Literature review report

Early Childhood learning, Critical Thinking, Global Issues, Democratic Life & Motivation

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Executive summary

This literature review synthesises research on early childhood learning (ages 4–8) across five interconnected domains: cognitive development, early critical thinking, effective pedagogy, climate and democratic learning, and intrinsic motivation. Together, these areas provide a comprehensive foundation for understanding how young children make sense of the world and how educators can design meaningful, developmentally appropriate learning experiences.

Research shows that children in this age group are capable of far more complex reasoning, perspective-taking and social participation than early developmental theories suggested. They use symbolic thinking, intuitive logic and emerging empathy to explore ideas, test hypotheses and engage in collaborative problem-solving. These cognitive and social capacities form the basis for early critical thinking, especially when learning is supported through dialogue, guided exploration and play-based inquiry.

Effective pedagogy for young children emphasises active, hands-on, imaginative and social learning. Approaches such as play, storytelling, arts-based making, role-play and guided inquiry enable children to explore concepts deeply, connect new ideas to lived experiences and practise reasoning and collaboration. These methods also create natural pathways into climate and democratic learning. Young children understand environmental and social issues best when they are linked to familiar, everyday contexts and framed through positive, actionable steps that build agency rather than anxiety.

Intrinsic motivation plays a central role across all domains. When children experience autonomy, competence and warm relationships, they show greater curiosity, persistence and engagement. Autonomy-supportive environments—those offering meaningful choices and non-controlling guidance—are particularly effective in supporting critical inquiry, creativity and early democratic participation.

Overall, the literature demonstrates that early childhood learning flourishes when cognitive readiness, social interaction, imaginative engagement, hands-on exploration and autonomy-supportive pedagogy are aligned. These insights provide a strong evidence base for designing learning environments, such as those within the ETY project, that foster curiosity, empathy, agency and early citizenship—empowering young children to understand and contribute to the world around them.

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1. Introduction

Early childhood (ages 4–8) is a formative period in which children develop the cognitive, social and emotional foundations that shape how they understand and interact with the world. During these years, children acquire the early capacities that underpin reasoning, empathy, curiosity, problem-solving and participation in social life. As global challenges such as climate change, sustainability and democratic engagement increasingly impact daily life, educators and researchers have begun to explore how young children can meaningfully engage with these themes in developmentally appropriate ways.

This literature review examines current research on five interconnected domains that are essential for designing learning experiences for young children: cognitive development, early critical thinking, effective pedagogy, climate and democratic learning, and intrinsic motivation. These domains are closely linked. Children's cognitive readiness influences how they reason and make sense of complexity; pedagogical approaches shape how they explore ideas and work with others; and their motivation determines the depth and persistence of their engagement. Similarly, sustainability and democratic concepts—when grounded in familiar, everyday experiences—provide meaningful contexts through which children can develop agency and social understanding.

The aim of this review is therefore to synthesise insights across developmental psychology, early childhood education, sociocultural learning, environmental education and motivation theory. By bringing these research strands together, the report provides a coherent evidence base for designing learning environments that support young children in thinking critically, engaging with global and social issues, and developing early forms of citizenship and democratic participation. The methodology underpinning this review ensures that the analysis reflects both contemporary empirical findings and foundational theoretical perspectives, offering a comprehensive foundation for the educational design choices within the Empower The Young (ETY) project.

2. Methodology

This literature review focuses on research related to early childhood learning (ages 4–8), climate change and sustainability education, democratic life, critical thinking, intrinsic motivation, and pedagogical approaches suited for introducing complex or global topics to young children. Relevant literature was identified through searches in Google Scholar, ERIC, ResearchGate, major university repositories, and key policy and framework documents from international organisations such as UNESCO and the OECD. The search strategy used combinations of terms including: “early childhood climate education”; “democratic education 4–8”; “critical thinking young children”; “intrinsic motivation early learners”; “play-based learning global issues”; “storytelling pedagogy children”.

Studies were included if they met one or more of the following criteria:

- Peer-reviewed research published within the last 15 years, with a small number of earlier seminal publications included for their enduring conceptual relevance.
- Focus on children aged 4–8.
- Examination of pedagogical strategies suitable for complex or global topics (e.g., climate change, democracy, rights).
- Contribution to foundational developmental psychology theories relevant to early childhood learning (both classic and contemporary).

Studies were excluded if they:

- Focused primarily on children older than 8.
- Consisted mainly of domain-specific climate or environmental science without pedagogical or didactic relevance.
- Addressed abstract political theory without clear application to early childhood education or practice.

3. Cognitive development

Children aged 4–8 undergo rapid cognitive change and develop new ways of understanding the world. Piaget (1964) describes this period as part of the preoperational stage, where children think symbolically, use imagination and intuitive reasoning, and can recognise simple patterns and cause–effect relations, but still struggle with abstraction and logical operations. Sociocultural theories complement this view: Vygotsky (1978) emphasises that learning is socially mediated through guided participation and dialogue, while Rogoff (2003) shows that children construct understanding by participating in cultural activities and shared problem-solving. Cognitive and social understanding deepen further through the development of theory of mind. Wellman (2014) demonstrates that children increasingly recognise others' beliefs and emotions, forming a basis for empathy and cooperation. Sensory-rich, varied interactions support children's developing attention and working memory (Gopnik, 2012). Imagination and storytelling also play a central role: Nicolopoulou (2014) shows that narrative experiences help children connect abstract or new ideas to familiar, lived experiences.

4. Early critical thinking

Young children are capable of early forms of reasoning when provided with supportive, structured opportunities to think, compare, and explain. Research shows that children can justify choices, compare ideas, and ask "why" questions when guided appropriately (Kuhn, 2015). Daniel and Auriac (2011) demonstrate that philosophical dialogue encourages children to question assumptions, reflect on ideas, and articulate reasons for their thinking. From a cognitive-developmental perspective, Gopnik (2012) argues that young children act as "natural scientists": they generate hypotheses, test causal relationships, and revise beliefs based on evidence. Collaborative dialogue deepens this process. Mercer and Littleton (2007) highlight exploratory talk as a core mechanism through which children construct shared understanding, challenge ideas respectfully, and co-construct meaning. Play-based inquiry further strengthens critical thinking. Research by Fleer (2019) and Whitebread et al. (2012) shows that imaginative play, exploration, and hands-on investigation support curiosity, problem-solving, and creativity — forming a rich foundation for early critical inquiry. Together, these studies show that critical thinking in early childhood develops not through formal instruction but through guided exploration, peer dialogue, open-ended questioning, and narrative-rich play environments.

5. Effective pedagogy in early childlyhood

Effective pedagogy for young children emphasises active, social and imaginative learning. Play-based learning forms a strong foundation: Fleer (2019) shows that imaginative play supports creativity, symbolic reasoning and emotional expression. Storytelling strengthens memory, empathy and conceptual understanding (Nicolopoulou, 2014), while arts and tinkering help children turn abstract ideas into concrete experiences (Van Oers, 2015). Role-play allows children to explore social dilemmas safely and practise perspective-taking (Rogoff, 2003). Guided inquiry works well when broken into small steps, helping children compare ideas and build early reasoning skills (Kuhn, 2015). Collaborative dialogue is key: children learn deeply through exploratory talk, joint attention and co-construction (Mercer & Littleton, 2007; Rogoff, 2003). Adult guidance is most effective when non-controlling. Daniel and Auriac (2011) show that open-ended questions and reflective prompts support autonomy and deeper thinking. In essence, effective pedagogy for ages 4–8 is playful, narrative-rich, hands-on, collaborative and autonomy-supportive.

6. Climate change and democratic life

Young children understand climate and democratic issues best when these are connected to familiar, everyday experiences. Davis (2015) shows that sustainability learning is most effective when rooted in daily actions such as caring for plants, noticing weather, or helping with recycling. Ernst and Theimer (2011) add that young children gain environmental knowledge when activities are hands-on and developmentally appropriate. Barratt Hacking et al. (2007) demonstrate that even young children can act as “environmental researchers,” asking questions, observing local issues and contributing ideas for action. Democratic understanding emerges in similar ways. Rogoff (2003) shows that fairness, turn-taking, helping others and shared decision-making arise naturally through participation in classroom and community routines. Research also warns against “crisis framing”: overly alarming narratives can overwhelm young children, while positive, action-focused framing supports engagement and agency (Barratt Hacking et al., 2007). Together, these findings show that climate and democracy education should emphasise simple, meaningful actions that children can take in their own environment.

7. Intrinsic motivation and autonomy

Self-determination theory identifies autonomy, competence and relatedness as the core psychological needs underpinning intrinsic motivation (Ryan & Deci, 2000). When these needs are supported, young children show deeper engagement, persistence and enjoyment in learning. Ryan and Deci (2017) further emphasise that autonomy-supportive environments encourage children to explore, experiment and engage with challenging tasks.
Research also shows that intrinsic motivation in early childhood predicts later academic achievement, confidence and wellbeing (Gottfried, 1990). Van Oers (2015) highlights that culturally meaningful, choice-rich activities foster agency and engagement. Together, these studies demonstrate that environments offering meaningful choice, warm relationships and guidance without control cultivate strong intrinsic motivation—essential for inquiry, creativity and democratic participation.

8. Synthesis

Across the five domains reviewed, a coherent developmental picture emerges: young children (ages 4–8) learn best when cognitive readiness, meaningful social interaction, playful exploration, and autonomy-supportive environments come together. Cognitive development research shows that children at this age think symbolically, use intuitive reasoning, and build early empathy and perspective-taking through social participation (Piaget, 1964; Vygotsky, 1978; Rogoff, 2003; Wellman, 2014). These emerging abilities form the foundation on which early critical thinking can grow. Studies on reasoning demonstrate that young children are capable of comparing ideas, asking “why,” testing hypotheses, and co-constructing understanding when dialogue, scaffolding and exploration are carefully structured (Kuhn, 2015; Daniel & Auriac, 2011; Mercer & Littleton, 2007; Gopnik, 2012).

Effective pedagogy in early childhood is active, playful, narrative-rich, hands-on and social. Approaches such as imaginative play, storytelling, arts-based making, role-play, guided inquiry and collaborative dialogue directly leverage children’s cognitive strengths and support their emerging reasoning, creativity and emotional understanding (Fleer, 2019; Nicolopoulou, 2014; Van Oers, 2015; Rogoff, 2003). Crucially, these pedagogies create conditions in which children can practise democratic skills—fairness, turn-taking, negotiation—and engage in environmental learning through everyday, tangible actions.

Research on sustainability and democratic life confirms that children understand global topics best when grounded in familiar routines, local examples and positive,

actionable steps that build agency rather than anxiety (Davis, 2015; Ernst & Theimer, 2011; Barratt Hacking et al., 2007).

Underlying all of this is the role of motivation. Self-determination theory shows that autonomy, competence and relatedness drive deep engagement and persistence (Ryan & Deci, 2000, 2017). When teaching approaches offer meaningful choice, non-controlling guidance and warm relationships, children are more willing to explore, take intellectual risks and participate in collaborative decision-making—conditions essential for climate learning, inquiry and democratic participation (Gottfried, 1990; Van Oers, 2015).

Taken together, the literature demonstrates strong convergence: early childhood learning flourishes when children's cognitive capacities, social participation, imaginative engagement, hands-on exploration and autonomy needs are mutually reinforced. This integrated foundation allows children not only to understand the world, but also to contribute to it—developing the curiosity, empathy, agency and critical thinking necessary for future citizenship, sustainability awareness and democratic life.

9. Conclusion

Taken together, the literature shows that young children (ages 4–8) possess far greater cognitive, social and motivational capacities than traditionally assumed. Their intuitive reasoning, symbolic thinking and emerging perspective-taking form a strong foundation for early critical thinking, provided that learning is embedded in rich social interaction and meaningful, familiar contexts.

Across domains, the evidence converges on a central insight: children learn best when pedagogy aligns with their developmental strengths—through play, stories, hands-on exploration, guided inquiry, collaborative dialogue and warm, non-controlling adult support. These approaches create learning environments in which children can compare ideas, test hypotheses, understand perspectives and co-construct meaning with peers and adults.

Environmental and democratic learning are most effective when grounded in everyday experiences and positive, actionable steps that build agency rather than anxiety. Similarly, intrinsic motivation research demonstrates that autonomy, competence and relatedness are essential for deep engagement, curiosity and persistence.

Overall, the literature supports a holistic view of early childhood learning: when cognitive readiness, social participation, imaginative engagement and autonomy-supportive practices intersect, children develop the foundations needed for critical thinking, empathy, environmental awareness and democratic participation. These interconnected capacities provide a strong basis for designing educational experiences—such as those envisioned in

the ETY project—that empower young children to understand and influence the world around them.

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