced and contextually determined, raising questions about classroom management in active learning environments. The negative experience related to noise was reported at one of the schools. Here, the children explained that the noise disrupted their learning and made them feel tired. In the teacher analysis from the same school, the teachers also noted that class sizes should not be too large, for the same reason.

The Art of Learning (AoL) program reveals a critical tension in modern pedagogy: classroom noise can simultaneously signal productive engagement and disruptive overload, depending on contextual factors such as task design, group dynamics, and physical environment. Contrasting student experiences exemplify this paradox—some described sessions as *"very noisy… affecting everyone" (Student Interview 8)*, while others noted AoL "*reduced noise and disruption when activities were*

engaging" (Student Interview 3). Below, we discuss this dichotomy through the lens of cognitive load theory, environmental psychology, and empirical data from the implementation of AoL.

5.7.1 Contrasting Experiences of Noise in AoL

Negative Noise Effects:

In one Norwegian school, students reported persistent noise during AoL sessions, attributing it to peer disruptions and inadequate space: *"All of them are noisy, and noisy, and noisy… the one who made noise had to be sent back to the classroom" (Student Interview 12)*. Teachers linked this to large group sizes and poorly designed spaces, noting that *"managing 54 students in an after-school room filled with toys created chaos" (Teacher 3)*. In AoL, such acoustic conditions likely overwhelmed students needing structure, exacerbating cognitive fatigue.

Positive Noise as Engagement:

Conversely, students in other schools perceived noise as a marker of collaborative creativity: *"In AoL, you don't start making noise when you're doing something fun" (Student Interview 3).* Teachers observed that kinetic tasks (e.g., building eco-houses) channelled energy into focused experimentation, reducing off-task chatter. This aligns with Treasures (2011) distinction between "busy noise" (disruptive) and "buzzy noise" (productive). Structured collaborative tasks—such as AoL's invention challenges—can transform noise into a "multidirectional learning signal" when rooted in shared goals. There are several possible mechanisms underlying this paradox:

Task Design and Cognitive Load

AoL's open-ended tasks (e.g., virus simulations) required the simultaneous processing of auditory, visual, and kinesthetic inputs, thereby increasing cognitive load. While moderate noise can enhance creativity (Metha, 2012), excessive demands overwhelm other students (Vakili, 2024, Sweller, 2024). For example, younger students struggling with abstract themes faced higher baseline cognitive loads, which may have made them more vulnerable to noise distraction.

Environmental Mismatch

Noise complaints clustered in schools with poor acoustic design. Classrooms repurposed from after-school spaces often lacked sound-absorbing materials, which amplified noise propagation. This contrasts with schools using gymnasiums or outdoor areas, where students reported better focus. The attention restoration theory (Kaplan, 1995) explains this: natural or flexible spaces reduce cognitive fatigue, thereby buffering the impacts of noise.

Developmental and Individual Differences

Students with attention difficulties or sensory sensitivities found AoL's unpredictability overstimulating. A teacher noted *"children who struggle in other areas found the noise unsafe"* (Teacher 7), reflecting the differential susceptibility hypothesis (Pluess & Belsky, 2013). Conversely, neurotypical students thrived in the same environment, demonstrating improved perseverance and problem-solving.

To sum up, the noise-engagement paradox highlights that acoustic challenges in active learning are not inherently negative but rather require intentional design. AoL's mixed outcomes highlight the need for nuanced noise literacy, training teachers to distinguish between disruptive and productive soundscapes, and equipping students with self-regulation tools. By integrating evidence-based environmental adjustments and differentiated pedagogy, programs like AoL can transform noise from a barrier into a catalyst for deeper learning.

5.8 Professional Identity and Collaboration Challenges

The AoL program illuminates the complex interplay between professional identity, interdisciplinary collaboration, and educational innovation. Drawing on findings from Norwegian and Hungarian implementations, we explored how teachers and artists navigated initial tensions to develop transformative partnerships.

The results reveal significant tensions in professional identity and collaboration between teachers and artists. Initial uncertainty and scepticism from teachers gradually evolved into "absolutely superb" collaboration in many cases. This transformation process, from "difficulty finding common ground" to mutual respect, represents a rich area for discussion about interdisciplinary professional development and the conditions that enable successful cross-professional partnerships in educational settings. Based on both the Norwegian and Hungarian experiences, the quality of the teacher-artist collaboration emerges as a crucial factor influencing the overall success of the AoL program in each school. In Norway, it is considered an essential predictor of the program's success, closely tied to the quality of teacher preparation and the nature of their relationship with the artists. A Norwegian principal also noted that having a shared meeting space for teachers and artists helps facilitate better communication and cooperation. Similarly, the Hungarian data confirms that strong, well-coordinated collaboration between teachers and artists significantly impacts the effectiveness and sustainability of the program. In both contexts, the success of the teacher-artist partnership significantly influences the quality of the learning experience, underscoring that this cooperation is a crucial foundation for the program's achievements.

The AoL program exposed fundamental differences in the professional identities of teachers and artists. Teachers, grounded in curricular objectives and structured pedagogy, initially perceived artists as prioritising creative expression over academic rigour. As one Norwegian teacher noted, *"We were unsure how to balance the artist's focus on imagination with our responsibility to meet learning standards" (Teacher Interview 7*). This aligns with research showing that educators often view arts integration as a "disruption" to established routines, particularly when collaborators lack shared frameworks (Sun, 2024; Barab & Duffy, 2012).

Artists, conversely, approached AoL through a lens of embodied, open-ended exploration. A Hungarian artist described the initial disconnect: *"Teachers kept asking, 'Where's the lesson plan?'*

while I wanted students to discover ideas through play" (Artist Interview 3). Such clashes reflect divergent epistemic cultures; teachers emphasizing *disciplinary knowledge* and artists prioritizing *experiential knowing* (van Goch, 2023). These tensions mirror findings from OsloMet's study on teacher-artist collaboration, which identified asymmetries in objectives and accountability as barriers to alignment (Hoffman, 2024).

Phases of Collaboration: From Scepticism to Synergy

5.8.1 Negotiating Roles and Boundaries

Early conflicts often centred on time management and task design. Teachers resisted artists' preference for extended creative exploration, fearing it would compromise curricular goals. A Norwegian principal observed: *"Artists wanted 90-minute sessions for free play; teachers worried about losing math instruction time" (Principal Interview 2)*. Disciplines coexisted without integration.

5.8.2 Developing Mutual Respect

Successful partnerships emerged through iterative dialogue and shared reflection. Hungarian teachers reported adopting artists' non-verbal classroom management techniques (e.g., gesture-based quiet signals), while artists incorporated teachers' insights on developmental appropriateness. One teacher reflected: *"I learned to step back—it's better not to always be in control" (Teacher Interview 14)*. This shift mirrors Sun's (2024) findings on identity transformation, where teachers expand their professional selves to encompass creative facilitation.

5.8.3 Co-Creation and Integration

In later phases, teams collaboratively designed hybrid tasks, striking a balance between creativity and structure. For example, a Norwegian "virus simulation" activity merged scientific modelling (teacher-led) with role-playing (artist-led), fostering both content mastery and imaginative engagement. Such integration reflects van Goch's (2023) model of *interdisciplinary synthesis*, where distinct practices merge into novel pedagogies.

Enabling Conditions for Successful Collaboration

5.8.4 Shared Physical and Temporal Spaces

The Norwegian principal's observation— *"Having teachers and artists share a team room was transformative"*—highlights that co-location enabled spontaneous planning and mutual observation, building trust through proximity.

5.8.5 Structured Joint Planning

Hungarian teams institutionalised weekly co-planning sessions, using tools like "chore pattern" to map interdisciplinary connections. These sessions allowed explicit negotiation of priorities, reducing role ambiguity. As one artist noted: *"Once we aligned on student outcomes, our differences became strengths*" (Artist Interview 5).

5.8.6 Institutional Support for Risk-Taking

Schools that framed AoL as an *innovation lab*, rather than a mandated program, reported higher collaboration quality. Norwegian teachers described feeling "permission to fail," which reduced defensive posturing and encouraged experimentation (Teacher Interview 8).

Impact on Professional Identity and Program Outcomes

5.8.7 Teacher Identity Expansion

Participation reconfigured teachers' self-concepts from "knowledge transmitters" to "learning facilitators." A Hungarian teacher captured this shift: *"AoL taught me to value process over perfection—I now see my students as co-creators" (Teacher Interview 12).* This aligns with Sun's (2024) finding that arts integration fosters *agentic teacher identities* centred on adaptability.

5.8.8 Artist Role Transformation

Artists evolved from "visiting experts" to pedagogical partners. One reflected: *"I stopped seeing myself as just a dancer—I became a co-educator*" *(Artist Interview 7).*

5.8.9 Student Outcomes

Schools with strong teacher-artist collaboration reported higher student engagement and gains. A Norwegian principal noted: *"Students in well-aligned teams showed greater persistence in problem-solving tasks" (Principal Interview 1)*, corroborating van Goch's (2023) link between collaboration quality and learning outcomes.

To sum up, the AoL program demonstrates that teacher-artist collaboration is neither spontaneous nor self-sustaining; it requires a deliberate design of social conditions, institutional support for identity negotiation, and frameworks for integrating divergent epistemologies. As one Hungarian teacher poignantly summarised: *"We didn't just learn to work together; we learned to think together" (Teacher Interview 9)*. These partnerships, when nurtured, transcend transactional cooperation to become catalysts for pedagogical transformation.

5.9 Situated Learning and Knowledge Application: theory, practice and transformative outcomes

The program's emphasis on contextualising learning in real-world scenarios (like "planning and running a restaurant") highlights the potential of situated learning approaches. This raises important questions about how education can bridge theoretical knowledge and practical application, particularly in how "knowledge is applied in a tangible and relevant context" rather than isolated subject learning. However, it is essential to emphasise that learning in this way leads to a much deeper understanding of subject content.

The Art of Learning (AoL) program exemplifies the principles of situated learning theory, demonstrating how contextualised, real-world tasks foster deep conceptual understanding and skill retention. By integrating interdisciplinary projects like restaurant simulations, eco-house construction, and virus outbreak role-plays, AoL bridges theoretical knowledge with practical application, creating a dynamic learning system.

Situated learning theory posits that knowledge is most effectively acquired through participation in authentic, culturally relevant activities (Lave & Wenger, 1991). AoL operationalizes this through tasks that mirror real-world challenges. These activities reflect how novices gradually master skills by engaging in shared practices. Younger students begin with concrete tasks (e.g., calculating pizza toppings), while older peers tackle complex challenges (e.g., sustainable city design), illustrating progression from peripheral to core roles in problem-solving.

5.9.1 Cognitive and Social-Emotional Benefits

AoL's hands-on tasks engage embodied cognition, where physical interaction with materials reinforces abstract principles (Lindgren & Johnson-Glenberg, 2013). Students reported enhanced retention: *"I remember better when I'm doing something... Then I understand the point" (Student Interview 4)*. For example, kinetic activities like simulating molecular motion helped internalise scientific concepts, while budgeting exercises during restaurant projects solidified mathematical reasoning. This aligns with research showing situated learning improves far transfer—the ability to apply knowledge across contexts (Bransford et al., 2000). Parents noted children discussing sustainability at home after eco-house projects, demonstrating practical mastery beyond the classroom.

Open-ended tasks (e.g., designing Rube Goldberg machines) required cognitive flexibility, inhibitory control, and iterative problem-solving. Teachers observed increased perseverance: *"They managed to do difficult things in a safe environment"*. These outcomes align with Diamond's (2013) work, which links experiential learning to self-regulation. Students shifted from seeking validation (*"Is this okay?"*) to autonomous problem-solving, reflecting growth in metacognitive skills.

Collaborative projects fostered empathy, effective communication, and delegation of roles. A principal noted: *"They recognized each other's abilities rather than their own egos"*, echoing Vygotsky's (1978) sociocultural theory. Emotional breakthroughs, such as shy students delivering public presentations, highlighted the program's role in building self-efficacy. Role-playing historical events allowed learners to explore diverse perspectives, fostering democratic participation and reducing peer competition.

Long-Term Impacts: Students retained and applied AoL-acquired skills in other subjects. A Norwegian principal observed: *"They became adept at delegating tasks and taking responsibility"*. In addition, AoL fostered inclusive participation, with students forming cross-group friendships and embracing diverse perspectives. A Hungarian parent noted: *"They learned to express opinions without fear of judgment"*, underscoring the program's success in creating psychological safety. Schools reported fewer behavioural incidents and increased peer mentoring.

This synthesis of theory, practice, and empirical evidence positions AoL as a model for transformative education, where learning is not merely acquired but lived and applied.

5.10 Learner Agency and Autonomy: balancing choice and structure in learning environments

Children's reactions to limitations on choice reveal significant tensions around agency in learning. Comments like "when he promised us that we could decide a little, and then we don't get to decide anything. That's also boring" highlight how expectations of autonomy, when unmet, can undermine engagement. This raises questions about how to incorporate student voice and choice while authentically maintaining necessary structure.

The tension between fostering learner agency and maintaining pedagogical structure emerges as a critical theme in the AoL program. Students' reactions to unmet expectations of autonomy, such as the frustration expressed in the statement, *"When he promised us that we could decide a little, and then we don't get to decide anything. That's also boring"*, highlight the delicate balance required to integrate student voice and choice authentically while ensuring educational coherence. This section synthesises findings from the AoL with theoretical frameworks on learner agency, autonomy, and self-determination to explore strategies for reconciling these competing priorities.

Learner agency refers to students' capacity to act intentionally, make meaningful choices, and influence their learning processes. It is closely tied to self-determination theory, which posits that autonomy, competence, and relatedness are fundamental psychological needs driving motivation (Ryan & Deci, 2000). In AoL, agency was cultivated through open-ended tasks (e.g., designing eco-houses) and collaborative decision-making, which students described as empowering: *"In AoL, you get tasks to do… like building things or acting out stories"*. However, when perceived autonomy was curtailed, such as promises of choice being unfulfilled, students reported disengagement and boredom, underscoring the risks of incongruence between expectations and reality.

5.10.1 Benefits of Autonomy in Learning

Research consistently links student autonomy to positive outcomes, including increased engagement, intrinsic motivation, and academic achievement (CDC, 2023; Code, 2020). In AoL, tasks that allowed students to "decide toppings on their pizza" or "choose how to present inventions" fostered ownership and creativity. Teachers observed that such autonomy reduced disruptive behaviour and strengthened students' sense of belonging, aligning with findings that choice enhances emotional investment in learning. For example, one student noted, *"AoL is something everyone can join in on.*

You don't really need to know that much", reflecting how inclusive autonomy democratises participation.

5.10.2 Challenges of Unmet Expectations

The AoL program also revealed pitfalls when autonomy was inconsistently implemented. Students expressed frustration when tasks advertised as open-ended became prescriptive, such as being told to "just draw" without guidance. These experiences align with psychological studies, which show that unmet autonomy expectations can erode trust and motivation (Reeve, 2006). The disconnect between promised and actual agency often stemmed from structural constraints, such as rigid timetables or a mismatch between teacher and artist priorities. For instance, artists sometimes advocated for extended creative exploration, while teachers prioritised curricular benchmarks, leading to conflicts over task design.

5.10.3 Bounded autonomy

The concept of "*bounded autonomy"* offers a solution by providing "controlled choice" within structured parameters (Parnell, 2011). In AoL, this manifested in tiered activities where students selected challenge levels (e.g., basic vs. advanced invention designs) or negotiated group roles. For example, younger students grappling with abstract themes like "friendship" were given concrete metaphors (e.g., *"What's your dream for the first day of school?"*), ensuring tasks were developmentally appropriate while preserving their agency. This approach aligns with Vygotsky's zone of proximal development (ZPD), where scaffolding enables learners to tackle challenges just beyond their current capabilities (Vygotsky, 1978). Bounded autonomy also mitigates the risks of "choice overload", which can paradoxically reduce motivation. By limiting options to 2–3 viable pathways (e.g., choosing between creating a poster, video, or model to demonstrate understanding), AoL maintained focus while honouring student preferences. Teachers reported that this balance reduced cognitive overwhelm and helped students "manage unpredictability in a safe environment".

The AoL program underscores that learner agency thrives not in unstructured freedom but in environments where choice is intentional, scaffolded, and responsive to developmental needs. As one teacher reflected, *"AoL taught me to step back—it's better not to always be in control"*. By embracing bounded autonomy, educators can cultivate self-directed learners who navigate ambiguity with resilience, ensuring that promises of choice translate into authentic empowerment.

5.11 Balancing Structure and Flexibility: a dynamic equilibrium for cognitive and socio-emotional growth

One of the most persistent themes is finding the appropriate balance between structure and flexibility. The observation that "the free structure was also viewed as a healthy challenge when embedded within safe and supportive conditions" suggests that this is not a simple either/or proposition but requires nuanced implementation. The comment that some children "needed to challenge themselves in that area, and they were able to do so in a safe environment" points to the potential developmental benefits of carefully managed unpredictability.

The tension between structure and flexibility in educational design represents a critical axis for optimising learning outcomes, particularly in programs like the Art of Learning. The findings reveal that while open-ended tasks and student autonomy fostered creativity and executive functions (e.g., cognitive flexibility, resilience), some students, particularly those requiring predictability, initially struggled with the program's dynamic structure. Teachers observed that "the free structure was a healthy challenge when embedded within safe and supportive conditions," highlighting the necessity of scaffolding unpredictability to align with developmental readiness. This aligns with Vygotsky's zone of proximal development (ZPD), which posits that learners achieve mastery when challenges are calibrated to their current abilities and supported by guidance (Vygotsky, 1978).

The AoL program's success in fostering resilience among students who "needed to challenge themselves in a safe environment" underscores the value of productive failure (Kapur, 2024). By allowing students to grapple with complex, ill-defined problems before introducing solutions, AoL created opportunities for cognitive differentiation and deeper conceptual understanding. This approach mirrors Kapur's framework, in which initial failure in problem-solving activates prior knowledge and primes learners for the subsequent consolidation of skills. For example, students designing balloon-powered vehicles faced setbacks but iterated solutions through trial and error, ultimately developing perseverance and adaptive thinking.

However, the program's flexibility necessitated intentional scaffolding to prevent cognitive overload. Younger students, for instance, required concrete metaphors to navigate abstract themes like friendship, illustrating the need for differentiated instruction (Tomlinson, 2014). Teachers and artists collaboratively adjusted task complexity, ensuring activities were neither too rigid nor excessively open-ended. This balance resonates with Csikszentmihalyi's flow theory, which emphasises aligning challenge levels with skill development to sustain engagement (Csikszentmihalyi, 1990). When tasks matched students' abilities, such as tiered invention projects, learners entered states of focused immersion, enhancing both motivation and mastery.

Critically, the AoL model demonstrates that structure and flexibility are not dichotomous but exist on a continuum shaped by embodied cognition and social-emotional safety. Hands-on activities (e.g., simulating virus outbreaks) provided tactile scaffolding, enabling students to internalise abstract concepts through kinetic engagement (Diamond, 2013). Simultaneously, the non-judgmental environment reduced fear of failure, allowing students to take intellectual risks. This dual focus on cognitive and affective domains aligns with self-determination theory, which posits that autonomy, competence, and relatedness drive intrinsic motivation (Ryan & Deci, 2000).

For educators, these insights suggest three imperatives:

1. **Differentiate tasks** to accommodate varying thresholds for ambiguity, using tiered challenges (e.g., optional complexity levels in eco-house projects).
2. **Scaffold reflection** to consolidate learning after open exploration, as seen in AoL's post-activity discussions that linked creative experimentation to curricular goals.
3. **Leverage collaborative planning** between teachers and artists to align creative freedom with developmental benchmarks, ensuring predictability emerges organically from shared goals.

In conclusion, the AoL program exemplifies how structured flexibility can transform unpredictability into a catalyst for growth. By marrying the creative potential of open-ended tasks with intentional scaffolding, educators can cultivate resilient, adaptive learners.

This discussion collectively addresses the fundamental tensions in educational innovation: how to honour individual differences, balance structure with creativity, foster meaningful collaboration across disciplines, and create learning environments that are both challenging and supportive for all children.

5.12 Art is important in itself

One of the most significant discussion points arising from the results is the unique role of art itself within AoL. The artistic dimension is not simply an add-on or a means to make learning more entertaining; rather, it fundamentally shapes the learning environment and process. Both children and teachers describe how the presence of artists and the integration of artistic practices create an open, non-judgmental space where exploration, imagination, and self-expression are valued above simply getting the right answer. As one artist put it, "*It allows room for failure. Perhaps more so than subjects that are purely factual, only facts. It allows room for failure; it allows room to find your own path*".

The artist also introduces a new dimension to everyday school life and interdisciplinary collaboration. One quote illustrates how, in a particular situation, the artist dared to take a more "extreme" approach to teaching than the teacher. The teacher and the artist have different roles and bring distinct professional perspectives into the school setting, which may help explain this difference in approach. A specific example of this is about the troll and loneliness. This theme seems to evoke strong feelings, enthusiasm and empathy in the children. In a group reflection, one respondent suggested that if the teachers had planned that lesson on their own, without input from the artist, they probably wouldn't have dared to make it as bold or emotionally intense. The implication is that the involvement of artists or the AoL framework encouraged a more daring and creative approach than what teachers might usually feel comfortable with, possibly due to constraints such as curriculum requirements.

The artistic approach shifts the educational focus from outcomes to process, encouraging students to engage deeply with content through making, playing, and creating. Students themselves note that learning through art—whether by building, inventing, moving, or improvising—helps them understand and remember more, as it connects knowledge to concrete, meaningful experiences. The integration of art also supports situated learning, where subjects like mathematics, language, and the arts are woven together in real-life contexts, such as planning and running a restaurant. This holistic, process-oriented approach not only enriches academic understanding but also fosters curiosity, resilience, and the willingness to take intellectual risks—qualities that are central to both artistic practice and lifelong learning. The art itself is a catalyst for engagement and deep understanding, making it a core driver of AoL's impact rather than a supplementary feature.

5.13 AoL - A Framework for Executive Functioning and Creative Development?

From the results, the AoL represents a pedagogical innovation that synergistically enhances executive functioning and cultivates creative habits through its interdisciplinary, arts-integrated approach. By

immersing children in dynamic, experiential learning environments, AoL fosters cognitive and creative development in ways that align with contemporary neuroscience and educational research, while also addressing the complexities of individual differences in learning.

5.13.1 Executive Functioning: Cognitive Foundations for Adaptive Learning:

AoL's design actively engages inhibitory control by placing children in environments that balance structure with unpredictability. The program's "controlled chaos"—characterised by collaborative projects, sensory-rich tasks, and open-ended challenges—requires learners to navigate distractions, regulate impulses, and sustain attention. For instance, children working on improvisational movement tasks must resist the urge to disrupt peers while maintaining focus on collective goals. Teachers observed that initially restless children gradually developed self-regulation strategies, such as pausing to plan before acting or using self-talk to stay on task. This progression mirrors Diamond's (2013) findings on how prefrontal cortex maturation thrives in environments that blend emotional safety with cognitive challenge. The program's reframing of mistakes as learning opportunities further strengthens discipline, as children internalise persistence through iterative refinement rather than external rewards.

AoL's pedagogical design intentionally disrupts conventional classroom predictability, creating a laboratory for the development of inhibitory control. Children navigate unstructured tasks, peer collaborations, and sensory-rich environments that demand self-regulation. As one child noted, *"All of them are noisy, and noisy, and noisy... It affects everyone"*, illustrating the challenge of filtering distractions. Yet teachers observed that this "controlled chaos" gradually strengthened children's capacity for:

- **Self-control**: The program's improvisational activities (e.g., movement-based math tasks) required children to suppress impulsive reactions. A teacher described how initially restless children began *"adapting to the structure and engaging more meaningfully"*, reflecting Diamond's (2013) finding that prefrontal regulation matures through practice in emotionally safe yet challenging contexts.
- **Discipline**: AoL reframed mistakes as learning catalysts, saying, *"You learn when you get things wrong*," which fosters intrinsic motivation to persist through iterative refinement. This aligns with the "hot executive function" framework, where emotional engagement enhances goal-directed behaviour (Zelazo & Carlson, 2012).
- **Interference control**: Multimodal tasks, such as designing soundscapes while solving equations, require selective attention. While some children initially struggled, others developed strategies to compartmentalise stimuli, a skill linked to academic resilience (Best et al., 2011).

Working memory is rigorously exercised through AoL's embodied learning tasks, which anchor abstract concepts in multisensory experiences. When children design a restaurant—budgeting costs, writing menus, and prototyping layouts—they must simultaneously retain numerical data, linguistic content, and spatial relationships. This "situated learning" approach, where knowledge is contextualised in real-world scenarios, reduces cognitive load by distributing information across sensory and motor systems (Glenberg, 2010). A child's reflection, *"I remember better when I am doing something"*, underscores how physical engagement strengthens memory encoding. Collaborative projects further enhance working memory by requiring perspective integration; for example,

reconciling peer suggestions with personal ideas during group inventions demands mental flexibility and relational reasoning.

- **Seeing connections**: A child's observation that AoL merges *"sound, energy, math—all mixed together"* mirrors Glenberg's (2010) embodied cognition theory, where sensorimotor experiences create robust neural networks.
- **Considering perspectives**: Collaborative tasks demanded mental flexibility. One teacher noted a child progressing from rigid thinking to proposing alternatives (*"What if we try this instead?"*), demonstrating working memory's role in perspective integration.
- **Translating instructions**: Material-based tasks (e.g., prototyping inventions) required converting verbal guidelines into actionable steps. As a child noted, *"I remember better when I am doing something,"* highlighting the role of motor engagement in memory consolidation.

Cognitive flexibility, the ability to shift strategies and adapt to new demands, is honed through AoL's interdisciplinary improvisation. Tasks like choreographing dances to represent mathematical sequences or designing soundscapes for historical narratives compel children to toggle between abstract concepts and concrete applications. This constant modality-switching strengthens neural pathways linking the prefrontal cortex (responsible for planning) and parietal regions (involved in sensory integration), as described by Barbey et al. (2013). Teachers noted that children who initially struggled with rigid thinking began proposing innovative solutions, such as using kitchen utensils as musical instruments to demonstrate acoustic principles. This evolution reflects Vygotsky's (1978) emphasis on social learning as a catalyst for cognitive growth, where peer interactions and scaffolded challenges expand mental agility.

Executive functioning (EF) was a central theme in both the design of the Art of Learning (AoL) project and the qualitative data collection, featuring explicitly in the interview guide and as a key focus area across all five project reports. Despite this emphasis, Norwegian teachers consistently expressed uncertainty about the extent to which observed improvements in executive functioning, such as enhanced self-regulation, working memory, and cognitive flexibility, could be directly attributed to the AoL program. This ambiguity is a recurring topic in the project documentation, reflecting a broader challenge in educational research: discerning the specific impact of an intervention amid the complex, ongoing development of young children (Diamond, 2013; Blair & Raver, 2015).

Teachers in Norway frequently reflected on whether the developmental changes they observed—such as increased independence, improved collaboration, and enhanced focus—were the result of participation in AoL or simply a natural consequence of maturation and the typical progression through early primary school. This issue is particularly salient in longitudinal settings, where children's cognitive and social skills are expected to evolve rapidly regardless of specific interventions (Best & Miller, 2010). Several teachers described this attribution problem as challenging and difficult to isolate the program's effects. For example, some teachers had joined their classes after AoL had already been implemented, leaving them without a point of comparison to assess what students were like before the program. Others, who had worked with their students since first grade and had always used AoL, acknowledged that they had "never known the pupils without AoL," further complicating efforts to distinguish between program-related and naturally occurring changes.

This variation in the timing and extent of teachers' and students' involvement with AoL was highlighted in the Norwegian teacher analysis, where several educators described it as "challenging to determine where the observed outcomes come from." The teachers often relied on subjective impressions or anecdotal evidence. These reflections align with findings from the broader literature on educational interventions, where the attribution of outcomes is frequently complicated by

multiple, interacting factors within the school environment (Blair & Raver, 2015; Diamond & Ling, 2016).

Despite these challenges, it is important to recognise that teachers' uncertainty does not necessarily undermine the value of the observed changes. It underscores the importance of teacher reflection as a form of practitioner inquiry, contributing valuable insights into educational practices.

In summary, while Norwegian teachers report positive developments in executive functioning among their students, they remain cautious about attributing these gains solely to the AoL program. This caution is rooted in both methodological limitations and the complex, multifaceted nature of child development.

5.14 Creative Habits: Cultivating Lifelong Dispositions

AoL redefines disciplined creativity by framing iteration as a core learning process. Children engaged in cycles of prototyping, testing, and refining inventions, whether constructing sculptures from recycled materials or coding interactive stories, develop resilience against perfectionism. A participant's observation, *"We built things, broke them, and built them better"*, epitomises the growth mindset (Dweck, 2006) that AoL nurtures. This disciplined approach is reinforced through critical reflection sessions, where children analyse why specific designs succeeded and others faltered, transforming trial-and-error into strategic problem-solving.

The program's imaginative exploration thrives on playfulness and associative thinking. Open-ended prompts like *"Invent a machine that solves a community problem"* activate divergent thinking networks, enabling children to synthesise disparate ideas, such as combining physics principles with artistic expression to create kinetic sculptures. This playful ideation mirrors Mednick's (1962) theory of creativity, which posits that it is the ability to form remote associations —a process that is amplified by AoL's material-rich environment. Children frequently described sessions as *"magical"*, not merely for their novelty but because the activities legitimised curiosity-driven experimentation, allowing intuition and logic to coexist.

Persistent engagement is cultivated through AoL's tolerance for ambiguity. Projects with undefined endpoints, such as designing artworks to represent abstract concepts like "energy transfer," and training children to manage uncertainty. A teacher recounted a child's journey from exclaiming, *"This is impossible!"* to proudly showcasing a functional wind-powered sculpture, illustrating how AoL transforms frustration into tenacity. This persistence is further reinforced through risk-taking opportunities, such as presenting unconventional ideas to authentic audiences during invention fairs, which build emotional resilience alongside creative confidence.

The program's inquisitive mindset is modelled through artist-led inquiry. By asking probing questions like *"What if sound could be tasted?"* or *"How might ancient tools inspire future technologies?"*, facilitators demonstrate that expertise coexists with curiosity. Children internalise this stance during field investigations, such as analysing local ecosystems to design sustainable solutions, which blend scientific observation with speculative thinking. These experiences align with Chouinard's (2007) findings on how sustained questioning drives deeper conceptual understanding.

Collaborative synergy permeates AoL's ethos, evident in both child interactions and teacher-artist partnerships. Role-playing tasks, such as simulating restaurant staff negotiating menu changes, require adaptive communication and theory of mind. Peer feedback sessions, where children critique

prototypes using structured protocols, cultivate emotional literacy and reciprocal learning. Meanwhile, the teacher-artist co-planning sessions model productive friction, as educators' structured approaches merge with artists' exploratory methods. A Norwegian teacher reflected, *"At first, we clashed—they wanted chaos, I wanted order. Now we blend both"*, exemplifying Page's (2008) "diversity bonus" where cognitive differences enhance collective outcomes.

5.14.1 Synthesis: Bridging Cognition and Creativity

Neurocognitive research highlights the integrative power of AoL: interdisciplinary tasks co-activate executive control and creative ideation, fostering synergy between analytical and imaginative thinking (Beaty et al., 2016). Culturally, AoL's adaptability across contexts—from Norway to Hungary highlights its universal principles. In conclusion, the AoL program demonstrates that executive functioning and creativity are not competing educational priorities but interdependent dimensions. By interweaving cognitive challenge with creative exploration, it equips children to navigate complexity, reimagine possibilities, and thrive in an ever-changing world.

6. Recommendations and Suggestions for Future Implementation

6.1 For Teachers

- **Embrace and Prepare for Flexibility:** Teachers should be open to the dynamic and less predictable structure of AoL. While some students thrive on flexibility, others may need more scaffolding. Teachers can help by preparing students in advance for changes and by gradually increasing the level of unpredictability in tasks.
- **Balance Structure and Freedom:** It's essential to find the right mix between open-ended exploration and clear guidance. For students who need more predictability, teachers can provide advance organisers or set clear milestones within creative tasks.
- **Reflect and Share Practice:** Teachers are encouraged to reflect on their experiences with AoL and share strategies with colleagues. Peer learning communities within schools can help disseminate effective practices and support the adaptation to challenges.
- **Integrate AoL Principles into Everyday Teaching:** Even outside of AoL sessions, teachers can incorporate more hands-on, interdisciplinary, and process-oriented activities to enrich conventional lessons.

6.2 For Artists

- **Build Trust and Collaboration:** Artists should approach collaboration with teachers patiently, recognising initial uncertainty or scepticism. Joint planning and regular communication are key to aligning goals and approaches.
- **Adapt Artistic Practice to Educational Contexts:** Artists should be mindful of classroom management and the diverse needs of students, adapting their methods to support both highly engaged and more reserved children.
- **Facilitate Reflection and Feedback:** Regularly seek feedback from teachers and students to refine activities, ensuring they are accessible, engaging, and relevant.

6.3 For School Leaders

- **Support Teacher-Artist Partnerships:** School leaders should allocate time and resources for joint planning and reflection between teachers and artists. This investment is crucial for establishing effective and trusting partnerships.

- **Champion a Culture of Innovation:** Encourage a school culture that values creativity, risk-taking, and process over product. Recognise and celebrate both successes and learning from challenges.
- **Provide Professional Development:** Offer ongoing training for staff on interdisciplinary and experiential pedagogies, especially for those less familiar with creative approaches.

6.4 For Parents

- **Engage with the Program:** Parents should be informed about AoL's aims and methods, including the value of creativity, play, and the importance of making mistakes in the learning process. Schools can organise information sessions or showcase student projects to foster understanding and support.
- **Support at Home:** Encourage children's curiosity and creativity outside school by providing opportunities for exploration, play, and discussion about their AoL experiences.

6.5 For Policymakers and Educational Authorities

- **Recognise the Value of Arts-Integrated Learning:** Policymakers should acknowledge the positive impact of programs like AoL on student motivation, executive function, and deep learning, supporting their integration into curricula.
- **Ensure Structural Support:** Provide funding and policy frameworks that allow for flexible scheduling, artist involvement, and interdisciplinary projects within schools.
- **Promote Research and Evaluation:** Support ongoing research to monitor the impact of AoL, identify best practices, and ensure continuous improvement based on evidence.

6.6 Cross-Cutting Suggestions

- **Address Individual Differences:** Recognise that students vary in their need for structure, autonomy, and sensory stimulation. Differentiated approaches and scaffolding are essential for maximising benefit and inclusion.
- **Manage Noise and Engagement:** While some noise is a byproduct of active learning, strategies for managing classroom energy should be developed collaboratively by teachers and artists to ensure all students can participate meaningfully.
- **Gradual Implementation:** For schools new to AoL or similar approaches, consider a phased introduction, starting with pilot projects and expanding as staff confidence and expertise grow.

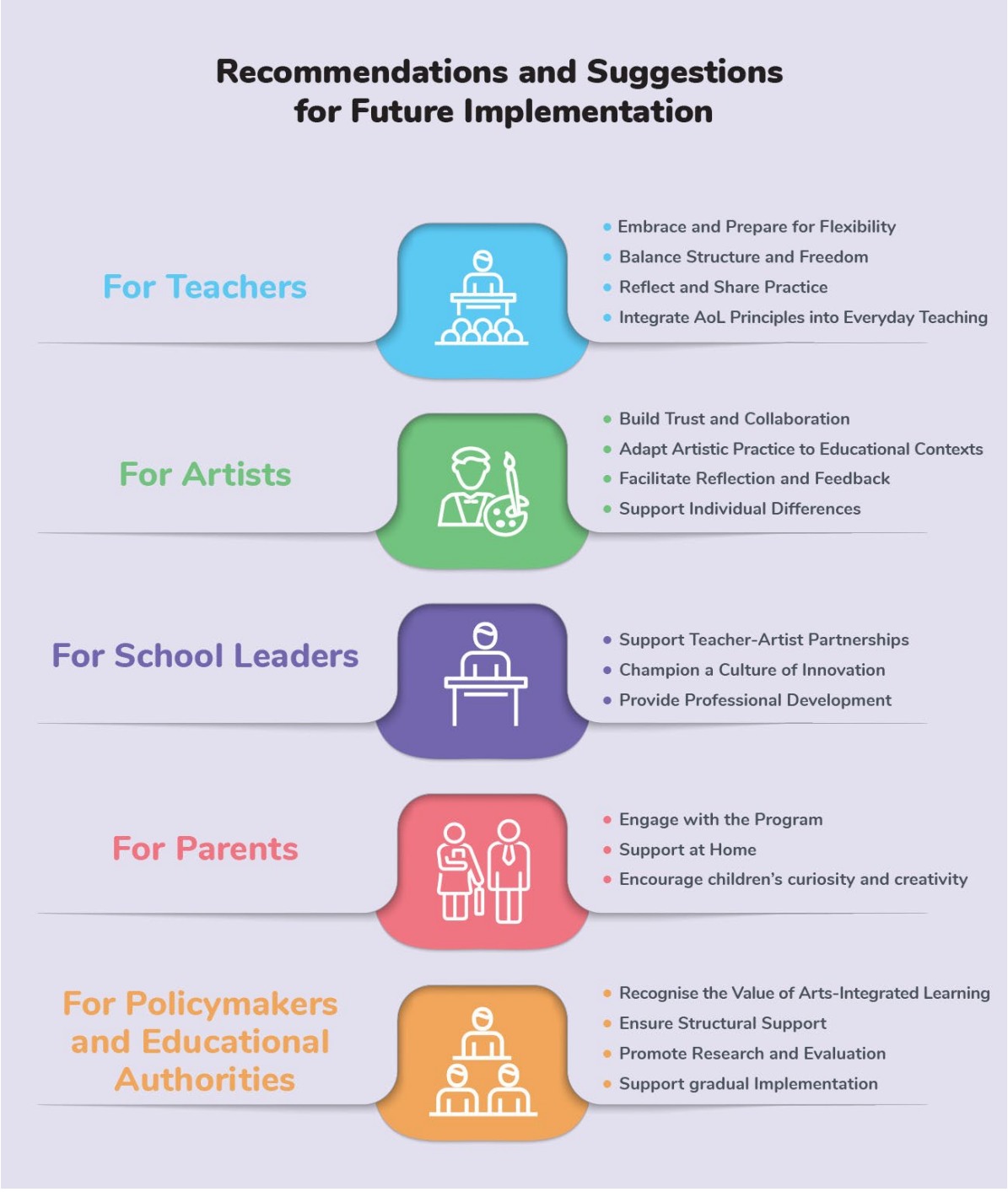

Figure 3. Recommendations for future implementation of AoL

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Appendix

6.7 Interview guides

Children in the Art of Learning (AoL) Program – Interview Guide

1. Could you tell me a bit about your class and your school?

2. You've been taking part in the Art of Learning program at school — can you explain what that means to you?

3. Can you share an example of something you did or learned in AoL?
4. How do you think AoL differs from a regular school practice?

5. What do you like most about AoL?
   a. Do you have a favourite theme or activity in AoL?
   b. What makes that your favourite?

6. Is there anything you like less about AoL?
   a. Can you give an example?
   b. Why don't you like that as much?

7. Is there anything you wish were different about AoL?

8. Have you noticed that an artist has been working with you at school?
   a. For example, Adrian at Jørstadmoen and Aurvoll, Malin at Søre Ål, or Shelli in the Østerdal schools?

9. Have you been able to help decide what happens during AoL sessions?
   a. Like what?
   b. Can you give an example?

10. Have you noticed any changes in yourself during the time you've been in the AoL program?

11. What do you think your classmates feel about AoL?
    a. How do you know?

12. What do you think your teachers think about AoL?
    a. How do you know?

13. What do you think your parents think about AoL?
    a. How do you know?

14. What do you think the artists think about AoL?
    a. How do you know?

15. Is there anything else you'd like to share with me?

Thank you very much for talking with me today!

School Leader / Principal Interview Guide

1. Could you start by telling me a little about your school?

2. Your school has been part of the Art of Learning program for two years. Can you share both positive and negative experiences you've observed?

3. As a principal or school leader, how would you describe your overall experience with the Art of Learning? Could you provide some examples?

4. How do you think the teachers experience the Art of Learning? Can you share any examples?

5. What is your impression of how the children experience the program? Please give examples if possible.

6. How do you feel the Art of Learning has influenced the way teachers approach their teaching?

7. One of the program's goals is to determine whether the systematic use of creativity and art helps strengthen children's executive functions, including memory, concentration, perseverance, planning, focus, flexibility, and impulse control. What are your impressions of this in your school?

8. Another goal is to explore children's sense of mastery at school. How have you seen this reflected among the students?

9. A further goal is to explore children's sense of belonging within the school community. What are your thoughts on this?

10. The program also aims to examine whether collaboration-driven innovation, which involves different professionals, such as teachers and artists, working together, can have a positive impact on both individuals and the school environment as a whole. Could you reflect on

this?
   a. Have you noticed any unexpected benefits?
   b. Were there any dilemmas or challenges?

11. What are your reflections on the three-way collaboration between teacher, artist, and student? What values does this collaboration bring?
    a. How do you see the connection between the personal value experienced by students and teachers and the broader benefits for the school and its surrounding community?

12. Is there anything else important you'd like to share?

Thank you very much for your time and insights!

Artist Interview Guide

1. Could you start by telling me a bit about the children in the classes where you have worked as an artist?

2. Why do you think it's important to include art and creativity in schools?

3. You have been involved in the Art of Learning program for two years. Could you share both positive and negative experiences you've noticed related to the program and the children?

4. As an artist, how would you describe your experience working within the Art of Learning program?

5. How do you think the children experience the Art of Learning?

6. In what ways do you feel the Art of Learning has influenced how you carry out your professional work?

7. One of the program's goals is to explore whether systematic use of creativity and art helps strengthen children's executive functions, such as memory, concentration, perseverance, planning, focus, flexibility, and impulse control. Can you share any observations or experiences related to this in the classes you've worked with?

8. Another goal is to investigate children's experience of mastery at school. What impressions can you share about this among the children you've worked with?

9. A further goal is to explore children's sense of belonging in school. What have you observed about this in the classes where you have worked?

10. Is there anything else important that you would like to share?

Thank you very much for your time and insights!

Teacher Interview Guide

1. Could you start by telling me a little about the children in your class?

2. Your class has participated in the Art of Learning program for two years. Could you share some positive and negative experiences you've observed related to the program and the children?

3. As a teacher, how would you describe your experience with the Art of Learning?

4. How do you think the children experience the Art of Learning?

5. In what ways do you feel the Art of Learning influences your teaching methods?

6. One of the program's goals is to explore whether children can strengthen their executive functions, such as memory, concentration, perseverance, planning, focus, flexibility, and impulse control, through the systematic use of creativity and art. What impressions can you share about this among the children in your class?

7. Another goal is to investigate children's experience of mastery at school. What have you observed in this regard among your students?

8. A further goal is to explore children's sense of belonging in school. Can you share your impressions about this with the children in your class?

9. Is there any other important information you would like to share?

Thank you very much for your time and insights!

Parent Interview Guide

1. How satisfied are you with the Art of Learning program overall?

2. What has your child's reaction been to the program?

3. Have you noticed any changes in your child since they participated in the program?

4. Do you think the program has influenced your child's creativity or executive functions in any way?

5. How would you describe the cooperation between the teachers and artists involved in the program?

6. What aspects of the program did you or your child like the most?

7. What changes or improvements would you suggest for the program in the future?

8. Would you like to see the program continue in your child's class?

Thank you very much for your time and insights!

6.8 Table of interviews*

Interview Types	Norway	Hungary
Student interviews/focus groups	From Student Interview 1 to Student Interview 26	From Student Interview 27 to Student Interview 32
Teacher Interviews	From Teacher 1 to Teacher 6	From Teacher 7 to Teacher 13
Artist Interviews	From Artist 1 to Artist 4	From Artist 5 to Artist 10
School Principal Interviews	From Principal 1 to Principal 4	From Principal 5 to Principal 7
Parent Interviews	From Parent 1 to Parent 6	From Parent 7 to Parent 11

**Interview numbering by country*

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