



National Quality Standard Professional Learning Program



Inquiry-based learning

Young children love to ask questions. It's one of the ways in which they make sense of the world and their place in it. Questions are also a powerful tool for educators to promote children's thinking and learning. They exercise their sense of agency and develop valuable and complex problem-solving skills. When children are able to pose questions and investigate the answers, they feel in charge of their own learning. Inquiry-based approaches to learning harness this spirit of investigation, creating an interesting, engaging and meaningful curriculum that uses children's interests and questions as a starting point for effective learning.

The *Early Years Learning Framework* (EYLF) (DEEWR, 2009) recognises inquiry as a central component in effective learning, not only in childhood but also throughout life:

'Active involvement in learning builds children's understandings of concepts and the creative thinking and inquiry processes that are necessary for lifelong learning' (EYLF, p. 32).

Learning Outcome Four specifically highlights the importance of children becoming confident and involved learners through the development of 'skills and processes such as problem solving, inquiry, experimentation, hypothesising, researching and investigating' (EYLF, p. 35).



The *National Quality Standard* (NQS) (ACECQA, 2011) addresses this kind of learning in Quality Area 1: Educational program and practice:

- Each child's current knowledge, ideas, culture, abilities and interests are the foundation of the program (1.1.2)
- Each child's agency is promoted, enabling them to make choices and decisions and influence events and their world (1.1.6)
- Educators respond to children's ideas and play and use intentional teaching to scaffold and extend each child's learning (1.2.2)

Inquiry-based approaches reflect a view of the child as a constructor of their own knowledge and learning rather than simply as a passive recipient of someone else's. This active view of the learning process reinforces the need for learning experiences that allow children the chance to follow their own interests and shape their own learning.



Extended learning: More than a one-off

Learning can be shallow or deep. It can skim the surface of many things or it can engage deeply with a few ideas. Inquiry-based approaches aim to encourage deep learning—learning where children are absorbed and fascinated; learning where children are active and involved; and learning where children make connections and develop significant understandings.

For young children the most effective learning happens when they have repeated opportunities to use materials and resources to develop understandings of new concepts and ideas. This is particularly true of the kind of learning exemplified in the EYLF's Learning Outcomes. None of the outcomes can be 'achieved' via a single experience; they will be the product of many experiences over time.

One of the best aspects of inquiry-based approaches is that they often lead to extended, ongoing investigations. Learning experiences that extend beyond one-off activities, that can be repeated or returned to, and that lend themselves to ongoing involvement, encourage deep learning. The ongoing nature of such experiences ensures that children's engagement with them becomes deeper and richer. When children reflect on what they have done previously; plan for what they are going to do in the future; and have the opportunity to discuss, rethink and change their plans as they go, their learning and thinking becomes far more complex.



Example: From aeroplanes to dinosaurs ... one term's learning journey

Sometimes, in responding to children's interests, ideas and questions, you just don't know where you are going to end up. From an initial idea, learning can travel in so many directions, gathering its own momentum as it goes. For children, such open-ended learning is important because of the way it affirms and values their ideas and choices. It is an exciting way to enrich and inspire children's learning and involvement. As the following example demonstrates, open-ended inquiry-based approaches to learning provide opportunities for rich, unexpected and valuable learning outcomes, that might not otherwise occur.

Our dinosaurs started off their life as aeroplanes. For several weeks the children had been interested in making paper planes. At first they needed almost total adult assistance. Within a couple of weeks however they were beginning to master the paper folding skills needed to make their own. Using paper with pre-marked fold lines many of the children quickly graduated to making their planes completely unaided.

As their skill level and confidence improved, a number of children began to experiment with the design of their planes. Our initial model had included a basic tail that was made by cutting the fuselage and folding it upwards. A number of children realised that by making more than one cut their plane could have more than one tail. Planes with two, three, four and more tails quickly followed. At the same time the children also began to experiment with wing flaps of different sizes and shapes. There was much discussion about what made the 'best' kind of plane and plenty of test flights as the new models were evaluated. As a learning experience, our investigation of paper planes was already a valuable example of extended and complex learning.

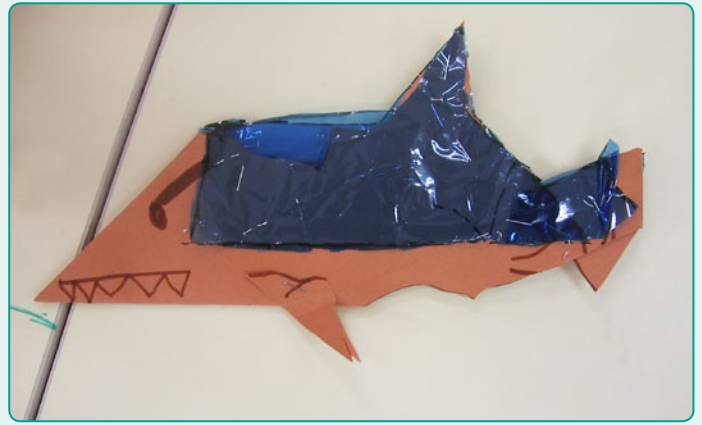
Then one day something unexpected happened. One of the children began making a standard paper aeroplane but after the first few folds he realised that the shape of the folded paper would make the perfect basis for ... a shark!

Armed with a stapler, a pair of scissors, and some adult assistance, his half-finished plane quickly became a fully fledged shark. Other children who had been making paper aeroplanes suddenly became interested in sharks too. Over subsequent days the children made more sharks—each time refining the design further. They compared their own models with some of our toy sharks and with some pictures we found in a book and made further modifications—adding additional fins and markings on the shark's skin. Most importantly they decided that they wanted a shark whose mouth could open and shut. After much discussion about how this could be done we found some split pins in the craft cupboard and used these (along with serrated scissors) to make moving jaws full of sharp teeth. The children loved the movement that the split pins created and soon added movable fins and tails to their sharks.

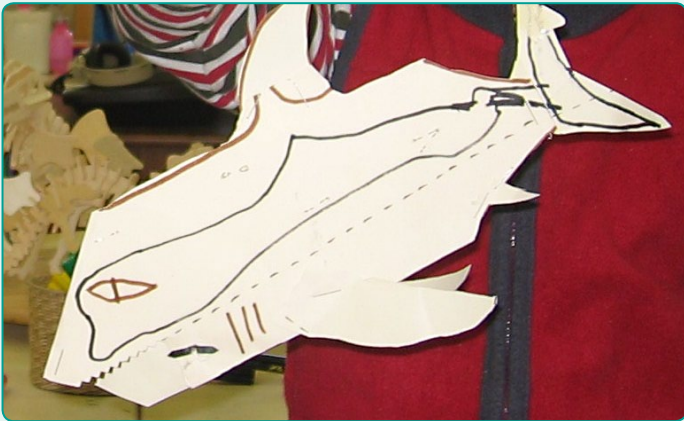
At this point the whole project took another unexpected turn when the interest in sharks intersected with a growing interest in dinosaurs. At the same time as our interests in aeroplanes and sharks had been developing, some of the children had also been deeply involved in drawing dinosaurs. Inspired by the success of the sharks, they decided that they wanted to make their drawings into models that moved. Over the subsequent days they quickly and successfully adapted the techniques of shark construction to producing dinosaurs of all shapes and sizes.



Paper aeroplanes



The prototype shark



Sharks with teeth and moving jaws



Dinosaurs

Each of the three stages of this journey represented a valuable learning experience in and of itself. But they also built on each other. Without the aeroplanes there probably wouldn't have been any sharks, and without the sharks the dinosaurs probably would have stayed as drawings. Together they demonstrate the importance of allowing children opportunities to explore, investigate and inquire—both for the sake of being responsive to children's interests but also for the added complexity and depth that such investigations bring to the learning experience.



Project work

One form of inquiry-based learning is project work which involves children investigating a question or problem over a period of time. While a project often starts off with a particular question or area of interest, how it develops is affected by children's changing ideas and responses. Unlike a theme-based approach, where a central question or idea provides the stimulus for a collection of pre-planned activities or experiences, projects tend to develop spontaneously as children engage with the original idea and then take it in their own direction. While educators plan with experiences and outcomes in mind, the essence of a project is that it is responsive, flexible and open-ended, able to move with the children's ideas and questions as they arise.

Because of this, projects can be unpredictable, but this is an important part of their success. When educators support children to follow and investigate their own ideas, they not only foster learning about the specific ideas under investigation, they also enable children to exercise their growing sense of agency and autonomy and promote inquiry, curiosity and exploration as valuable approaches to learning.

Conclusion

Inquiry-based learning is supported when:

- **Educators see themselves as co-learners, working with children as they learn.** When this happens educators feel less focused on transmitting knowledge and are more likely to support and extend children's own attempts at understanding.
- **Children have the time, space and resources to become deeply involved in their investigations.** Learning is richer and more effective when it develops over time and when there are opportunities for planning and reflection throughout the experience.
- **The physical environment contains materials and spaces that encourage curiosity, investigation and wonder.** Interesting and engaging materials or resources can provide the stimulus for children's questions and investigations. It is also important to ensure that children can access the materials and resources that they need easily and quickly. When this happens, they are able to resource their own learning and to follow their own investigations in whichever direction they lead.

- **The daily routine allows children large blocks of uninterrupted time in which to think, investigate and explore.** Thinking and learning happen more effectively when they are unhurried; ideas need time to develop.
- **Inquiry is seen as a collaborative task.** Children's learning is enriched when they work with others to solve a problem or investigate an interest. Exposure to others' ideas and perspectives helps to broaden individual understandings, and as children work together on a joint project they develop strong relationships with each other. The inquiry process also provides a context for educators to engage in sustained, shared conversations with children. Through such conversations educators are able to enrich and guide children's thinking and learning, and children gain new understandings of themselves, the learning process and the topic at hand.

Above all an inquiry-based approach helps to create a culture of investigation and active learning. The EYLF talks about the importance of creating a 'lively culture of professional inquiry' among educators. It should be our aim to create the same kind of learning environment for children. Supporting and encouraging questions, curiosity and the investigation of interesting ideas and questions are all important ways to start ...

Luke Touhill

Early childhood consultant and writer

References

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- Department of Education, Employment and Workplace Relations (DEEWR) (2009). *Belonging, Being and Becoming: The Early Years Learning Framework for Australia*. Canberra: DEEWR.

Biography

Luke Touhill is an early childhood consultant and writer. He has worked in early childhood for 20 years as a teacher, director, manager and trainer. As a teacher his interests include project-based learning and the integration of 'real' experiences, such as cooking, woodwork and gardening, into early childhood programs.

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