Setting the Stage for Inquiry in Early Childhood Classrooms

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What is Inquiry?

Inquiry learning in early childhood is a pedagogical approach to a child-led, curiosity-driven curriculum where young learners ask questions, explore, and engage in problem-solving to build their own understanding. Rather than memorizing facts, children develop critical thinking, creativity, and collaboration skills through play and exploration. Children are active participants in asking and answering questions (Murdoch, 2015). Lilian Katz (1994) suggests that inquiry offers a way to **include children's voices**, creating a curriculum where children direct their own learning in meaningful and authentic ways—unlike traditional theme-based curricula that rarely includes children's investigations. Inquiry connects activities about a single concept (i.e. what are the properties of water), and builds conversations around the collected data (drawings, photographs, and writing) while asking for evidence ("How do you know?" or, "What makes you think that?"). It's about creating a **curated environment** where questions emerge naturally. Inquiry involves observing, questioning, experimenting, and reflecting, turning a child's natural wonder into deep, meaningful learning experiences supported by observant educators.

The Role of Curiosity

Inquiry begins with **something that sparks a child's curiosity**, a moment of wonder that invites exploration. Activating curiosity is far more important and complex than simply delivering information. When a learner is curious, they are more likely to take charge of their own learning and actively seek out information (Murdoch, 2019). Recent research suggests that when children's brains are in a state of curiosity, their learning is deeper, broader, and is retained for longer periods of time (Ostroff, 2020).

The Role of Inquiry in STEM Learning

The use of an inquiry approach is especially suited to Science, Technology, Engineering, and Mathematics (STEM) learning in early childhood. Inquiry-based learning can foster deeper understanding of STEM concepts when young children are guided in the processes of inquiry during investigations. Because children are both naturally curious about how things work and inherently trial and error learners (Farris & Purper, 2021), inquiry learning supports their unique developmental needs. Recent studies have found that early engagement in inquiry-based STEM activities can foster a positive attitude towards STEM topics and can lead to better performance and increased interest in STEM fields later in life. In our view, an inquiry-based learning environment—especially one that integrates STEM—fosters joyful learning and maximizes opportunities for every child to reach their full potential.

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The Teacher's Role

The educator's own dispositions for learning are a key factor in an inquiry-based classroom. Inquiry encourages teachers to approach classroom challenges with curiosity and adaptability. Teachers can model their own curiosity by sharing questions about phenomenon they wonder about and the excitement they feel when they can investigate their wonderings to figure it out. Loris Malaguzzi (1993), the founder of the Reggio Emilia approach, believed in the power of children's curiosity and their ability to learn through questioning. He once said, "*Our task, regarding creativity, is to help children climb their own mountains, as high as possible. No one can do more*."

In a co-regulated environment children are invited to participate in designing the physical layout of the room, collaborate in making rules for the classroom, share their ideas about what they are interested in studying, and work together to document the learning that has occurred.

Claire Warden describes inquiry as a process of learning that centers on the child's curiosity and wonder, but that depends on the teacher's ability to facilitate opportunities. The teacher who embraces inquiry provides invitations for learning that validate student interests and supports the problems they encounter when offered interesting and open-ended materials. By framing children's questions as opportunities to learn, teachers model the persistence and growth mindset that are the goals for students. These are skills educators develop with practice and reflection and determine which of four approaches to inquiry they implement.

Four Approaches To Inquiry

	Structured Inquiry	Controlled Inquiry	Guided Inquiry	Open Inquiry
Who is posing the question(s)?	Teacher	Teacher	Teacher	
Who is planning the procedure? (what materials to use, the way data is recorded . . .)	Teacher	Teacher		
Who is determining and explaining the results? (is it an open-ended problem with many possible solutions or is there only one right answer?)	Teacher			

There are 4 basic styles of inquiry although the labels may vary. The range of types of inquiry differ according to the structure and direction given by the adult. Like play-based curricula, inquiry learning enables children to be active participants in their learning. Like emergent curriculum, not all inquiry learning proceeds in the same way, but **all inquiry learning does begin with a question**. In open inquiry the question is most often generated by a child. After the main question is identified, additional questions can be generated and refined. Children begin to investigate, individually or in small groups, engaging with materials, testing ideas, and making predictions. As they observe what happens they may be sketching, writing, or making models and refining their thinking as they go. They often revisit questions with fresh observations. As they consider materials that have been gathered, they make observations and ask new questions that arise. These experiences ignite curiosity about interesting phenomena and inspire questions children can explore further. Throughout the process, the teacher supports the children by observing their efforts and providing feedback when needed, gathering materials, bringing children together to consolidate learning, collaborating with ongoing documentation, and encouraging individual and small group researchers to build on one another's ideas.

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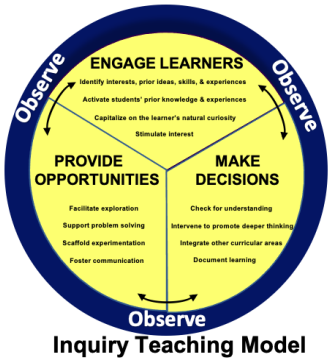
Inquiry Teaching Model



Inquiry Teaching Model

The Inquiry Teaching Model (Counsell et al., 2016) describes how teachers of young children can support inquiry. Inquiry-based teaching is a pedagogical approach that invites students to explore academic content by posing, investigating, and answering questions. It puts students' questions at the center of the curriculum and places as much value on research skills as on knowledge and understanding of content. An inquiry-based curriculum develops and validates 'habits of mind' that characterize a life-long learner: An inquiry-based approach allows students to draw connections between academic content and their own lives, which can be particularly important for culturally and linguistically diverse learners.

Observation is the foundation for this model as teachers engage students in play-based experiences and document their questions and wondering. Through observation educators can identify interests and ideas, activate prior knowledge/experiences, and capitalize on the learner's natural curiosity. After engaging children, observation continues to facilitate children's investigations by supporting problem solving and fostering communication and collaboration. As the investigation continues, the educator makes decisions by checking for understanding, scaffolding to promote deeper thinking, and collaboratively document the learning that is taking place. Educators in an inquiry-based classroom use their own inquiry skills to validate and support what children are doing. Noticing children's efforts as they grapple with an investigation and supporting their efforts even when the outcome is not what was planned is all part of the "letting go" of traditional teaching that inquiry teachers must embrace.

Pedagogical Moves to Embrace Inquiry

Adults must think carefully about the language they use to support children's inquiry. It is essential that the language chosen supports inquiry without distracting children from their work. Children who are engaged in an investigation may be distracted when teachers praise them. The goal is for children to solve the problem or answer the question they have posed for themselves rather than to please the teacher. Other moves include:

- Develop relationships with children and families, so skills, interests, and funds of knowledge are curated.
- Provide time and space for investigations
- Provide children with interesting, open-ended materials (include materials that children provide)
- Use careful observation and documentation to make decisions about when to change, add, or remove materials
- Observe and intervene when children indicate they need assistance
- Use the right questions at the right time
- Make the most of children's excitement when they discover something interesting
- support the growth of executive function skills by calling children's attention to the successful parts of new things they are trying, and how they are doing them (Johnston, 2004).

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Final Thoughts

Early childhood educators play a critical role in facilitating the development of children's inquiry skills including designing and engineering educational experiences and classroom environments. As they support young children to engage in collaborative classroom practices, executive function skills, including working memory (making sense of information over time), inhibitory control (managing reactions to situations), and cognitive flexibility (smoothly shifting between tasks and thought processes) are developed and supported

In developmentally appropriate classrooms educators are responsive, notice children's strengths and interests, and design meaningful learning experiences based upon them (La Paro & Gloeckler, 2016**).** This includes following children's leads in identifying materials that will expand their imaginations and enhance their cognitive, social and emotional, and physical development (Rentzou, 2014). Teachers support children to engage in inquiry with invitations that validate their interests and tap into their funds of knowledge, provide open-ended materials and time to investigate, and engineer classrooms that reflect the social and cultural contexts of the group. When educators give children a voice in how they spend their time, help them make choices, and discuss outcomes, they nurture traits such as curiosity, wonder, and joy and support children's approaches to experiences and the development of dispositions or "habits of mind" (Katz, 1993).

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