



National Quality Standard Professional Learning Program



Play-based approaches to literacy and numeracy



Literacy and numeracy are essential skills for all children to develop. Without them modern life becomes almost impossible. Yet, there is often disagreement about how we should approach this learning, and when aspects of it should be introduced to children. When we think of literacy and numeracy, we often think of school rather than prior-to-school settings, and of formal teaching methods based on rote learning and memorisation. From this perspective, it can sometimes be hard for us as early childhood educators to see how literacy and numeracy are relevant to our work in the very early years of a child's life. The temptation can be to leave literacy and numeracy for schools to worry about while we direct our efforts elsewhere.

And yet, as the *Early Years Learning Framework* (EYLF) strongly reminds us, the foundations of literacy and numeracy are laid well before formal schooling starts:

Positive attitudes and competencies in literacy and numeracy are essential for children's successful learning. The foundations for these competencies are built in early childhood (DEEWR, 2009, p. 38).

We therefore have a responsibility to incorporate literacy and numeracy into our programs, but to do so in a way that is in keeping with the principles and practices of the EYLF and of sound early childhood practice.

Two previous e-Newsletters (No. 18 *Becoming literate* and No. 22 *Being numerate*) have looked in detail at what literacy and numeracy mean in the context of early childhood and the EYLF. In this e-Newsletter we will consider how we can incorporate teaching and learning about literacy and numeracy into a play-based program and why this is so important.

The value of play

As the EYLF argues, play provides an important 'context for learning' where children are able to explore ideas, solve problems, make connections and engage with others (DEEWR, 2009, p. 9). Play-based learning plays a crucial role in the development of literacy and numeracy. Both literacy and numeracy are forms of communication; ways in which we represent and share information with others about our world. Because literacy and numeracy are essential life skills, children need opportunities to use them (and to see them being used) in real life situations. Worksheets and other 'formal' teaching strategies tend to make learning abstract and dry. As Marcelle Holliday (*Every Child*, 2013, p. 9) argues, such 'de-contextualised' approaches can, for many children, make 'learning more difficult'. In contrast, when children are exposed to literacy and numeracy learning through hands-on, practical and play-based experiences, they are more likely to engage meaningfully and successfully with them.

As children play at shopping in the home corner, using play money and a cash register, they begin to engage with counting, addition, subtraction and various other mathematical concepts. Similarly, when children 'read' a recipe and measure out ingredients as part of a cooking experience, they are working with ideas about volume, quantity and measurement and learning how procedural texts work. Such experiences allow children to connect with literacy and numeracy at their own pace and to use their ideas and language in contexts that mirror real life.

Incidental learning

In the early childhood classroom much literacy and numeracy learning is incidental—meaning it happens as a result of being in environments rich in language and mathematics without the need for direct instruction. When children see language and number concepts used around them in meaningful ways and as part of their everyday experience they begin to internalise them. They begin to recognise words, letters and numbers and use language and ideas that they have seen educators or other children use. An environment that is rich in literacy and numeracy possibilities is therefore an important starting point.



Example: Building numeracy

Most construction toys, from wooden blocks to Lego bricks, are designed so that they fit together neatly and easily. Typically the pieces of such toys are scaled so that their dimensions are in proportion to all of the others. The nature of these proportions means that such construction materials are an ideal medium for teaching and learning about mathematical relationships. This may sound complex, but when you observe it in action, it shows how much maths is present in children's everyday play. At a basic level such materials encourage the use of positional language and the language of measurement. This can be relatively informal—long and short, big and small, over and under, on top of and below—but it can also become more specific and precise.

Watching children play with Lego demonstrates this. The dots on top of each Lego brick not only help to join the bricks together, they also provide an inbuilt system of measurement. Listen as experienced Lego builders talk and build—'I need another four', 'I need a little piece—just two dots', 'I need a thin piece to make this as high as that', 'I need a one to fill this gap'—and you will see that they are doing quite complex maths, involving addition, subtraction and even fractions, in order to work out the exact pieces that they need to complete their creations. Listen to the educators who are involved and you will also hear the deliberate use of mathematical language and ideas—how many more do you need? what will fit there? what size is that? that's half as long (or twice as big) as the other one!—designed to develop and consolidate children's mathematical understandings as they emerge.

By providing the materials that encourage such play and by naming and drawing attention to what children are learning as they engage with the materials, educators play an invaluable role in scaffolding the development of children's mathematical thinking.

Reflection

Think about what opportunities there are for literacy and numeracy in your learning environment. Where, for example, can children see print? Where can they see numbers? How do you incorporate mathematical language and ways of thinking into your discussions and interactions with children in a natural way? What motivation is there for children to use complex and detailed language—spoken and written? And how do you show that their efforts to do so are valued?

Remember too, that literacy and numeracy are about more than just the three R's—'reading, writing and arithmetic'. While these are obviously important, a broader definition of literacy incorporates all forms of communication, including the visual and performing arts as well talking, listening and storytelling (DEEWR, 2009, p. 38). An environment that encourages all of these plays an important role in developing children's sense of themselves as effective communicators and is likely to lead more naturally to an interest in reading and writing.

Similarly, numeracy is about more than just counting. Recognising patterns, sorting and categorising objects, talking about time and the patterns of the day, measuring and calculating amounts, arranging objects in space and identifying shapes, are all examples of mathematical thinking that contribute to numeracy. Materials and resources that allow children to problem-solve and explore the world 'mathematically' are therefore key elements in the development of numeracy. Blocks and other construction materials, puzzles, and opportunities for patterning and sorting using, for example, found materials such as shells, seeds or leaves, all provide experiences that encourage mathematical thinking and the use of mathematical concepts and language.



Example: 'Words we use'

At C&K Redlands Kindergarten in Brisbane, educators have compiled a book of 'words we use'. The book—a simple display folder—contains commonly used words and names along with pictures representing each word. It sits on the writing and drawing table so that those children who are beginning to explore writing can find some of the words they want to use independently. Often the writing that results enriches children's play experiences as they make signs, labels and notices that are then used in their play.

As children flick through the book to find the word they want, or the name of a friend, they are engaging with literacy and developing their own skills as competent readers and writers. Such environmental supports for literacy enable children to write without always having to rely on an available adult to help. It is a good example of the kind of intentional and thoughtful planning and preparation that goes into creating a supportive literacy environment.

As teacher, Margaret Sear explains:

The children are very passionate about writing 'letters' to each other at present and have been doing this for a while now due to the discussions we have about words and letters throughout each day. I have used the 'words we use' book for a few years now and find it's very good as a focused reference for literacy as it is relevant. When the children are working on an interest or project then we can quickly find words they might want to 'write'.

Our writing interest usually begins with a welcome letter that each child receives at the start of the year. Straight away many automatically want to write back and so it begins. We like to have a literacy focus throughout the program right from the start. It is about lots of little things that happen regularly. So for example, from day one the children have the opportunity to sign themselves in every day and we talk about literacy whenever the occasion arises. Obviously at the beginning many are making marks rather than 'writing' but that's an important first step and the thing is to encourage them in trying.



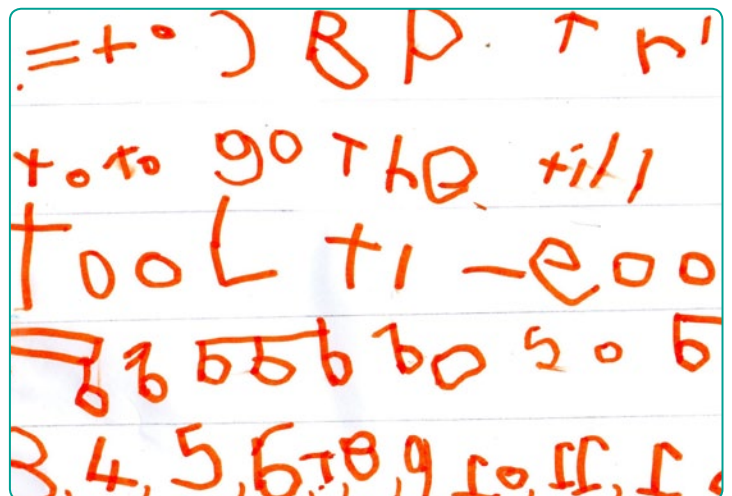
Literacy and numeracy from birth

While our focus on literacy and numeracy will often be stronger in the preschool years it is important to remember that literacy and numeracy learning begin from birth. For those who work with children under four there is still much to be done. Although it may not look much like the literacy and numeracy work we engage in with older children, these interactions provide the foundation for children's later learning.

The use of language in all its forms is vital for literacy development. Singing, talking and reading with babies and toddlers, as well as older children, is crucial. The more children hear language used, and the more opportunities they have to use it themselves, the more they learn about how it works. When the time comes for written literacy this understanding of oral or spoken language is invaluable.

For infants and babies, nursery rhymes, songs, picture books and to-and-fro conversations are all good examples of 'literacy experiences'. As they become mobile and more able to explore their world children also begin to understand spatial relationships and distance—key mathematical concepts. Opportunities to climb over, under and through, as well as to look at the world from different perspectives, all contribute to the development of spatial awareness. Incidental counting and measurement experiences help to introduce children to the concepts of number and quantity.

Cumulatively, such experiences add up to something significant. When they become part of everyday, and when we realise their potential as learning experiences and take advantage of our opportunities to observe and support children's developing understandings, they form a critical basis for later learning.



When children begin 'making marks' and incorporating symbols—letters, numbers and personal symbols—in their communications, we know they are grasping the idea that 'marks carry messages'.

Intentional teaching

While incidental learning is an essential strategy in a play-based program it is important to recognise that not all learning will happen in this way. Incidental learning can be powerful but it can also be haphazard. For every child who develops a clear understanding of a particular idea or concept there is potentially another who may not. This is particularly true for complex ideas such as those involved in literacy and numeracy. Such learning is too important to be left to chance. If we want children to make important connections and to transfer knowledge and understanding between experiences, then we need to think beyond a purely incidental approach.

It can be easy to assume that the educator's role in a play-based program is always hands off: we prepare the environment, provide the resources and stimulus and then sit back to watch the result. Sometimes we will take this approach. But sometimes we also need to be involved. When educators engage with children as they are learning they are able to support, extend and challenge their thinking. They can provide language to describe what is happening and help to scaffold children's learning and understanding. This involvement, when it is deliberate, thoughtful and purposeful, can be thought of as intentional teaching.

Being intentional about literacy and numeracy means taking an active role in promoting it—through the experiences we provide and also through the way that we interact with children and deliberately focus on literacy and numeracy concepts. This will involve spontaneous responses to children's play where we take advantage of opportunities to talk about literacy and numeracy as they arise, as well as more carefully planned experiences that we have deliberately designed to introduce or extend an idea or concept.

Understanding literacy and numeracy

Effective literacy and numeracy learning is not just about providing children with opportunities to utilise their developing skills. It is also essential that educators have a strong understanding of the concepts that they are seeking to teach. As the EYLF points out in relation to numeracy:

Educators require a rich mathematical vocabulary to accurately describe and explain children's mathematical ideas and to support numeracy development (DEEWR, 2009, p. 38).

Without such knowledge it is unlikely that we will be able to recognise and capitalise on opportunities for literacy and numeracy learning when they present themselves. Nor will we be able to effectively plan for the ongoing development of this learning.

Educators also need an understanding of how literacy and numeracy develop; that they are both evolving processes whereby children gain more and more sophisticated understandings over time. Effective literacy and numeracy learning, rather than depending on the impact of a single lesson, is instead built on the cumulative impact of many, often smaller, experiences and interactions. By providing children with regular, ongoing opportunities to use literacy and numeracy throughout the day, each and every day, we help to establish knowledge and positive dispositions and the ability to apply knowledge in practical and meaningful contexts.

In this sense literacy and numeracy are not for sprinters—they are long distance events, where motivation and persistence are important. Providing children with positive experiences of literacy and numeracy from the start, helping them to feel successful, is an essential factor in building this motivation and persistence. By beginning with play, and utilising its innate appeal to children, we can offer each child the best start in their journey to becoming literate and numerate.

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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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Jenni Connor wrote the e-Newsletter series in 2011–12 and is responsible for liaising with authors and overseeing the production of the 2013 series.

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