

What does the research say?

Early Learning with Robotics Play is an evidence-based program that provides session prompts and topics for educators and parents to better understand strategies and techniques for improving children's social-emotional, communication, language and numeracy skills through robotics play.

The benefits of engaging children in robotics play

In recent years, research has signalled that by playing with robotics technologies, child's natural curiosity and sense of inquiry-based dispositions and social communication can be harnessed. Robotics offer multimodal ways of engaging and meaning making – through touch, sound-visual-movement, and physical encounters- that go beyond simple screen time or printed text.

Through playful explorations with robots that operate using coding apps, children are provided with unique opportunities to engage with storytelling, communicating with their peers/siblings (e.g., via role play and engage in coding the robot to perform problem-based tasks), and collaborate to build creative solutions to real-world issues using everyday recyclable resources.

The key benefits of robotics play are summarised:

- Imaginative play with the robot can enable children to experiment with social and emotional skills such as empathy, and demonstrate expressive language and communication skills for social interaction and engagement with peers.
- Purposeful, child-led imaginative play can support pattern recognition and sequencing.
- Robotics play has been found to facilitate collaboration and shared goal-setting.
- Robot play allows for children to test problem-solving skills and communicate solutions.



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Victorian Early Years Learning and Development Framework (VEYLDF) Practice Principles focus

Participants will have the opportunities to reflect together and with the program facilitator in their learning journey and progression towards children's development of social-emotional and language skills.

Our program ensures that participants are provided with strategies to be able to incorporate into their planning of activities and robot experiences that cater to the family's priorities and children's goals. In summary, the program supports participants to align their practice with the below Practice Principles.

- Reflective practice
- Respectful relationships and responsive engagement
- Integrated teaching and learning approaches

Outcomes for children

Our program is conceptualised on the premise that children's learning of skills of building respectful relationships are deeply connected to the quality support system available in their natural learning environments. The program ensures educators walk away with strategies to achieving children's development of:

- Express emotions and behaviours in the form of words and questions

- Embody resilience during manipulative play with the robot toys and collaborating with peers to achieve a shared goal
- Evaluate encountered problems and pose solutions using drawing and coding
- Engage in continuous questioning, suggest ideas and pose solutions between and/or amongst each other (with adults and peers)
- Learn about negotiation, conflict resolution, understanding social cues, and listening to each other's (adults' and peers') perspectives
- Develop literacy skills such as listening, speaking, early reading and writing skills
- Develop numeracy skills on recognising and using patterns and relationships, using measurement, spatial reasoning and counting with whole numbers

Learning outcomes for participants

By engaging in this program, participants will be equipped with an evidence-based teaching and learning framework for integrating robotic resources and strategies that can be drawn on within their existing play and learning settings.

The program activities are designed to save participants' time for extra planning. Instead participants can focus directly on providing children with quality and evidence-based strategies for improving their child social-emotional and communication skills. The learning outcomes for participants are as follows:

- Identify some of the ways to encourage children to collaborate in group work
- List some actions/strategies participants can enact in their setting to promote robotics play
- Reflect on practice while using strategies to build children's self-regulation and empathy
- Recognise some of the benefits the robotics play can have on children's communication and language and numeracy development
- Encourage children in pretend/role play and story-telling techniques while collaborating in play with the robots
- Reflect on personal strengths to build confidence in enacting robotics play with children