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Early Childhood Australia is listed as a commercial publisher with DEST.

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EDITIORIAL

Many of us, who have worked for years to raise the profile of the early childhood sector, are beginning to see people outside our profession understanding the importance of the early years. It is an exciting time as we reach out to share our knowledge and expertise with many other professionals, parents, and government. However, we cannot be complacent. Despite the efforts of organisations such as Early Childhood Australia, there remains significantly less public and media interest in the early years than many other areas of research. Wake (2004), for example, suggests that research on (or with) children gets very little press in comparison to research on issues such as women’s health, reproduction, and cancer.

This makes our role as early childhood researchers and practitioners absolutely crucial. We have an obligation, not just to publish our research in scholarly journals; we must also strive to raise public interest in what we do. We must find exciting ‘hooks’ to capture media attention and stimulate wider public interest and debate regarding issues relating to young children. The articles in this issue of AJEC all have the potential to capture the public’s imagination and to excite discussion in a range of formal and informal settings.

Greenfield presents the voices of children as they talk about outdoor play, reminding us how important it is to listen to children, and how it is not difficult to do so if we make a genuine effort. Greenfield shows how we can benefit from sharing children’s view of the world. Kilderry, Nolan and Noble continue the discussion of multiple perspectives in research (of which children’s voices are one important component). They identify a renewed interest in early years research and point out how the early childhood sector can benefit from this. Brooks, also using children’s voices but in a different way, presents a framework for analysing children’s drawing. Drawing is a unique way that young children can use our interpretation of this meaning to extend children’s learning and to excite discussion in a range of formal and informal settings.

New technologies also offer learning opportunities for young children. O’Rourke and Harrison discuss the use of Young Explorer Units, an integrated approach to learning that focuses on children’s strengths and capabilities, enabling them to become more effective learners. Macmillan also reports on a project aimed at taking an integrated approach to learning, targeting numeracy for young children. There are many numeracy learning opportunities in the ordinary, everyday activities of young children—an understanding of how these can be used to extend children’s learning will ensure that children approach numeracy with curiosity and excitement.

Children learn informally from the world around them, as well as from the planned learning opportunities provided for them. We know that many children watch long hours of television each week, and that what they see on television becomes incorporated into their understanding of the world. Lambert and Clancy present an analysis of the content of a mainstream children’s animated television program. It is important that we are aware that a program such as Bob the Builder, one that most parents would consider relatively harmless, can present contradictory messages to children about the roles of men and women. Harrison discusses another popular children’s television program, Playschool. Playschool has developed through a framework that defines children as active learners who should be empowered, through their television viewing, to be creative initiators of their play and learning. This commitment to effective children’s learning contributes significantly to the success and longevity of this program, the favourite of many young children.

All these articles have exciting messages for people outside our profession. How are we going to get this information out to those people? Authors and readers alike share a responsibility to increase the profile of early childhood research: to talk with other professionals and parents about what we know and the exciting areas we are still investigating. Our young children are our future: what happens to them today will shape the people they become in years ahead. We want to create a society in which children’s needs and their achievements are valued as our most important priority. Increase the talk, increase the sharing of ideas and information, and, most of all, share how important it is that we value the ways young children participate and contribute to, the world in which we live. Together, let us move young children to centre stage.

Margaret Sims
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AJEC Committee

References
‘Can run, play on bikes, jump the zoom slide, and play on the swings’: Exploring the value of outdoor play
Cheryl Greenfield
Manukau Institute of Technology, New Zealand

Extract from the Keynote Address at the Kidsafe National Playground Conference, Creating future play, March 2004, Sydney

This paper explores some questions surrounding the provision of outdoor play for young children, and challenges adults who share responsibility for ‘creating future play’ to consider not only what we as adults value but also what children value about the outdoor environment. The question is raised as to how the values we hold and the images we have of children impact on playground design. This paper shares some of the findings from a small pilot research project, which endeavoured to genuinely listen to children’s views about their early childhood centre playground through the medium of photography. The findings endorsed the view that outdoor spaces are of significant importance to children and that children’s voices not only need to be listened to but also are worthy of being listened to.

Introduction
We are all here because of a genuine interest in, and commitment to, providing playground spaces for children that will make a positive impact on their learning and development. Underpinning this address is the belief that the environments and the experiences we provide for children have powerful influences upon their lives, both in the present and in the future (Greenfield, 2003). The outdoor environment is truly a valuable learning space and we need to continue to improve our articulation of this fact. Young children’s passion for being outdoors is sadly still not given enough consideration when planning curriculum, or designing indoor and outdoor play spaces.

A William Blake poem, Nurse’s Song, provides an appropriate framework for this address.

When the voices of children are heard on the green
And laughing is heard on the hill,
My heart is at rest within my breast,
And everything is still.

Then come home children, my children, the sun is gone down
And the dews of night arise;
Come, come, leave off play, and let us away
Till morning appears in the skies.

No, no, let us play, for it is yet day,
And we cannot go to sleep;
Besides in the sky the little birds fly,
And the hills are covered with sheep.

Well, well, go and play till the light fades away,
And then go home to bed.
The little ones leap’d and shouted and laugh’d;
And all the hills echoed.

As we consider modern childhood, I ask myself many questions. What are the issues facing young children at this time in the world’s history? What can we do in the playgrounds of today to encourage an ethic of care, for people and the environment? What do we need to provide in children’s outdoor spaces to compensate for the ever-shrinking sections of large free running spaces? How can playground spaces be designed so they facilitate an appreciation of the wonders of the natural world that are rapidly disappearing from many children’s lives?

In today’s society there appears to be an aversion to risk; yet without risk-taking we do not reach our potential. Outdoor play provides open-ended, dynamic, varied opportunities which are unpredictable and at times risky. However, the risks and challenges of being outdoors provide rich opportunities for learning, problem-solving and developing social competence. We are all too aware that there are multiple political, educational, cultural, social and economic objectives laid at the door of early childhood and compulsory education (Moss, 2003). We need to find a balance between these agendas, the rights of children, and the values to be upheld. For example, finding a balance between safe environments and equipment while enabling exploration, challenges and risk-taking.

It is well acknowledged that children’s outdoor experiences are critical to their intellectual, social, emotional, physical and spiritual development (Greenman, 1998; Henniger, 1999; Pica, 1997; Walsh, 1991). I propose that the starting point for our dialogue
on playgrounds needs to be our values. What do adults, teachers, children and society value about the outdoors? Some of the things I value include providing many opportunities for children to explore and experience the natural world outdoors. I value outdoor spaces as places of flexibility; places where ordinary moments are filled with possibilities, and many projects and adventures. I value opportunities for children to ‘create their own play’.

Another primary consideration in our dialogue should be how we view the child, as this influences our decisions and the actions we take on behalf of children. Peter Moss (2003) advocates that if we choose to understand children as social actors, indeed as experts in their own future, then researchers and other adults need to listen to young children. Children need to be participants in what we adults are thinking of doing on their behalf. There is no argument that participation and listening are extremely complex and problematic concepts. However, there are ways of listening to young children—it requires active, emotional and interpretative activity. Research that has this intent is still scarce but I want to share with you what a small group of children, attending a full day early childhood centre in New Zealand, valued about their playground. I hope you will see that there are multiple ways of speaking and of listening, and that children’s voices are worth listening to. Clarke (cited in a London Institute of Education press release, 23/3/01) states that ‘getting children’s views is high on today’s policy agenda and with small children by allowing them to express themselves non-verbally, they’ll surprise you with all that they have to say’.

Listening to the child’s voice

When the voices of children are heard on the green

The child’s voice is seldom considered when planning for the outdoor environment, and we assume a lot about children’s perceptions of outdoor playgrounds. The research project I will share with you arose from a genuine desire to listen to children’s views on the outdoor playground. Social constructionist theory encouraged me to consider how I, as researcher, could position myself so that the multiple voices of children could be heard, valued, respected and listened to (Dahlgren, Moss & Pence, 1999).

Traditionally, children’s voices have been muted and marginalised in research (Cannella, 1997) but there is a paradigm shift from the research ‘of’ and ‘on’ children, as subjects, to research ‘with’ children as active participants who have some control of the process (Alderson, 2000; Christensen & James, 2000; O’Kane, 2000). Dahlgren et al. (1999) ask ‘how then can researchers position themselves less as “masters of truth and justice” and more as creators of a space where those directly involved can act and speak on their own behalf?’ (p. 141) and respond with ‘...we have to try it out’ (p. 142). I used an interpretive and participatory framework, which I believe was appropriate for the intent—that of exploring a way of enabling the child’s voice to be heard through the use of photography and informal discussion. This methodology enables the researcher to have more flexibility, to be more responsive, and focuses on the importance of understanding the child participant’s perspective (Cohen, Manion & Morrison, 2000; Hedges, 2002; O’Kane, 2000; Robbins, 2002).

A little background to the research project

The aim of the project was to explore the possibilities of five four-year-old children, attending a full day centre, documenting and sharing their feelings and views about their outdoor playground through the medium of photography. The children—three girls and two boys—I had pleasure in working with in the project were Austin, Bernadette, Jayde, Nicholas, and Tyla (ethical approval was given by Manukau Institute of Technology Ethics Committee and the children to use the children’s first names). Their ages ranged between four years, four months and four years, 11 months. Typically in research of young children consent is sought through the parents, and the children are participants because their parents agree. I decided to use a child’s consent form, which I also found particularly valuable in explaining to the children what the research was all about. In Hedges’ (2002) opinion, the use of child consent forms in her research study was justified, as she found four-year-old children are ‘competent and capable regarding giving consent’ (p. 39).

I had decided to provide some guiding statements for the first eight photos during the photography session. Savage and Holcomb (1997) point out that it is important with younger children using photography to keep the responsibilities simple. By giving just broad ideas like happy places and special places, but not specific things to photograph, you hand the power of the medium over to the child. I hoped to find out in my study where the children preferred to play by themselves, where they like to play with their friends, their favourite places, places they considered quiet, and the places they find challenging and exciting. I thought it important to find out if there were places they don’t like to play in or had felt scared in. I had two questions that I was interested to have their
views on: (i) what they would like to add to or change in their playground if they were able to; and (ii) do they prefer to play inside or outside?

My comments and the children’s views must be considered in relation to the context within which the research has occurred. That is in New Zealand, in a reasonably well-planned, aesthetically pleasing playground, filled with a wide range of changing experiences, and large amounts of free running space. The views shared by these children are unique to their playground and their experiences of playgrounds.

I spent five sessions with the children of approximately one hour. The first four sessions were undertaken with the whole group together and occurred one week apart. There is well-documented evidence that research being undertaken with young children in a group works effectively (Cullen, 1997; Krechevsky, 2001; Rinaldi, 2001) and, as Rinaldi (2001) states, having five children per group maximises the cognitive learning processes. The fifth and last session took place three weeks after the fourth session, due to school holidays.

Session One was used for establishing relationships, explaining the project, familiarisation with a disposable camera and evaluating its capabilities. Also the children chose whether to participate or not. In Session Two we recapped on the previous week, looked at and discussed the photos they had taken. I also asked my question regarding changes or additions to the playground, checked that they were still wanting to be involved and explained what we’d be doing the following week. In Session Three each child took photos with their disposable camera and recorded them on the recording sheet, using the guiding statements for the first few photographs if they wanted. In Session Four the children looked at their photos, discussed them and pasted them into the scrapbooks I’d bought. In Session Five I looked through each child’s scrapbook with them, discussed and clarified what I had documented so far in relation to guiding statements and asked the two questions when appropriate. This ‘one-on-one time’ enabled me to focus on each child and engage in more in-depth discussion.

The children’s voices

No, no, let us play, for it is yet day…

The quiet places the children photographed included the bikes, the ‘zoom slide’, and the trees. The places they felt safest in were the concrete area close to the building, the sandpit, the ‘zoom slide’, ‘when on it by myself’—Tyla, and the bike area. It was interesting to discover that there was no overall consensus in the places they felt scared or did not like to play. What was scary to one child was a favourite to another: for Nicholas it was the classroom buildings and sometimes the cable reels; for Tyla the forest, ‘When I hear the cars and I go away, its dark’; for Austin the cable reels; and for Jayde the baby slide (memories from several years ago).

They had many favourite places: for example, Tyla liked to sit on the tables and watch the sparrows, the sandpit, to play on the swings—‘it’s fun’, and she liked the barrel swing the best. Nicholas liked to play everywhere, especially on the swings, the bikes (the red bike), the sandpit and the ‘zoom slide’—‘it’s fun being up on the platform’. Austin’s favourite places were the bikes (in particular ‘the red bike’), the ‘zoom slide’ and the swivel tyre swing. Bernadette’s favourites included the slide, ‘zoom slide’, swings and the bikes—‘We like the little bikes. We like taking the bikes over there, we go faster on the grass’. Jayde’s favourites were the sandpit, the bikes—‘The red bike is my favourite’, and the barrel swing.

Spaces they liked to play with friends included the bikes, sandpit, grass area, forest area and the carpentry area. The places where they liked to be by themselves were very individual: Jayde—by the trees; Tyla—the sandpit, building stuff, roundabout and the slide; Austin—on the swings and with the balls; and Bernadette told me you ‘can’t play by yourself, you need a teacher outside or you will get lost’. They identified exciting places like the swings, the bike track, ‘zoom slide’, and for Austin it was jumping up the steps next to the slide. The children also photographed each other, trees, birds, clouds, the centre roof and me. Bernadette in particular documented the rest of us engaged in the photographing and recording process. Jayde photographed her recording sheet.

Their photographs and their comments told how they particularly enjoyed the bikes, ‘zoom slide’, mound, ‘forest’, sandpit and swings. The mound, though not designed as part of the bike track, was valued for giving them the ability to go faster. The red bike in particular was a clear favourite with four of the children and this was very evident in their photos. This was interesting as there was also a blue bike exactly the same, but the red bike was the one they all preferred—what is it about the colour red? The bike track was a designated space, of reasonable length, had a variety of surfaces, variable shape and was protected on one side. For the children the bike track appears to be the clear favourite. The bikes, swings and ‘zoom slide’ have the common features of risk, speed, excitement, thrills, uncertainty and challenge.
What changes or additions to the playground did the children suggest?

Tyla and Austin had both made suggestions during the second session. Tyla wanted ‘a water feature’ and ‘a gym bar’. Austin whispered to me, ‘more bikes’. I revisited this question with all the children during Session Five. Nicholas, Jayde and Bernadette did not put forward any suggestions this time either, but Tyla and Austin still held the same view as they expressed six weeks before. Austin was adamant that he wanted another ‘red bike’, and when I asked him how many more he wanted he said ‘just one’. Tyla described the water feature and drew it for me: ‘It would have stones around it and then a thing, like an elephant’s trunk in the middle, so the water can come down. Put your togs on and play under it. Fill it up every day’.

The value of photography as a medium for children’s voices

Using photography as a medium was far more successful than I’d hoped; the photos were overall exceptionally good and the children had every right to be very proud of them. Gollop (2000) states that providing children with an array of formats to give their perspectives may be helpful for children who may not be particularly verbal. Photography provided a wonderful vehicle for reciprocal and interactive learning, and the establishing of shared meaning between the children, their teachers and myself. When we discussed the photos and their views there was a good deal of congruence between their photos, what had been recorded, and their comments. In my conversations with the children I was very careful to follow their lead and in Bernadette’s case to make her feel she did not have to categorise her photos according to my agenda. I was very mindful of Cannella’s (1997, p. 165) challenge: ‘…that in our research and practice make every attempt to actually hear what is being said’.

Do children prefer to be outside?

The children who participated in this research project undoubtedly enjoyed being outdoors, and four out of five said they preferred to be outside if given the choice. They were all able to clearly express why they preferred being outside when I asked them.

Nicholas: ‘It’s fun. Inside you have to be quiet, outside you can run around’.

Tyla: ‘Can run, play on bikes, jump the zoom slide, down the sliddy slide and play on the swings and working at carpentry’.

Jayde: ‘Go on the swings and I can play in the sandpit’.

Austin: ‘The bikes, the red one’.

Singer (1996) wonders if, when children are asked where they prefer to ‘play’, there is a possibility that most children will give the reply ‘outdoors’ due to a perception that play happens outside and work happens inside. Do children see work as the things that require more effort, either cognitively, physically, or both? Tyla, for example, referred to the carpentry area as ‘work’. I have become increasingly fascinated over recent years regarding the social construction of the concepts of work and play, especially in regards to the outdoors. What is it that adults say and do that contributes to the notion that ‘play’ happens outside? What is work to children, what is play? For the past 50 years there has been a strong shift towards valuing and protecting children’s right to play, and rightfully so, but the result has been very little research on young children’s perceptions of work (Singer, 1996).

Some other questions and possibilities

Did the use of the guiding statements and the record keeping detract from, hinder, or help slow down the process? Were the foci of the guiding statements the best ones to use? Upon reflection, perhaps adult values framed these statements rather than the children’s values. I would like to explore what items a group of children may add or remove if guiding statements are to be used again.

The success of research with young children lies in the watching, listening, reflecting and engaging in conversation; seeking to enter the child’s world even if just in a small way. It is about the processes rather than the actual techniques themselves (Mayall, 2000). As Cannella (1997) states, the major hope in really listening to children lies in jointly participating with children in the real world of children, ‘in the world outside the controlled classroom that we have created for them’ (p. 167). Most importantly I rediscovered, at least partially through their eyes, how important the outdoors is, how much children need to be outside.

Creating future play

Let us consider seriously the responsibility that this very conference title—Creating future play—signals. We do need to reflect on our values, our images of the child, on what is important for young children to experience to grow up caring citizens, caring for the
environment and for each other. In my opening statements I mentioned an ethic of care. Care is defined by Tronto as ‘a species activity that includes everything we do to maintain, continue and repair our world so we can live in it well’ (Tronto, cited in Moss, 2003, p. 11). Our goal in playground safety is to surely reduce the damaging injuries without eliminating the challenges and opportunities for risk. Too little risk and challenge in a playground leads to inappropriate risk-taking and the seeking of thrills in a fearless and destructive manner. Too much can result in children feeling threatened, unsafe and unhappy.

In designing and providing playground spaces that both children and adults inhabit we need to be not only responsible for our decisions and actions to the current youngest members of society but also to those who are not yet born. We must be competent in what we do and have integrity and responsiveness to children’s voices, acknowledging the ‘passion’ that children have to be in the outdoors. Ensuring, as much as we are able, that the playgrounds we create contribute to the world we want the next generation of children to live in.

The little ones leap’d and shouted and laugh’d;  
And all the hills echoed.

References


THE EXTRAMUSICAL EFFECTS OF MUSIC LESSONS ON PRESCHOOLERS

Peter deVries
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The aim of the present study was to investigate the extramusical effects of a music education program in one preschool classroom over a period of six weeks. The class had not previously been exposed to regular music lessons. Readily available teaching resources containing sound recordings were used. Analysis revealed six themes that addressed the extramusical effect of music lessons: 1) involvement in music activities allowed children to release energy; 2) engagement in music-movement activities developed motor skills in children; 3) a variety of music activities promoted opportunities for student socialisation; 4) music activities provided opportunities for children to express themselves; 5) music contributed to sociodramatic play; and 6) music listening activities focused children’s listening skills.

Music has been shown to have positive effects on learning in domains other than the arts (Fiske, 1999), and specifically in reading and maths (Lamont, 1998). These extramusical benefits of music rarely focus on preschool-aged children. The most notable exception is Rauscher and Zupan’s (2000) examination of group keyboard music instruction, which found this particular form of music instruction enhanced preschoolers’ performance in spatial-temporal tasks. Standley’s (1996) meta-analysis of 98 studies of the effectiveness of music as behavioural reinforcement suggested that music can effectively reinforce learning and behaviour changes in children and adults, both in and out of school.

The study closest in nature to the present research project was conducted by Bilhartz, Bruhn and Olson (2000), in which a group of preschoolers received a comprehensive music program including singing, playing instruments, and moving to music. The study indicated that, on a visual test involving recall of bead sequence, colour, and shape (p. 104), preschoolers receiving the music training improved more than a group who did not receive such training. The present study did not seek to examine such specific outcomes, but rather to uncover broader indications of extramusical effects of instruction in singing, moving, and playing musical instruments. Considering that ‘musical meaning is deeply related to function’ for young children (Campbell, 2002, p. 61), the present study sought to look for extramusical effects of music instruction, such as how children were ‘buoyed by it [music], comforted in it, reflective through it, and exuberant as a result of their expressions with it’ (Campbell, p. 61).
Method
The study was conducted over a six-week period, on Thursdays and Fridays. The same children attended both these days of preschool; a different cohort attended the other days of the week. Aware that ‘fieldwork with young children depends on the quality of the relationships developed between researcher and participants’, I endeavoured not to just ‘barge into the lives’ of these children (Graue & Walsh, 1995, p. 145), but negotiate a relationship. This entailed entering the setting with what Sumison (2003) describes as ‘overt humility’, leading to mutual respect that created a situation whereby the children willingly engaged in the research process (p. 19).

Music lessons occurred each day, beginning at approximately 11 o’clock and lasting 25-30 minutes. I entered the preschool one hour prior to the lesson and left one hour after it, thus allowing me to observe children’s behaviour before, during and after the music lessons. On the first day I was introduced to the class by Sally, the preschool teacher. She told the children I was here to ‘help with music’ and that I was happy to ‘play and help out with anything’ while there.

Three commercially available resources were used in the lessons, each resource containing recordings of musical material to be used with preschool-aged children. The materials were: 1) a Play School Nursery Rhyme CD and video (2001); 2) The Shenanigans’ CD There’s a Wombat in My Room (2001); and 3) the preparatory level of the Upbeat music program (Leask, 1986) (including tapes and teacher’s manual). The first two resources contained songs and chants which required accompanying actions and movement from children. The Upbeat resource (Leask, 1986) also contained such material, along with music listening activities and suggestions about how to incorporate playing untuned percussion instruments into lessons.

During the first two weeks Sally and I team-planned and team-taught the music lessons using these commercially available resources. I would model a new song, chant or music activity to the class, with Sally joining in with the children. When these songs, chants and activities were revisited in subsequent lessons Sally led the teaching and I either joined in with the children or observed. During the first two weeks music lessons were teacher-directed and consisted of whole class activities. From the third week Sally suggested children be allowed more opportunities for musical play, so we set up some music learning centres, consisting of a variety of musical instruments and CDs containing songs the children had learned. As Sally had used learning centres before (namely for visual arts activities), she established these centres with minimal input from me. From the third week on, 15 minutes were spent with children exploring music in these centres, followed by 15 minutes of whole class music activities. Sally and I continued to team-teach the whole class activities when new material was introduced. She preferred leading activities involving movement and musical instruments. When new songs were introduced she asked me to sing them to the children as she lacked confidence in her singing, even with the support of a sound recording.

Data collection consisted of notes made of my observations, tape recordings of student interaction, and interviews with Sally. Thematic analysis of this data occurred in order to draw meaning from the multiple sources. Verification of data occurred whereby Sally viewed transcripts of our interviews and of students’ interactions. She also provided feedback on the thematic analysis.

Results and discussion
Analysis revealed six themes that addressed the extramusical effect of music lessons: 1) involvement in music activities allowed children to release energy; 2) engagement in music-movement activities developed motor skills in children; 3) a variety of music activities promoted opportunities for student socialisation; 4) music activities provided opportunities for children to express themselves; 5) music contributed to sociodramatic play; and 6) music listening activities focused children’s listening skills.

Involvement in music activities allowed children to release energy
The most obvious effect of music activities was that children were able to release energy, and subsequently focus on other activities such as listening to a story or participating in art activities. The first four music lessons were predominantly focused on movement-based songs, with songs such as ‘The Hokey Pokey’ and ‘Jumping Land’ where children were singing and performing actions such as jumping, hopping, walking, running, and moving arms and legs to the music. A number of songs also required children to chase each other (such as ‘Bananas in Pyjamas’).

Boys in particular seemed to enjoy moving to the music, as witnessed in their requesting to ‘do a song again’ and often continuing with actions once a song
had ended. Such energetic responses to music may perhaps be attributed to the surge of testosterone in preschool boys (Biddulph, 1997). In later lessons, when untuned percussion instruments were introduced, boys particularly enjoyed striking these instruments. As Miller (1989) found, the boys in this study used drums more frequently than did girls. Boys tended to bang harder on the instruments, and often moved around the room as they drummed. At the conclusion of instrument time, a number of boys would lie down, pretending to be asleep.

The first two lessons concluded with high-energy activities involving movement. In the following non-music activities children were still visibly excited, with some still performing song actions. In subsequent music lessons Sally modified the structure, concluding with what she described as ‘quieter’ activities, such as singing slower songs while seated, or with listening activities. Following this, children did not, as Sally said, ‘squirm around … and were so much more focused on what we did next’.

**Engagement in music-movement activities developed motor skills in children**

The frequent use of songs with actions and movement helped to develop motor skills in children. Sally observed an improvement from the first to the second week, particularly in students who had ‘really struggled’ with jumping, hopping and skipping. This was confirmed by the physical education teacher, who came to the preschool once every two weeks. By week six he too noted that children who had previously struggled with motor movement were ‘much more confident’. Children specifically improved in performing a given motor skill to the beat while singing and moving from one motor movement to another (e.g. in ‘Jumping Land’ moving from jumping to hopping).

**A variety of music activities promoted opportunities for student socialisation**

When students engaged in whole class singing and movement activities socialisation was apparent in the way children talked to each other before, during and after songs. Immediately prior to singing a song children would tell each other if they liked the song and why. During a song they would often show support for individual children involved in a chase by calling out their name, or in songs such as ‘Who has the Ball?’ they would sing or speak the name of individual children (in this case the child in possession of the ball). Following the performance of a song, children would communicate their opinion of it with comments such as ‘that was fun, let’s do it again’, or ‘we can play it later by ourselves’.

The latter comment led to the structure of music lessons changing in the third week. Sally saw children performing songs in small groups outside the music lessons. On observing this, she said that ‘perhaps music lessons should involve more play … so children can explore what we do as a group’. At this point we went about designing music learning centres where children could engage in music activities such as singing alone or in small groups, and playing musical instruments. Three centres were set up around the room immediately prior to music lessons: one with a CD player and CDs of songs learned in previous lessons; a second with a variety of untuned and ‘found’ musical instruments (such as an ice cream container with ruler) where children could freely explore the instruments; and a third containing musical instruments, along with simple charts with symbols that indicated when and how instruments should be played. From the third week, 15 minutes of each music lesson was devoted to children exploring music in these centres.

When working in these music centres children demonstrated what Morin (2000) describes as ‘cooperative music play’, whereby they interacted and communicated with each other to learn about music (p. 25). This involved children discussing what they would do, how they would do it (e.g. ‘We’ll sing, you can jump, [and] you two can hop later’), and how they would extend ideas presented by the teacher. Often a child would suggest a new idea, such as ‘Let’s play [the] drum with two sticks, not [just] one like Sally showed us’, demonstrate this to other children, then teach other children this new skill.

**Music activities provided opportunities for children to express themselves**

Gardner (1993) views music as one of seven primary forms of intelligence, with musical intelligence being seen in children who like to sing throughout the day, experiment with and play musical instruments, and who are acute listeners. Throughout the six weeks Sally identified two children in her class who ‘came out of their shells’ through exposure to music—children who used music to express themselves both in music lessons and throughout the day. At the conclusion of the six weeks, Sally said music had given the two children ‘a voice … and a distinct personality’.

Natasha was a quiet girl, described by Sally as ‘well-behaved … but you could forget she was there, she hardly spoke’. From the first music lesson Natasha displayed a level of enjoyment that Sally had not seen
previously. She sang throughout the music lesson and was one of only three children who could rock to the beat when learning a new song. In the second music lesson Natasha was the first to volunteer to sing a song learned the previous day to the class. ‘She never volunteered to do anything before this’, Sally commented. Similar behaviour was displayed in subsequent lessons, and Natasha was often observed singing to herself as she performed other activities throughout the day.

Jason was described by Sally as ‘unable to sit still for 10 seconds … his attention strays all the time’. This changed in music lessons, where he was continually attentive, particularly when performing actions to songs. Like Natasha, he was able to keep the beat to newly-learned songs. By the third week Jason was seen by his male peers as a music expert. This began when he came to class and sang the first two verses of ‘Waltzing Matilda’, which his mother had taught him. Jason also was an expert in playing musical instruments. If a boy was unsure how to play an instrument he would go to Jason rather than Sally for advice.

Music contributed to sociodramatic play

Sally viewed sociodramatic play—children playing together and enacting roles of people in their world—as one of the most important parts of preschool learning. Many opportunities were given for such play throughout the day. From the first week of music lessons music was integrated into sociodramatic play. This came in the form of children using songs and playing musical instruments as part of this play. When playing ‘mummies and babies’ children would rock their baby dolls and sing lullabies such as ‘Rock a bye Baby’ learned in music lessons. Children would also ‘act out’ songs learned in class. For example, when singing ‘Who’s that Knocking at the Window?’ one child would be the mother tapping at the window, another the father knocking at the door, and other children would take on newly-created roles such as a grandmother or the pet dog who would also tap at the window or knock at the door. Finally, as children explored musical instruments, these too were incorporated into sociodramatic play, such as the cowbell being used as an ambulance siren when a group was playing a variation of ‘doctors and nurses’.

Music listening activities focused children’s listening skills

Finally, listening to music where the focus was on elements such as timbre (speaking or singing) and tempo (fast and slow) had an effect on student listening outside of music lessons. Children were able to compare sounds heard in other parts of the day, such as one child observing: ‘that bird is singing high’ (the previous day the music lesson had focused on high and low sounds), and children hearing—but not seeing—a car speed by the preschool and commenting: ‘that car was going really fast’. Sally felt that children listened much more attentively to stories immediately after music lessons when there had been a period of sitting down and listening for something specific (e.g. when the music changes from fast to slow). When the six weeks concluded, the music resources Sally was most excited about obtaining were additional music listening activities, so we can focus on overall listening skills.

Conclusion

This short-term study clearly indicates that a number of extramusical effects emerged as a result of preschoolers’ exposure to music lessons. The teacher, Sally, indicated at the conclusion of the six weeks that she would continue teaching music to her children. Although she still did not feel overly confident in teaching music, she saw that simply joining in and being enthusiastic could help engage children in music-making. She pointed to the benefits of the resources in this study: ‘You don’t need to be a singer or play piano or guitar … it’s all on CD or tape so you just join in with the children’. Sally’s enthusiasm suggests that preschool educators who are not confident in teaching music should be exposed to such resources.

Many writers have lamented the tendency towards large-group, teacher-directed music lessons in early childhood settings (e.g. Morin, 2000; Scott-Kassner, 1999; Wright, 2003) that stifle individual children’s creativity in music-making. This study suggests that sound recordings need not be restricted to large group settings, but may also be incorporated as part of music centres which promote music play and the development of individual creativity.

The extramusical effects of music lessons during the six weeks were many and varied. Sally indicated that these effects alone were enough to convince her of the importance of music in the preschool. Such a response points to the need for such extramusical effects to be stressed as motivation for preschool teachers to provide music learning opportunities in their classrooms.
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THE INTRODUCTION OF NEW TECHNOLOGIES:
New possibilities for early childhood pedagogy

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In 2000, IBM invited the Australian National Schools Network to assist in the implementation of the international KidSmart Early Learning Program in Australia. By the end of 2003, more than 300 Young Explorer Units will have been donated to designated early childhood settings serving low socio-economic communities across Australia. This paper will outline some of the results of the case studies undertaken by educators in the participating settings during the first year of the program. The task of integrating the new computers into the early childhood program generated many issues and challenges for educators. Of particular interest were the pedagogical possibilities that emerged through the introduction of new technologies within early childhood settings.

Introduction and background to the project

The KidSmart Early Learning Program is an international initiative of IBM. The project aims to increase the access to technology for children from economically disadvantaged backgrounds and subsequently broaden their learning opportunities and support the transition to school. In Australia, a partnership with the Australian National Schools Network [ANSN] was formed in 2000 to manage the rollout of the program, design and facilitate professional development for educators, and conduct research and evaluation. By the end of 2003, more than 300 Young Explorer computer units will have been donated to early childhood centres around Australia.

Participating centres were selected on the basis of the following criteria:

• high incidence of socio-economic disadvantage;
• high proportion of children and families with language backgrounds other than English;
• strong links with indigenous communities; and
• limited computer access and availability within the local community.

Their formal involvement with the ANSN research circle lasted for one year. At the end of this time a new cohort of teachers and centres was inducted into the program.

The research and professional learning program designed by the ANSN was integral to the project. It aimed to raise awareness of pedagogical issues related to using information and communication technology [ICT] with young children and to investigate issues arising from the introduction of this particular technology to these centres. In addition to a two-day introductory workshop, research circles (clusters of early childhood centres and ANSN colleagues) were formed to explore issues that educators identified as being of concern or interest, such as the relationship between early childhood, new technologies, literacy and learning. In the first year of the program, 192 educators in three intensive states (Victoria, Western Australia, New South Wales) developed case studies that focused on their particular inquiry interest. These were analysed in conjunction with national survey data from all states and territories.

While most critics agree that computers have the potential to bring massive benefits in later stages of children’s education, the use of computers in the early childhood setting is an under-researched field. The majority of the research shows that computers can be extraordinarily powerful tools because they have the capacity to encourage young children to learn in new and dynamic ways (Clements, Nastasi & Swaminathan, 1993; Yelland, 1999). Some critics, however, are strongly against their use (Armstrong & Casement, 2001; Healy, 1998). Child development and technology are often seen as at odds with each other as technology can interfere with time for children to play with materials and to develop intellectually, emotionally, socially, physically and spiritually (Cordes & Miller, 2000).
Traditional early childhood philosophies have tended to emphasise a developmental or curriculum-centred approach to learning, both of which pose significant limitations for understanding ICT use. New approaches in early childhood education, such as cross-cultural and postmodernist approaches, have challenged traditional developmentalist discourses. The re-imaging of the child associated with an increased awareness of the early childhood experience of Reggio Emilia (Edwards, Gandini & Forman, 1998), the reconceptualising of the early childhood movement (Canella, 1997; Dahlberg, Moss & Pence, 1999), as well as socio-constructivist approaches (Vygotsky, 1978) have all forced early childhood educators to rethink traditional curricula and pedagogical approaches.

Introducing the program to early childhood educators
One of the key challenges faced by the education sector in Australia, as well as globally, is the need to provide educators with the skills necessary to integrate computers effectively in their teaching practice (Pianfetti, 2001; Becker, 2000). Educators do not automatically acquire a repertoire of skills to assist them in making decisions about how they can facilitate learning for young children interacting with new technologies (Wartella & Jennings, 2000; Elkind, 1996). Early childhood is the time when the foundations for literacy and numeracy are established (Clay, 1993), and yet there is a lack of large-scale, comprehensive research documenting and making recommendations for the use of computers. Until recently, computers have been a peripheral feature of early childhood education. Accordingly, the majority of early childhood educators in Australia do not have adequate knowledge of how the technology can be used to best aid children’s learning.

Many of the early childhood educators who participated in the KidSmart program did not have previous computer experience and therefore experienced some anxiety in relation to their participation. The professional learning program was designed to not only alleviate this anxiety but also provide a space for educators to develop understandings of ICT that were connected to their existing early childhood philosophy and the pedagogical stance this implied. This meant beginning with what educators already confidently knew about the way children learn, as part of a two-day workshop. This pedagogical framing also guided the workshop process, with educators being provided with opportunities to learn about the new technology by playing, talking together, observing each other’s work, and working in pairs. The program also addressed issues such as the role of multimedia in young children’s learning and the development of new literacies, curriculum integration, software evaluation (particularly in relation to open-ended and closed software and the degree to which the child was in control), organisational issues, and technical skills.

The response from educators after the two-day introductory workshop indicated that many felt their existing ideas about computers and young children had been challenged so that they saw ICT use in a much broader context. They also increased their expectations in terms of the development of children’s understandings, moving beyond simple technical skills such as mouse control, to expectations of creative thinking, problem-solving, social skill development, and increased awareness of the role of ICT in society and daily life. Some educators also reported that they had not previously seen the connection between what children did on computers and other sensory experiences. The workshop process included time to develop ideas as to how the two-dimensional concepts children were exploring on the computer could be connected and developed further in real-life sensory experiences.

Most educators agreed that the initial workshop, although valuable, was not enough on its own to support them in their endeavours to develop children’s learning through integration of ICT into the early childhood curriculum. At least one follow-up workshop was necessary, together with regular cluster meetings that were conducted as part of the research circle process. These enabled technical, organisational and pedagogical issues to be addressed within a reasonable time frame from when they arose.

The research process
Two strands of research were conducted, one based on collaborative practitioner research which involved educators as co-researchers (Noffke & Stevenson, 1995) and the other a more traditional, standard survey questionnaire. In recent studies, variations of collaborative practitioner research have been successfully used to identify learning outcomes, confirm understandings about teaching and learning, and enable educators as researchers to ‘identify and speculate on new findings with regard to links between teaching practice, school organisation and student learning’
Research circles were established based on the principles of collaborative practitioner research.

**Survey**

A survey questionnaire based on the following issues was developed and mailed to 98 centres in all participating states and territories across Australia, with a 50 per cent return rate:

- how does the KidSmart program improve learning?
- which software programs and teaching strategies are most suitable and effective? and
- how might KidSmart be integrated into the community context?

A set of ‘core international questions’ developed by the international KidSmart evaluators was also provided. These related to:

- teachers’ previous use of computers;
- level of teacher and student comfort regarding computers in the classroom;
- time allocated to computer use; and
- how computer use is regulated.

The ANSN researchers also asked for examples of how computers were integrated into the early childhood curriculum and suggestions for further enhancing the KidSmart program. The centre directors took responsibility for the completion of the survey forms, and, where appropriate, other members of staff also responded to particular questions.

**Research circles**

Research circles enable educators to be active researchers in their own teaching situation and to share their ideas and experiences in a professional forum. This strategy encouraged further building of professional skills through ongoing action research that was planned during the initial workshop, then revisited and collaboratively analysed through regular cluster meetings. The facilitation of the research circles provided early childhood educators with access to current research and expertise in ICT and assisted with the ongoing development of site-based action research and case study projects. Data generated through the research circles also provided a major source of research data for the overall project evaluation, particularly the documentation of case studies.

**Case studies**

Centres in the three research circles (NSW, Victoria, WA) developed case studies associated with their research interest. This allowed the ANSN researchers to gather information about complex issues such as effective teaching strategies and the integration of Young Explorer into the community context. The case studies were developed in response to individual action research inquiries where participating teachers identified a particular question or issue they wished to explore. Research questions explored such issues as gender and ICT use, pedagogy, family involvement and attitudes, equity, appropriate software, attitudes of cultural groups, social skills, and the impact of the computer on teaching strategies. Collaborative discussion and some joint analysis took place during the research circle meetings.

It was evident from the case studies that KidSmart provided the educators involved in the project with the opportunity to analyse and to question how things are done in early childhood education. Involvement in the research and the ANSN process of reflection is most effectively undertaken within a collaborative context. Unfortunately, early childhood educators are frequently isolated from their colleagues, with few opportunities for ongoing discussion, shared reflection, and professional development. The project provided the catalyst and, together with the training days, offered a context for teachers to talk about their work. The teachers’ voices provided rich, valid and valuable information to analyse and from which to draw themes and pinpoint significant issues for consideration. The themes that emerged from the case studies primarily focused on issues relevant to teaching and learning with specific consideration of the impact on children, educators, and families.

**Pedagogical possibilities: Learning from case studies**

*Introduction of a new element to the environment*

The inclusion of a new element in the environment necessitated analysis, reflection and negotiation between staff. The physical dimensions of the Young Explorer Unit meant that some centres had to undertake considerable re-organisation of the physical space within the playroom in order for the new computer to fit. Requirements for power outlets, adequate lighting, and security also needed to be considered. One centre with a large skylight in the...
ceiling of the playroom found that they had to move the computer every few months in response to seasonal variations in natural light patterns that impacted on the visibility of the screen. Issues of traffic flow, the need for adequate supervision, and the suitability of adjacent experiences were also considered.

While somewhat complex, the process of working through the various issues was valuable. The decisions regarding placement of the computer stimulated in most cases a review of the entire physical layout of the learning environment and the effective organisation of resources and physical space. Early childhood educators generally worked through these issues collaboratively. The process involved careful observation of children, a review of teaching practices, approaches to learning, classroom management, and a re-evaluation of the daily program.

For some early childhood educators, the introduction of the computer generated concerns regarding the place of computers within a play-based philosophy. Some were anti-technology because it ‘gets in the way of children’s play’. This concern resulted in more limited computer use in some centres but in others led to a conscious attempt to integrate the computer as another learning centre alongside other play experiences such as block play, literacy play and socio-dramatic play.

Teaching strategies for introducing and managing the computer

Different settings adopted different teaching strategies for introducing KidSmart. These strategies reflected particular approaches to teaching and learning and also levels of computer competency amongst educators. Educators with prior computer experience tended to be more open than those without. At some centres there was little formal instruction on using the computer. One educator commented:

With this approach the children are much more inclined to take appropriate risks, and explore their options. This teacher-supervised strategy as opposed to the teacher-directed approach, allows the children to feel safe working to their limits. Of course we ensure the children are aware of all the options available to them. But we do this in a way that lets the children take charge of their learning, and does not place unfair expectations from adults upon them.

For some educators the commitment to sequencing of skills was strong, with some focusing on the step-by-step acquisition of skills the children needed in order to operate the computer. In some centres children were given very limited options at the beginning, as some teachers believed it helped children acquire skills if they limited choices initially. Others changed the choices regularly as a way of maintaining the levels of excitement. Significantly limiting or controlling choices may have been seen to be the most effective strategy but may have offered little recognition of the diversity of backgrounds, experiences, and levels of computer competency the children brought to the centre. In some centres educators saw the children as explorers finding their way and were more willing to share the decisions about computer use with the children.

In particular, early childhood educators at all the centres receiving the Young Explorer Unit grappled with the complex issues associated with equity of access. In most cases initial observation of the children at the computer clearly indicated that some strategies were essential to ensure equitable use of the unit. As one educator commented:

Gaining equitable access to the computer became an issue. There were children who would spend enormous amounts of time daily using the software and there were children who rarely accessed the system during the course of the week. Whilst some children were mastering skills at a high level others were still not co-ordinated with the mouse.

A number of early childhood educators found it useful to consider what values were being transmitted and encouraged by the way the computer was introduced and used in the centre. As an aspect of the ‘hidden curriculum’ different approaches to the management of the computer promote different attitudes and outcomes. Issues of independence, interdependence or dependence, equity and fairness, and self or external regulation are significant and need to be carefully considered. Most centres moved away from a ‘system’ of turn-taking, to children accessing the computer when they wanted to in a similar way to how they accessed other experiences offered within the program. Other educators asked:

What about children who are over-keen—are these children who use repetition or are they extending what they know? What else is happening in their lives? What about the children who are pulled off the computer? What if they are really engaged, interested and extending their learning? What message does it give them when adults say you have had enough now? What about children who are not interested? Do we make all
children do everything that is offered? If they haven’t been to an area do we make them go there? Others view that if the child is learning through another medium then that’s OK. What do we do if the child says ‘it’s not for me?’ Does limited time on the computer give it an added attraction and value above other experiences offered within the program?

As a result of considerable reflection and collaboration, a number of strategies for time management on the computer were developed and progressively modified. Careful observation, and systems for monitoring the interactions and participation in relation to the computer were considered important. As one educator commented, ‘sharing the computer seat does not necessarily ensure equitable computer use’. The children were often active participants in the process for managing the computer, and various schemes for turn-taking were devised and implemented. Management strategies appear to be evolving, with some early childhood educators reconsidering their approaches as they gain experience with the computer. An educator at one centre noted:

I had begun in a very structured manner by setting up charts with the children’s names on lists of who was due for a turn and who had finished. I only allocated one time of the day for computer use. The children showed me that I was going about this the wrong way! I began to enjoy the computer with the children. The computer was turned on in the morning and off in the afternoon when they left. There were no charts; the children told me who had turns and who had not. Children were encouraged to have a turn and if they wanted another turn they were accommodated. I was amazed at how quickly the children learned the software and how they learned from each other. They showed me how to do something new.

**Grouping**

The introduction and ongoing management of the You Explorer Unit also motivated a review of methods of grouping children within the early childhood program. In some cases, whole group experiences were utilised as an effective means of introducing the computer. Introductory ‘lessons’ to the whole group of children, explaining aspects of the computer, relevant terminology and processes, were implemented in some cases. The educator recorded the following comment:

Large group activities on the computer are an excellent way of introducing new programs and exploring curriculum areas, e.g. science and technology units. I found this a useful strategy for engaging the whole class. The children have also enjoyed this learning style.

Other educators chose to use less didactic approaches and introduced the computer to small groups of children through a more active and participatory process. Others worked with individuals or pairs of children. In many cases, as the computer became more familiar, children were paired together strategically to enable a more able child to scaffold for a child who was less familiar with the computer processes or in the case of particular software. Over time the children took greater control in this process, as reflected in this comment from the educators at one long day care setting:

The more experienced children were used as teachers to assist the other children, so often buddy systems were set up by the children themselves.

The increased recognition of the potential of peer scaffolding for effective learning and teaching has significant benefits in early childhood education beyond the use of information technology, and is being increasingly recognised in contemporary approaches to early childhood education (Edwards, Gandini & Forman, 1998; Dahlberg, Moss & Pence, 1999). Child-initiated learning and working with small groups of children who share a common interest also supports the move toward interest-based planning in early childhood settings and the re-imaging of the child as strong and capable. The You Explorer Unit has been used effectively in some settings as a means of implementing a project or emergent curriculum approach and early childhood pedagogies based on the Reggio experience (Edwards, Gandini & Forman, 1998). Children have been encouraged and supported in the cooperative exploration of shared interests, with adult facilitation rather than direction.

**Opportunities for integration**

The case study reports provided by the participants in the project highlighted some valuable opportunities for effective integration within the early childhood program using the You Explorer. The focus of play experiences, particular concepts, and areas of interest were frequently followed up with relevant computer programs, as evident in the following comment:

Children’s interests, imagination and creativity are the starting point for planning computer-supported learning experiences. In most cases children select a computer activity just as they would any other activity—on the basis of interest to them. Letter writing using KidDesk
was very popular. The children enjoyed writing letters to each other and posting them to their friends. Many were printed and kept in the individual portfolios which go home at the end of the year.

Similarly, the content of various computer programs was used as a source of direction for follow-up play and learning experiences:

A craft table was set up where children could create their own bug from a variety of craft materials. A play dough table was designed to create ‘My Friend’. … sequencing pictures were made where children could tell a story found in Make a Story (Bailey’s Book House) and Make A Movie (Sammy Science House) and a large mat game was designed based on the Jelly Bean Hunt (Trudy’s Time and Place), a popular game with the children.

The early childhood educators at one setting noted that some of the children would use the computer and then transfer what they had learned from the computer into their other play:

This included using the construction program in Millie’s Maths House and then following up with construction in the block area. Using the money machine in Millie’s Maths House followed up by a walk to the local shops and then shops for dramatic play. Some of the children would make a card at Bailey’s Book House and then use the writing shelf to write messages and the art table to add creatively to their cards.

Individualised and responsive programming

A broad range of experiences was possible with the computer-assisted individualised programming, as noted by staff:

All children are individuals and they utilise the computer in ways that reflect their current interests and in different ways according to their level of development. The computer programs enable them to do this.

An educator at a different setting commented in a similar way:

Children all learn differently, and some learn better if they can repeat it as they need to, if they can see it and hear it, and if it is presented attractively, with bright colours, movement and sounds to match…

In some cases the computer provided a useful bridge between home and preschool for children having difficulties settling into an unfamiliar environment. One educator noted that this provided a useful strategy:

One child in particular had already had access to the software at home, so found the computer a solitary activity until he could overcome his anxiety after separating from his mother. Others were then encouraged to join and interact with him; this worked quite successfully.

Many early childhood educators participating in the project undertook regular and detailed observations of the nature of the children’s computer use to facilitate individual planning. Such documentation enabled the educators to ensure a more responsive approach to the individual needs of children within the group:

Through initial observations I discovered that less than half the children were using the computer. Consequently I undertook a more direct focus on the children not using the computer, identifying the particular issues for each child which inhibited their use of the computer. Support programs were introduced to encourage these children to become more familiar with the computer and confident in its use. Secondly, I wanted to ensure that children who enjoyed using the computer and felt confident with the programs were not disadvantaged. These children needed to be extended and were able to cope with more difficult programs. To achieve this, a peer program with fifth class was implemented. The older children worked on a roster basis to support the preschoolers.

Observations were also used as means of identifying particular interests and programming to support these. The following documentation from a teacher’s journal reflects this:

T (3.0) is showing great interest in numbers and letters. Our ideas to support this include ‘Millie’s Math House’ and ‘Bailey’s Book House’. We have also included walking to the shops to look for numbers and letters. On our walk we bought babies’ nappies. We looked at the price and the number of nappies in the packet. The children showed an interest in the cash register, receipt and change. When back at the centre we put Millie’s Maths House on. The children pretended to be in the shop pressing the numbers. Thomas was pressing 20 and read it on the receipt from the nappies we bought. This worked well in relating the experiences together.

The computer was used as an effective documentation tool and way of recording children’s progress at a number of centres. One educator commented:

I especially like the fact that each child has their own KidDesk and icon where they can enter their own
This is a very impressive tool to show the parents, as it consolidates the fact that each child is able to learn at their own pace, regardless of past experiences.

**Possibilities for emergent curriculum and interest-based planning**

The experiences of some early childhood educators, documented within their case studies, suggest that the inclusion of the computer and information technology within the early childhood learning environment can provide the impetus for re-invigorating the early childhood program. For some it was a catalyst for change:

*From a teaching perspective, the addition of the computer provided positive professional implications, challenging teacher's perceptions of approach and expanding the preschools horizons in its approach to early childhood teaching. The project provided teachers with an additional forum to meet their peers and compare teaching approaches.*

The centres which have moved or are moving towards child-initiated and emergent curriculum seemed more able to offer the flexibility and open-endedness which enabled the children to maximise the potential of the computer as a resource for learning and teaching. The introduction of the computer provided an opportunity for centres to integrate core curriculum, such as literacy and numeracy, with emergent curriculum that is child-generated and develops from the children's individual and shared interests. These elements can come together in conjunction with the children’s experience of the world. The following excerpts from a teacher’s journal reflect this:

*B. spent approximately 45 minutes in Millie’s Math House. He selected the building program and was successful in building two houses and a birdhouse. Occasionally he found it difficult to move the mouse but he persevered and showed good patience. B. has displayed an interest in construction before, when a project was initiated by building with blocks. A walk to a local construction site was included as part of this project.*

**Attitudes to information and computer technologies**

Although some early childhood educators began the project with a degree of apprehension and reluctance, almost all their case studies indicated their increasing commitment to information and communication technologies in early childhood settings. The hands-on computer experience and the commitment to action research associated with the project helped early childhood educators to be more aware of the positives and negatives of computer use for young children. The documentation they gathered, both within the centres and from information provided by families, formed a useful basis for analysis, reflection and collaboration. The cultural diversity and socio-economic disadvantage evident within the various settings also highlighted the importance of empowering the children as confident and competent computer users. One educator noted:

*I cannot imagine a classroom without a computer in it. It is never too early to expose preschool children to the realm of technology that a computer offers.*

For some educators the lack of knowledge of information technology added to the many other pressures of the workplace. In some centres the computer became an additional source of anxiety, and the result was avoidance or limited use of the computer. The provision of additional resources to early childhood services, particularly in areas of disadvantage, as well as opportunities for ongoing professional development and additional teacher release time, would help to alleviate this anxiety.

**Conclusion**

The possibilities conceived by teachers, parents, and children in relation to the use of the Young Explorer in the early childhood setting resulted in high enthusiasm, willingness to persevere in the face of technical difficulties, and willingness to share and experiment. Parents were often aspirational, seeing the computer as providing their children with opportunities to ‘get ahead’. The KidSmart program is helping to clarify what genuinely assists disadvantaged children in developing an image of themselves as confident and powerful learners. Teachers identified fine motor, social, emotional, cognitive and language development as all benefiting from children’s use of the Young Explorer Unit.

The case studies also identified differences in teaching approaches, with a strong developmentalist approach sometimes resulting in the separation of developmental areas so that these became the focus of content, e.g. fine motor development through the teaching of mouse skills. A concern that such approaches may result in fragmented learning that limits the use of the computer as a resource for integrated approaches and interest-based learning was identified through the case studies.
The move away from strict developmentalist approaches (which can sometimes focus on what children lack) enabled educators to recognise children's strengths and interests. This led to the re-imaging of the child as strong and capable and enabled educators to help children more effectively utilise the many skills they have.

The KidSmart Early Learning Program is making a significant contribution to early childhood education in Australia, both in terms of increasing opportunities for teachers' professional learning and raising awareness of the role of ICT in young children's learning with families. Educators in the first stage of the rollout of the program have identified a number of areas that have guided the development of additional professional resources. These are now available to subsequent participants in the program and other interested educators. In addition to suggestions about introducing the computer to the early childhood environment, teachers have shared a range of different approaches to classroom organisation, safety rules, and turn-taking. Case study research has helped understandings about the link between ICT and children's learning to develop in a grounded way, while interaction with colleagues has explored a wide range of possibilities for curriculum integration. As well, the use of the Young Explorer Unit in the early childhood setting has been linked to the early development of 'multiliteracies' (New London Group, 1996) that require multi-modal communication. This will be explored further over the next three years, owing to the award of an Australian Research Council grant to a team of researchers from Western Australia, Victoria and New South Wales.

Further information on KidSmart Early Learning Program Evaluation in Australia and overseas is provided on the Australian National Schools Network Website at <http://www.ansn.org.au/>.

References
This study describes the use of content analysis to develop a framework for analysing children’s animated television programs (in this case, Bob the Builder) and as such represents the initial stage of a larger project. Results indicate this popular TV series for preschoolers presents contradictory social messages about the roles of men and women as depicted through the two main characters, Bob and Wendy.

Introduction

This article describes the application of content analysis methodology (Bauer, 2000) to a popular animated television series for preschoolers: Bob the Builder. The method described was developed as an instrument of analysis for a larger study currently being undertaken by the above authors in relation to how children use their multiliteracies to make sense of the media programs they watch. The term multiliteracies (The New London Group, 2000) refers to the range of literacies required to create and interpret multimodal texts. These are texts that use any combinations of the following modes of meaning: linguistic, visual, auditory, spatial, and gestural. Examples of such texts include television shows, computer games, and radio broadcasts.

The influence of Bob the Builder programs on preschoolers and their parents is indeed a strong one in Canada, the United Kingdom, and Australia (ABC television shows it daily). An Internet search using that title revealed more than 20,000 sites and clearly illustrates how important this television program has become in the commercial world, where it generates business in books, music, toys, clothes, children’s themes, wallpaper, and other interior designs.

The television series of Bob the Builder is a multimodal text and as such relies upon the use of combinations of linguistic, visual, spatial, auditory, and gestual cues in the transmission of what Chatman (1978) describes as a visual narrative or story. These cues consist of elements such as visual and spatial effects (camera angles, lighting, colour, positioning of characters, appearance of main characters) and elements of sound (voice-overs, music, songs/chants, rhythms, style of language). As well as these influences there are also the more easily recognised overt narrative elements such as plot and the roles of characters (Chatman, 1978).

Clearly it can be seen that more than one layer of meaning exists for child viewers to interpret, and this is a central issue in much of the debate about multimodal texts. In trying to determine how children interpret these various layers of meaning when viewing Bob the Builder, a coding framework was developed for analysing the content of the program’s episodes. It is presented here as a theoretically grounded research method (Bauer, 2000; Silverman, 2001) that could have a wider application to similar multimodal texts.

What were the assumptions underlying the study?

Since the 1970s there has been a strong focus on redressing gender stereotyping in children’s literature, but animated television programs for preschoolers do not appear to have received the same attention (Eaton & Dominick, 1991; Hilton, 1996; Signorielli, 2001). Initial impressions of Bob the Builder, for instance, present a modern day story-line with a liberated female character (Wendy). However, the supposedly modern Wendy is depicted merely as a mirror image or clone of Bob, and she works purely to organise and support him. As such, Wendy is a key pivot in the program, yet Bob always comes across as the main character and the real worker. Such social messages can be interpreted as contradictory. This premise has led the authors of this article to examine the social assumptions underlying the series.

Consideration also needs to be given to the fact that preschoolers’ cognitive ability to think analytically about what the media presents to them is limited.
Therefore they are particularly vulnerable to misrepresentations or inconsistencies about gender, adults’ work, relationships, and other aspects of daily life (Arthur, 2001; Marsh, 1999; Emmerich, 1981; Signorielli, 1984; Williams & Best, 1990).

As a result of these factors, the research aim for this phase of the project was to develop a coding frame for the analysis of the Bob the Builder TV program. It was envisaged that such an analytical tool could be used as a basis for analysing other multimodal texts for preschoolers when the gender representation of key characters is being considered. According to Kidder and Judge (1986), using multimodal texts to analyse specific elements in this way is an appropriate form of hypothesis testing in content analysis research.

Methodology

Content analysis was the analytical tool used in this study and was considered to be appropriate, as it is an established method in the analysis of mass media, being developed as a procedure by which one can make inferences between a particular text and its social context (Bauer, 2000). It is a systematic approach with reliability in-built, as it usually requires verification of its resulting codes or categories. In applying content analysis, researchers select a sample of text and establish a set of categories. The frequency of responses in each category is then calculated, although there are varying forms of the method, with some being more complex than others.

A total of six hours of taped episodes (36 individual programs) was collected. Half of these constituted the older programs of Bob the Builder (approximately 10 years old) and the other half consisted of current day programs. Since the early programs there have been some changes to characters and roles, consequently it was felt that a mixture of both would be a more representative sample for analysis.

The program had to be analysed to establish a coding frame (Lindkvist, 1981). Six programs each, of both the older and the modern shows (12 in total, each program 10 minutes in length), were viewed. These were selected arbitrarily, with every second program being chosen. As a result of this, transcripts were drawn up that consisted of anecdotal summaries of the programs, and some initial categories were noted. A week later this process was refined in the following way. The same programs were again viewed but were broken down to ensure a more random mixture of stories. In the six programs selected from the older shows, for example, only half of each show was analysed and alternated between using the first half of one show and the second half of the following show. The same process was used for the six contemporary shows selected.

Inter-observer agreement was established where two primary teachers were trained by the researchers in the use of the category terms that were initially identified. Independently of each other, they viewed a random selection of three Bob the Builder programs which were not those previously selected nor from which the categories had been derived. Cohen’s Kappa statistic for nominal scale agreement was calculated (Hollenbeck, 1978) and agreement level was .82. Further validation of the categories occurred through the use of triangulation, namely referral to the literature on gender stereotyped images in children’s books (Luke & Bishop, 1994); in relation to media advertising (Bred & Cantor, 1988); and to previous research in film analysis, including children’s TV programs (Cowie, 1980; Hoffman & Cantor, 1985; MacCabe, 1976; Silverman, 2001). Three categories were finally omitted, consisting of two that were collapsed (character interactions: asks for help, appeals to others) as they strongly overlapped, and two that were discarded (chorus: leads, sings along) as the frequencies in them were extremely low in one, and zero in the other.

This framework was then applied by one of the researchers to a viewing of 10 Bob the Builder programs which were randomly selected, five from the modern series and five of the older programs. The results of this analysis are presented in the ‘Results’ section ahead.

In content analysis it is necessary to identify the units of analysis. Seven had previously been identified in the literature on content analysis—words, themes, characters, paragraphs, items, concepts, and semantics (Berelson, 1952; Berg, 1989). Others have added to this list as content analysis has become applied to a wider range of visual media today (Krippendorff, 1980; Lindkvist, 1981; Markoff, Shapiro & Weitman, 1974). Silverman (2001), for instance, discusses units of analysis in terms of the complexity of a text—meanings, images, camera techniques, sounds, music, themes, background/foreground emphases, pauses/silences in speech, accents, tone and character orientation, clothes, and so on.

But not all of these analytical units were relevant to the Bob the Builder programs. Consequently the units of analysis for this study included aspects of that previously reported in the literature, plus initial readings of the raw data (tapes). This is presented in Diagram 1 below.
Diagram 1: Coding frame for Bob the Builder

<table>
<thead>
<tr>
<th>A: Auditory units</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Music and voices)</td>
</tr>
<tr>
<td>1. Music (heavy, rock style)</td>
</tr>
<tr>
<td>2. Music (unstructured, light)</td>
</tr>
<tr>
<td>3. Voice-overs (male)</td>
</tr>
<tr>
<td>4. Voice-overs (female)</td>
</tr>
<tr>
<td>5. Voice-overs (child’s)</td>
</tr>
<tr>
<td>6. Voice-overs (adult’s)</td>
</tr>
</tbody>
</table>

| B: Visual/spatial units                                                            |
| (Character depiction and camera angles)                                           |
| 1. Characters* (close, frontal)                                                   |
| 2. Characters* (full-length frontal, on side of screen)                           |
| 3. Characters* (full-length frontal, centre screen)                               |
| 4. Characters* (aerial view, surrounded by others)                                |

<table>
<thead>
<tr>
<th>C: Character interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Discusses, explains*</td>
</tr>
<tr>
<td>2. Gives instructions, directs*</td>
</tr>
<tr>
<td>3. Asks for help*</td>
</tr>
<tr>
<td>4. Gives solutions*</td>
</tr>
<tr>
<td>5. Initiates, leads*</td>
</tr>
<tr>
<td>6. Follows/supports*</td>
</tr>
<tr>
<td>7. Works hard*</td>
</tr>
<tr>
<td>8. Plays*</td>
</tr>
<tr>
<td>9. Easily distracted/muddled*</td>
</tr>
<tr>
<td>10. Remains focused*</td>
</tr>
</tbody>
</table>

Results
The asterisked units of analysis in Diagram 1 were the ones used in this study. Units of analysis were derived from specific problems the characters had to solve, i.e. the narrative dilemmas they faced in each episode. Using narrative dilemmas as a pivot point for the coding frame is consistent with Krippendorff’s (1980) identification of the need for thematic or syntactical units of analysis. The non-asterisked units of analysis in Diagram 1 were discounted from this study because they were stable characteristics that did not vary with each episode because they occurred in the introduction and conclusion and never changed. Therefore they could only provide a single frequency per episode. However, they remain relevant to the other phases of this project and are to be treated separately in further publications; consequently these units of analysis (A) were retained in the coding framework. Another reason for doing so was the fact that the coding framework was designed to be flexible enough to apply to the Bob the Builder programs as a whole as well as to selected aspects of episodes.

Raw data produced was in terms of frequency tables. These are summarised below in Tables 1 and 2.

Table 1. Frequency distributions across 10 programs for B: Visual/spatial units:
Character depiction and camera angles

<table>
<thead>
<tr>
<th>1 Characters: frontal portrait (full screen)</th>
<th>2 Characters: full-length frontal, to side of screen</th>
<th>3 Characters: full-length frontal, centre of screen</th>
<th>4 Characters: aerial view surrounded by others</th>
<th>5 Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bob 111</td>
<td>Bob 42</td>
<td>Bob 97</td>
<td>Bob 38</td>
<td>Wendy 49</td>
</tr>
<tr>
<td>Wendy 49</td>
<td>Wendy 52</td>
<td>Wendy 94</td>
<td>Wendy 110</td>
<td>80</td>
</tr>
<tr>
<td>Frequency of units of analysis for B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(N=673) %</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>7</td>
<td>6</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>14</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>16</td>
<td>16</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>
Table 2. Frequency distributions across 10 programs for C: Characters: Processes of interaction

<table>
<thead>
<tr>
<th></th>
<th>Discusses, explains</th>
<th>Gives instructions, directs</th>
<th>Asks for/ needs help</th>
<th>Provides solutions</th>
<th>Initiates, leads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bob</td>
<td>20</td>
<td>91</td>
<td>86</td>
<td>76</td>
<td>71</td>
</tr>
<tr>
<td>Wendy</td>
<td>132</td>
<td>10</td>
<td>15</td>
<td>147</td>
<td>157</td>
</tr>
<tr>
<td>(N=1795)</td>
<td>1%</td>
<td>7%</td>
<td>5%</td>
<td>5%</td>
<td>4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Follows, supports</th>
<th>Works</th>
<th>Plays</th>
<th>Forgetful distracted</th>
<th>Remains focused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bob</td>
<td>30</td>
<td>189</td>
<td>5</td>
<td>66</td>
<td>132</td>
</tr>
<tr>
<td>Wendy</td>
<td>101</td>
<td>208</td>
<td>6</td>
<td>10</td>
<td>273</td>
</tr>
<tr>
<td>(N=1795)</td>
<td>2%</td>
<td>10%</td>
<td>.3%</td>
<td>.5%</td>
<td>7%</td>
</tr>
</tbody>
</table>

Discussion

According to Silverman (2001), when representations, meanings, or other techniques of imaging are counted, as in the tables above, they should not be interpreted as quantifiable amounts for measurement comparisons, but instead should be interpreted as points of connection on a diagram. The tables above therefore show patterns of emphasis and lightness, prominence and absence, which enables thinking not only about what is strongly represented but also about what is barely or not represented. It would not be so useful, for instance, merely to conclude from Table 2 that Wendy discussed and explained things six times more than did Bob. In terms of identifying patterns and connecting the points of a diagram it would be more useful to say that Wendy’s role as one who discusses and explains appears to be a dominant one, and that the lack of this theme in Bob’s behaviour could raise questions about the nature of his interactions with the others.

The areas of evenness between the characters of Bob and Wendy can be seen in Table 1 regarding camera shots involving full-length, front-on views with the key character either to the centre or to the side of the screen, and in Table 2 with regard to the amount of time they were seen to work (build) and play (leisure). This initially seems to suggest an equitable share of both roles and visual prominence for both characters.

However, in viewing the areas of unevenness between Bob and Wendy, a different picture emerges. The picture painted is that Bob has prominence in terms of close-up portrait views and being someone who needs help, is forgetful and distracted, and who gives instructions. Wendy, on the other hand, dominates in terms of explaining to others, giving solutions, initiating, staying focused, and following and supporting Bob. Visually she is frequently depicted in aerial camera views, standing or working with others around her. It would appear then that Wendy, who is merely Bob’s assistant, displays more
of the actual qualities that constitute true leadership, although the visual prominence of Bob’s face in any program creates a powerful effect on the viewer and the whole program is developed around Bob.

Conclusion
A content analysis of 10 randomly selected Bob the Builder programs revealed that generally Wendy and Bob present equally as people who engage in both work and play activities. However, the breakdown of what constitutes ‘work’ as specified in Table 2 creates markedly different patterns. Wendy, Bob’s assistant, actually presents the characteristics of real leadership, and Bob presents primarily as a giver of instructions. Nonetheless he visually dominates every program and is the front-runner of the series. This illustrates the social contradictions referred to earlier.

This content analysis has illustrated that there is indeed a mismatch between the actual narrative (or what the story is conveying) and visual/spatial cues in the way this program represents to child viewers the roles of men and women through its main characters. Given that values and beliefs about gender become stable by about three years of age (Fagot, Leinback & Hagan, 1986; Watson, Watson & Wilson, 1999; O’Brien & Juston, 1985), the way in which Bob the Builder presents the adult world to preschoolers is of concern. Further work in this study is currently being focused on how children and parents (1) perceive these messages as they watch Bob the Builder, and (2) interpret these social contradictions as they construct meanings about their sociocultural world.

References


MULTIPLE WAYS OF KNOWING AND SEEING: Reflections on the renewed vigour in early childhood research

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This paper reflects on the current state of research in early childhood education and proposes that there is a renewed interest in research evident at present. Multiple perspectives of viewing early childhood are increasing, with research stretching the comfortable boundaries wider than seen before in Australia. This paper discusses how early childhood research is changing the way we consider childhood, and how its methods are now beginning to really embrace the child. Also discussed are some of the thought-provoking initiatives recently taken in such research and how the early childhood sector can benefit from its richness.

Introduction
Back in 1994, Rodd stated that research is necessary for advancing knowledge and stimulating a change in practitioners’ and policy-makers’ attitudes, which are essential ingredients for the healthy growth of the early childhood sector. We propose that at present there is a renewed enthusiasm in the field of research in early childhood education, with the potential to set future directions for such education. Even in the short time since 1994, we have seen many developments in research that are changing the way we view children, families, teachers and practice.

Some argue, however, that the nature of research in early childhood education is not in an ideal state (Woodrow & Brennan, 2001). Woodrow and Brennan (2001) claim that research in early childhood ‘often suffers from a need to gain credibility by the use of outmoded methodologies or empirical work’ (p. 41). One suggestion they make to help overcome this problem is for researchers to continue to interrupt and resist dominant images of children, and to take up collaborative research where ethical issues can be explored. We know that research does not provide any magical answers for the early childhood sector, but can assist in advancing knowledge, sometimes challenging one’s own theoretical standpoint and helping to find new ways to view and conduct practice (Rodd, 1994). According to Lingard (2001), research in education is a ‘complex, multifaceted, multidirectional phenomenon; it is most certainly not simply a one-directional and straightforward research findings-practice relationship’ (p. 4). Given the complexity and the evolving nature of early childhood education, it may be asked, ‘What are the new directions?’.

A new era: Room for multiple views
The notion of childhood
Embracing new ways of viewing the child is important in the renewal process. The ‘history of childhood’, along with other factors concerning the way society conceptualises infants and young children, influences how we define early childhood and early childhood education. The view of the child is at the core of what early childhood workers do professionally, and therefore we are asked to consider our image of the child (Page & Hammer, 2003). Fortunately, much discussion has taken place about the notion of the child in recent years (Cannella, 1997; Grieshaber & Cannella, 2001a; Woodrow, 1999). Woodhead (1997) contends that Western perspectives have assumed that children are vulnerable and need adult care during childhood. This view that a child needs protection renders the child as powerless in comparison to an adult. Power relationships are illustrated with the formation of a specific view of childhood which is then used to determine what is best for children (Cannella, 1997). Dockett and Fleer (1998) suggest that a direct consequence of this is ‘the ways in which adults...’.
determine what it is that children need to know and then set out to meet these learning needs’ (p. 109).

This is the role that early childhood professionals undertake as they try to plan a curriculum that meets the educational and care needs of young children. Decisions are taken which determine what is appropriate for these children to learn, assuming that ‘they do not know enough, that they are not yet competent to make decisions for themselves’ (Cannella, 1997, p. 6). In 1997, Steinberg and Kincheloe took up the theme of a changing childhood, stating ‘new times have ushered in a new era of childhood’ (p. 1). They base their statement on the fact that, because of changing economic realities and children’s access to information about the adult world, childhood has dramatically changed. Woodrow (1999) questions whether we should talk about the child as one homogenised group at all, and more recently Moss (2002) asks if it is time to say goodbye to the concept of early childhood itself. He claims that ‘the time may have come for adopting a broader perspective than early childhood, looking across childhood, or even sometimes across the life course…’ (p. 435). These questions challenge our conceptions of childhood, leaving the discussion open for theoretical change.

Teachers and practitioners in the early childhood sector have expressed their need to have local evidence-based research to support their pedagogical practices (Fleer, 2000). We argue that this is beginning to happen, that there is a renewed vigour in early childhood research at present. For example, such excellent publications as those produced by the Department of Education, Training and Youth Affairs (DETYA), a series of research reports conducted by Fleer (2000), Yelland (2001) and Raban (2000), have contributed greatly to the early childhood collective knowledge base. Through the vision of DETYA’s fellowship scheme these reports in the areas of literacy, numeracy, and the research agenda for early childhood assist in progressing practice and policy. It is collaborative studies such as these that generate much needed discussion about pedagogical practices in early childhood. Although the DETYA research reports have added to our collective knowledge base, questions such as ‘Where does the child fit within the research agenda?’ are being asked.

Embracing the child in research

New ways of researching with children are being explored within the early childhood education sector, taking the position which views very young children as competent beings able to contribute to some of the research processes (Krieg, 2003; MacNaughton, 2003; Robbins, 2003; Sumsion, 2003; Woodrow, 1999). Jipson (2000), on the issue of the nature of the relationship between the researcher and the researched, considers how children can contribute to the making of meaning within educational research. Jipson (2000) raises poignant ethical and moral questions such as ‘How has our research been constructed and how can it be reorganized or reformulated into analytic existence that acknowledges the co-participation of children in its process, including the process of representation?’ (p. 175). Robbins (2003) has taken a sociocultural perspective when researching with young children, and recognises children as competent participants. Robbins talks about researching with children rather than researching on children. It is this shift in thinking that leads to questions about ‘the status of pedagogic, representational, and research authority’ (Jipson, 2000, p. 175). This transformation is not only changing the nature of our discussions about educational research in early childhood, but is also changing the positioning of such research. This reconceptualised view of early childhood research has the potential to change the way research looks, where children can benefit from being part of the process and can tell their own story (Krieg, 2003). Perhaps it is a way of devising a more relevant curriculum that becomes ‘grounded in the reality of children’s understanding’ (Page & Hammer, 2003).

Practitioners and researchers who advocate for young children and their families also need to find new ways of communicating their commitment within the wider spectrum of early childhood. A new approach is needed whereby specialised knowledge about the child is communicated, while at the same time embracing other theoretical and critical perspectives, such as the work by Raban, Ure and Waniganayake (2003) that sets out to help practitioners develop a clearer understanding of their work with children, families and the community. It is felt that, by gaining a better understanding, early childhood professionals will be empowered to make advancements in professional, educational and service provisions.

Changes in perspectives

Not only are the research methods undergoing change, research perspectives and theoretical informants are similarly broadening and reconceptualising. Researchers such as Fleer (1995), Greishaber and Cannella (2001a), Jipson and Johnson (2001), Robbins (2003) and Soto
and Swadener (2002), amongst others, are making space for more theoretical informants than developmental theory alone. As greater attention is paid to the social constructions of childhood, it leads one away from the notion of developmental theory existing in isolation. Edwards (2000) states that, for research to really assist practice and manage the diverse contexts it attempts to inform, it has to be a complex process within itself:

And so complex are the settings of practice that it is unlikely that one set of research lenses, whether shaped by, for example, psychology or sociology, can do justice to what expert practitioners have to take into account as they make informed judgements in practice. For research to be able to illuminate and clarify practice, it needs to be able to accommodate the complexities of practice and its contexts (Edwards, 2000, p. 186).

Early childhood settings need to be ‘multifaceted, multifocal, multicultural sites that survive and thrive on multiplicity and diversity; their survival depends on vigorous discussion, debate, and argument about their moral and social purposes’ (Smyth, 2001, p. 146). It is this diversity in beliefs that can help sustain a thriving diverse research culture in early childhood education.

**Bridges not gaps**

In recent times, researchers within the early childhood sector have begun to examine the dominant theoretical paradigms and to look at how these impact upon education and care. Traditionally, one of these has been the developmental psychology paradigm. The debate in early childhood, referred to as the DAP (Developmentally Appropriate Practice) debate (Charlesworth, 1998; Hatch et al., 2002; Lubeck, 1998), or as being DAP-centric (Fleer, 1995), has been controversial for many years now. Although this ongoing international discussion has assisted the early childhood sector by questioning the bedrock of the foundational discipline (developmental psychology) that has driven early childhood for many years as the main theoretical informant, the discussion is beginning to change in its nature. Some still argue that DAP provides a solid foundation from which early childhood practitioners and researchers can work, and they continue the discussion about the benefits of a developmental viewpoint (Hatch et al., 2002). Others argue the benefits of working outside this developmental discourse and recommend that researchers and practitioners ‘pursue more personal, liberating, democratic, humanizing, participatory, action driven, political, feminist, critically multicultural, decolorizing perspectives’ (Hatch et al., 2002, p. 450) in early childhood education.

Grieshaber and Cannella (2001b) contend that there is room for more theoretical informants within the early childhood sector than developmental theory alone. But they also caution that this does not mean rejecting developmental psychology outright; they argue that a range of perspectives is required to encourage diversity in the sector. In her work, Edwards (2003) discusses the notion of practitioners ‘bridging’ the gap between their perceptions of developmentally appropriate practice and theory, by carefully considering the elements the teachers choose in their practice. Instead of theorising about curriculum practice from within the DAP discourse, or from being located exclusively outside DAP theory, Edwards contends that the perceived ‘gap’ between theory and practice can be replaced with a ‘bridge’. This metaphor is significant as it has documented the way some early childhood teachers deal with the so-called theory and practice divide. These teachers ultimately have control over their programming, and acknowledge that they deliberately shape the theory to fit with their practice.

Genishi, Ryan, Oschner and Malter (2001) recently argue that research in early childhood, particularly with regard to teaching in early childhood, should include multiple perspectives to represent teachers in more expansive ways. Genishi et al. (2001) recognise the achievements of developmental theory but do ‘not banish a perspective whose goals include the nurturance and education of competent and autonomous individuals’ and are ‘inclusive of goals other than competence and autonomy’ (Genishi et al., 2001, p. 1204). One theoretical perspective compared to another just exemplifies the different values that researchers hold, and different beliefs about what counts as legitimate knowledge (Kessler & Swadener, 1992). To be caught up solely in the binaries of these discussions is potentially slowing down the research and educational possibilities within early childhood education.

**Where to from here?**

**How to re-ignite the passion**

What we can take away from these ideological debates within early childhood circles are the multifarious benefits of a diversity of belief and conviction. We enter the discussions from numerous theoretical, cultural, institutional and personal backgrounds that could help enrich the research culture in early childhood. These different theoretical foundations should not polarise and
restrict varying sectors, groups, or individuals, but rather collaborate and be a rich, complex and colourful foundation from which to theorise.

From her study, Fleer (2000) concludes that there are five main directions that early childhood educators and researchers can consider to assist in the renewal of the research culture in Australia. These are: to continue to work towards more longitudinal research, to be in a strong position with regard to the research infrastructure in early childhood, to continue to develop a cross-sector research activity, to build up the Australian-based research profile, and to re-envision the image of the early childhood professional. Lingard (2001) advocates that, as educational researchers and practitioners, we need to enhance the national research capacity and support the widest range of educational research of the highest quality if we are to move our position further.

Recent times have seen studies within Australia generating thought-provoking research (Edwards, 2003; Robbins, 2003) and new ways to involve young children in research (Krieg, 2003; MacNaughton, 2003; Sumison, 2003). The degree to which the early childhood field is embracing new methodologies and contexts is evident in the presentations at Australian-based early childhood conferences. This is invigorating for childhood professionals and researchers and a healthy sign for the future of the early childhood field. The need now is not only to continue the work already under way but also to expand the existing research foundations and to enhance early childhood’s research capacity. Another way forward is to promote what can be termed a ‘culture of innovation’ (Kress, in Smyth, 2001, p. 165) within the early childhood sector. One could argue that this is already happening, but too often we revert back to our overly narrow view on what early childhood should look like. Widening the range of research opens up new worlds of information that can be put to use in early childhood practice. Perhaps the days of one dominant theoretical paradigm governing research and practice are over, and practice will ultimately look and be different from that of the past.

Teaching and working with young children is political, and decisions about young children’s welfare and education are being made all the time. This being the case, we want a sector that embraces diverse views. There is no need for all our research and practice to look the same. We must take the lead in curriculum development and innovation, otherwise we face the risk of having to accept what is handed to us from those outside the early childhood field.

Conclusion

In conclusion, members of the early childhood sector cannot help but think that interesting times lay ahead. New ways of perceiving early childhood—including how we view the child, teacher, families, community, and the settings in which we work—are changing the traditional frames. As our support grows for broader agendas in early childhood research, both nationally and internationally, our research processes and practices also change. New spaces of intellectual engagement are opening up (Johnson, 2001) and allowing early childhood education research to move forward. In this new knowledge-based society (Knight, 2002) the early childhood sector needs to be cognisant of the multiple purposes, methodologies and agendas that research brings (Lingard, 2001) and be open to the multiple ways of knowing and seeing research or practice.

References


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Introduction
Situated learning is a complex concept. Here in this paper I offer a version of it that represents a snippet of what it means. In so doing, I am describing a philosophical and pedagogical transformation that was, in its initial impact for me, immediate and dramatic, and is now an intrinsic, essential and sustaining force in my identity as educator—of young learners and older learners—and as a person who thrives in being a member of an educating community. I discovered the concept of situated learning when I was struggling to find a theoretical framework for explaining what was happening in informal learning contexts with respect to the mathematical meanings experienced by children during play.

Situated learning is a term conceived by Lave and Wenger (1991). It is based on the notion of legitimate peripheral participation whereby legitimacy, or a sense of belonging, and full participation evolve as a consequence of engagement in the activities of a community. That is, knowledge about numeracy and other literate or formal meanings evolves for learners as a consequence of being an active participant in an educating community (Chaiklin & Lave, 1993; Resnick, Levine & Teasley, 1991). Lave and Wenger’s exquisitely articulated treatise drew on studies of apprenticeship practices in order to examine:

- the relations between learning and pedagogy;
- the place of learning in practice;
- the importance of access to the learning potential of given settings;
- the uses of language in the learning-in-practice; and
- the way in which knowledge takes on value for the learner in the fashioning of identities of full participation (pp. 42-43).

Negotiation of meaning is another key element of situated learning. In an educating community, all contributions to the meaning-making are significant regardless of the knowledge base or authority of the contributors. Pedagogical practices aim to be flexible as contributions are interpreted and ways to guide and negotiate participation are determined. However, few educators of young children would argue that the business of negotiating mathematical meanings is a delicate and complex one, as mathematics is a domain of knowledge in which we learn number facts, about operations on numbers, and there are only right or wrong answers. In formal mathematics education contexts, specificity and accuracy are cultural codes embedded in its practices. For early childhood educators, negotiability is connected to the notion of responsiveness that has emanated largely from age-
appropriate pedagogies (Bredekamp & Copple, 1997) and is understood to require specific pedagogical strategies and knowledge (Dockett & Fleer, 1999; MacNaughton & Davis, 2001). In this paper, the notion of responsiveness is being extended to consider the possibility that it could also emanate from culturally-situated phenomena such as co-participation, engagement, and the negotiation of meanings. It aims to demonstrate how resources specifically designed for the generation of formal mathematical meanings permitted mutual negotiation, co-participation and engagement—that is, responsive interpersonal relations.

Numeracy focuses in formal education settings have been expanding and strengthening in recent years. Part of the interest and energy being thereby generated derives from pedagogies that attempt to make mathematics more accessible for learners through focuses on its real-world and creative relevance. These pedagogies have been constructed from the perception that being numerate involves using mathematical understanding in fluid, confident and meaningful ways—‘to meet the general demands of life at home, in paid work, and for participation in community and civic life’ (Australian Association of Mathematics Teachers’ Policy on Numeracy Education in Schools, 1998, p. 17). Early childhood education writings and policies highlight the links between contexts that are rich in perceptual and social experience and the development of problem-solving and creative thinking skills (National Childcare Accreditation Council, 2001). Among attempts to make such connections in early childhood settings is the use of perceptually attractive and imaginative ‘kits’ that generate opportunities for children to engage with mathematical concepts (Macmillan, 2001, 2002a; Young–Loveridge, 1996, 1998). This paper reports on a research project which extended the author’s investigations of mathematical meanings in mainstream early childhood programs (Macmillan, 1997, 1998a, 1998b, 1999), and is supported theoretically by particular studies in Indigenous numeracy education (Frigo, 1999; Graham, 1988; Harris, 1991; Howard, 1998). The data being reported here is, nevertheless, pertinent for all early childhood educating communities.

In this numeracy project, the social contexts of play offered opportunities for children to explore and experiment with the mathematical language (Vygotsky, 1962, 1978) that was embedded in the activity design (Chapman, 1993; Lave & Wenger, 1991). Although a range of numeracy meanings were incidentally activated, the numeracy concepts and skills of the research process were identified from the Foundation and Transition Level outcomes and indicators for Number in the New South Wales Department of School Education’s (1994) Early Learning Profiles: English and Mathematics. The main conceptual categories were counting, ordering and pattern. These outcomes and indicators were used to interpret and analyse the children’s responses to the numeracy kit activities. Each kit contained three or four different activities designed to generate imaginative or real-world purposes. The activities allowed for exploratory or dramatic play; practice and consolidation activities such as board, dice, card, sorting and hiding games, flip charts and flash cards; and documenting any aspect of the play experiences and numeracy meanings using paper pads and writing materials.

In essence, then, the aims of the project were to:

• facilitate the acquisition of numerate identities for the children by introducing them to particular numeracy-related resources;

• provide opportunities for families to become familiar with, and participate in, what the children were experiencing at the preschool;

• create links between the children’s approaches to learning and the numerate meanings; and

• discover ways for adults and children to communicate mathematically through engagement, co-participation and the mutual negotiation of meanings.

The educating and researching community

The numeracy project was conducted over two years from the beginning of 2002. A small university grant funded the kits in the first year, and in the second year the Indigenous Community Centre funded the replacement of, and modifications to, the kits. The author worked with university students to set up the kits originally, and in the second year two university students did the modifications. In the first year the research team and the director managed the contents and weekly preparations of the kits to go home, and in the second year an Indigenous trainee child-care assistant, newly employed by the centre, took over the supervision and management of the kits. Observational data using six of the 18 kits during the second year of operation is being reported here.

The initial teaching ‘team’ employed at the centre included the director, and two full-time and one part-time assistants. Two pre-service teachers and two
academics from the local university became part of that team when they visited the centre for the main morning session on each of the three days the preschool operated. The kits were introduced to the children during the first 10 weeks of the preschool year. The children were offered one or two kits at a time as part of the daily indoor activity session. At the beginning of the second term each child was provided with a kit to take home for the week. The strategy adopted for including the kits in the program was to set up a different kit in the same part of the room each week, and one of the visiting teachers was always ready and alert to respond to interest in it. The visiting teachers’ usual mode of engaging with the children was to approach those who were not being observed by an adult at a particular moment. The children were free to sustain participation or move to another activity as they pleased. As the children became familiar with the kits they began to ask for a particular one to play with.

The preschool director and staff participated in the project as co-participants whose knowledge of the children and the Indigenous community contributed significantly to its success. The director has conjointly presented workshops and conferences relating to the project with members of the research team (Coombe, Macmillan & Hawkins, 2002a, 2002b). The process of researchers, staff and children becoming co-participants became a dominant focus of the project. There were challenges for the researchers in acquiring understanding of the children’s approaches. One of the main difficulties was in learning to communicate with the children. Knowing how to interpret and respond to the children’s non-verbal messages led to discussions with the director and extending our knowledge of the literature on Indigenous education. Patience and time were needed for a sense of mutuality of goals and purposes to ensue. Reports of these dilemmas have been discussed elsewhere both informally (Macmillan, 2002b) and formally (Macmillan, 2004). Significant as an outcome at this time is the fact that the centre is now independently continuing the use of the kits, and the numeracy focuses are an integral part of the community’s educational goals.

The numeracy kits

The Care Bears kit

The bus game

Five-year-old Kayla (K) is sitting at the table with the Care Bears kit and is preparing to play the bus game by setting out the bus board, the dice and the small three-dimensional teddy bears. There is also a collection of larger two-dimensional bears that can be linked together to form a chain. During the episode another child, Ben (B), briefly enters the game. Kayla places four bears on the bus as the teacher observes and guides.

1. T: Let’s count the bears that are on the bus. [Pointing] One…
2. K: Two, three, four…
3. T: Four. The same as on the dice. Have another roll.
4. K: [Rolls a six.]
5. T: How many this time? Count the dots on the dice.
7. T: Can you count the dots? So you need to find six bears to get onto the bus.
8. K: [Puts two bears on the bus and then picks up one of the linking bears.]
10. K: But it’s the driver one.
11. T: OK, you put it at the front of the bus then.
12. K: [Picks up another bear and puts it on the bus.]
13. T: That’s four.
14. K: [Picks up another bear and places it on the bus] Lots!
15. K: [Picks up another bear and puts it on] This one has to go down there [on the bottom row].
16. T: OK, that makes six. Have another roll.
17. K: [Rolls the dice for a three.]
18. T: How many bears need to get on the bus?
20. T: Let’s count the dots on the dice.
22. K: No, no, it’s not three.
23. T: Let’s count the dots.
24. T: It is three [points and counts].
25. K: [Hides the dice] I know!
26. K: I don’t want to know! [Puts head down].
In this observation, numeracy concepts demonstrated by the child indicate capacities to:

- know that numbers are used to count in specific ways:
  - by recognising that numbers have a sequence (2) and a whole number or cardinality quality when the last number counted constitutes a nominal group (21); and
  - by using everyday terms to express quantity in everyday events (6, 14, 18); and
- be aware of ‘uneness’ and difference from one (10):
  - by applying logical thinking and articulating those thoughts through explanation.

Teaching strategies included: direct instructional statements (5, 9, 13, 15, 23) and questions (7, 17); and collaborating (1, 19) and scaffolding (11) statements. The teacher interaction provides modelling of whole number concepts, and supports mutual participation in the game. The child-teacher interaction loses its smooth flow when Ben comes along and notes that Kayla has rolled a three (21). Kayla’s response was at first disconfirming (22), then more positive following the teacher’s encouragement to count (25), but finally she withdrew from the game (26). This could indicate that Kayla did not appreciate the interruption but would have appreciated being able to sustain control of the pacing and participation.

Teddy bear triangles

Cassie (C) and the teacher (T) are playing with the Care Bears kit, making triangles using coloured paddle-pop sticks and little bears.

1. C: [Picks up three purple paddle-pop sticks] These are the same.
2. T: Yes, they are the same.
3. C: [Picks up an orange paddle-pop stick.]
4. T: You have an orange one.
5. C: [Drops the orange paddle-pop stick and starts picking up all the purple sticks.]

In this observation numeracy concepts being demonstrated by the child indicate capacities to:

- group objects that can be seen or handled:
  - by identifying objects within a collection that are different (1, 5); and
  - by using physical attributes to recognise that objects belong together (5); and
  - distinguish and identify, verbally and non-verbally, sameness and difference:
    - by sorting the purple sticks from the pile of coloured paddle-pop sticks (1, 5).

The teacher’s role here is one of support, as interactions clearly confirm the child’s interpretations and interactions (2, 4).

The Transport kit

Sequencing cards

Ryan (R) is sitting at the table with the Transport kit and is playing with the sequencing cards. Spontaneously he placed the ‘one’ card correctly followed by the ‘two’ card.

1. T: What comes next?
2. R: Three [picks up the ‘three’ card and places it in line but upside down].
3. T: Good boy. What comes after three?
4. R: [Placed his hand on the ‘six’ card and looks at the teacher.]
5. T: Let’s count: one, two, three…
6. R: Four.
7. T: That’s right.
8. T: Which card has four on it?
9. R: [Picks up card with four on it and places it in line] Four!
10. T: What comes after four?
11. R: Five [places it in order].

In this observation numeracy concepts being demonstrated by the child indicate capacities to:

- understand and demonstrate the links between oral, physical and written representations of numbers:
  - by correctly matching an orally given number to a number of objects which they can see or handle (6);
  - by illustrating understanding of links between what is said and what is represented (2, 8, 10); and
  - by knowing that numbers can be represented in symbolic and word form (up to 10) (2, 8, 10).

In this observation the teacher leads and guides by asking direction instructional questions (1, 3, 8, 10), and by offering collaborating (5) and confirming (3, 7) statements.
The car-matching game

Ryan (R) was playing with the car game from the Transport kit. He tipped out all the cars and spontaneously sorted them into groups of large and small cars and another group consisting of signposts. When the teacher asked what he had done, he responded that he had sorted them into 'a group of big cars, small cars, and signposts.' In this observation numeracy concepts being demonstrated indicate capacities to:

• group objects that can be seen or handled:
  • by recognising that physical objects are the same irrespective of orientation;
  • by identification of objects within a collection of different ones; and
  • by using physical attributes to recognise that objects belong together.

Beads and bangles

The hand card counting activity

Ryan (R) was playing with the hand cards and the blue and pink gemstones when the teacher made the following observation:

R counted the dot on the pinkie and placed one pink gemstone on that finger. He then counted the two dots on the ring finger; he placed a blue and then a pink gemstone on that finger. On the middle finger, R placed a blue, then a pink, and then another blue gemstone on the three dots on that finger. R continued the pink, blue, pink, blue pattern until all 15 dots in the hand cards had been covered.

There is evidence here that the child can:

• demonstrate an awareness of patterns:
  • by participating in making patterns using a variety of mediums, in this case gemstones; and
  • by demonstrating what comes next in a simple pattern of pink, blue, pink, blue.

Pattern-making develops key understanding for all aspects of numeracy competence. It creates awareness of the necessity for order and sequence, the elements of an array or arrangement that create the order or disturb it: that is, a focus on sameness or difference. It encourages perceptual strategies such as left-to-right eye movement and one-to-one correspondence.

Sweets and Treats kit

Name the numeral board

Ryan (R) was playing with the name-numeral-object board. He had placed the magnetic numbers beside the words that the teacher had read to him.

1. T: That number is seven.
2. R: [Places five sweets on the board.] 
3. T: We need seven.
4. T: How many have we got?
5. R: [Pointing as he counts] One, two, three, four, five…
6. R: [Picks up another sweet and places on the board] Six!
7. T: That’s right, we have six but we need seven.
8. R: [Picks up another sweet and places on the board] Seven!

In this observation numeracy concepts being demonstrated by the child indicate capacities to:

• understand and demonstrate the links between oral, physical and written representations of numbers:
  • by correctly matching an orally given number to a number of objects they can see or handle (8); and
  • by illustrating understanding of links between what is said and what is represented (5); and
  • by knowing that numbers can be represented in symbolic and word form (up to 10) (1-8); and

• recognise that the last number counted signifies total:
  • by counting the number of objects in a collection accurately (8); and
  • by matching using one-to-one correspondence (5,6).

Opportunities for numeral recognition can be introduced when they are linked with other perceptual information, such as having objects to count and mobile plastic numerals to position and reposition. This allows for the meaning-making to be negotiable and flexible, which is very necessary for young learners.

Counting the sweets dice game

Ryan (R) began to play freely with the ‘sweets’ filling the dishes, exploring their discrete and their continuous qualities. (That is, they can be counted and can fill up a
At the Circus kit
Mr Clown game

Ryan (R) and Adam (A) are playing with the Mr Clown game which requires using the clown card, rolling a dice, and matching a body part on the clown baseboard. Each body part is marked with the same grouping of dots as is on the baseboard clown. Ryan has just rolled the dice.

1. T: How many did you roll?
2. T: Yes, that’s it. That is his shoe.
3. R: [Matches shoes to the game baseboard.]
4. A: [Rolls dice.]
5. T: How many is on that one?
6. A: [Holds up three fingers.]
7. T: Well done. [Points to the three on the baseboard.]
8. R: [Rolls the dice.] Five. [Locates the piece with five and matches it to the baseboard.]
9. A: [Rolls dice and counts the dots]. Four.
10. A: [Looks at teacher who points to the baseboard and shows a four.]
11. A: [Locates a piece with a four on it and places it on the board.]
12. R: Nearly finished. [Rolls the dice and got a blank. Throws the dice again.] Five.
13. T: Can you count the dots?
14. R: One, two, three, four.
15. R: [Locates a piece with four on it, puts it on the board upside-down.]
16. A: Turn it over the other way.
17. R: [Turns the piece the correct way and places on the board.]
18. R: [Rolls the dice again and finds the last piece, places it on the board.] Finished!

A new number strategy featured in this observation is the use of fingers to represent the array of dots on the die (6). We call it a figural representation because ‘figures’ are used to indicate the child’s knowledge of a particular...
concept—in this case three fingers represent the three dots on the die. Dots, or tallies, are other forms of figural representation. They are not concrete items as a collection of sweets or teddies are. That is, they can be seen and counted but they represent something abstract—in this case, the concept of three. Another number strategy used for the next roll of the dice (8) is abstract counting, sometimes referred to as global counting. This is a more sophisticated strategy in which the group of five dots did not need to be counted out. The concept of ‘fiveness’ was perceived at a glance. For the next roll, however, Ryan misperceives the array of four dots and reads them as five, indicating that there is likely to be fluctuating competence with this strategy for some time, particularly with arrays more than three (12). In this instance, the teacher prompts the enacting of a one-to-one correspondence counting strategy (13) which he does correctly (14). Then, when Ryan incorrectly places a part on the clown, Adam takes on a checking role and indicates how Ryan can fix it (16, 17). It would appear from this that Adam’s confidence is secure and that he is comfortable taking on a guiding role. There appears to be mutual ownership of both the process and outcome by the children.

**Clown Lotto**

This game continued on from the preceding observation. It involves using a Lotto (or Bingo) card divided into six boxes. In each box there is a clown juggling a number of balls, from zero to five. From one of the six matching cards players take turns to choose one and match it to the same one on the Lotto card.

1. T: Do you want to try this game now?
2. A/R: Yes.
3. T: Turn all the cards over and then it’s Adam’s turn.
4. A: [Turns card.]
5. T: How many balls is the clown juggling?
6. A: One, two, three, four, five. [Places the card on the matching spot on the baseboard.]
7. R: He has no juggling balls. [Matches card to baseboard.]
8. A: [Turns card, counts balls, holds up three fingers, and places the card in its place.]
9. R: [Turns card.] One. [Matches it to the baseboard.]
10. R: We are nearly finished.
11. A: [Turns card.] One, two, three, four. [Points, counts and matches the card.]
12. R: [Turns the last card over and places it straight on the board.]
13. T: How many balls is this clown juggling?
   [Continues to point to each card.]
14. R: None.
15. A: One, two...
16. R: Three...
17. R/A: Four...

In this observation, we see continuation of the figural counting strategies (8) and global counting strategies (7, 9, 14-18), and one-to-one counting-out strategies (6, 11). We also see continuation of the mutual meaning-making, where the children support each other (14, 15, 16, 18) and interact conjointly (2, 10, 17).

**The Dress-Up kit**

**The Humpty Dumpty game**

Cassie (C) and the teacher (T) are playing with The Dress-Up kit’s Humpty Dumpty game. This involves rolling a dice in order to select one of the parts of Humpty Dumpty’s body. Each part has an array of dots to match the same array on the Humpty Dumpty board.

1. C: I’ve got the dice.
2. T: Can you roll the dice?
3. C: One.
4. T: Good girl.
5. C: [Finds the piece with one dot on it and places it on the board.]
6. T: Have another roll.
7. C: Three, four, five, six.
8. T: Great counting. Let’s start at one. One...
9. C: Two, three, four...
10. T: Good girl. Can you find the piece with four dots?
11. C: [Finds the piece with four dots.]
12. T: That’s right.
13. C: One, two, three, four.
14. T: Good girl.
In addition to the counting strategies evident here, these numeracy activities involve application of considerable literate knowledge: concepts about symbols having meanings which provide connections for participation in particular rituals (such as taking turns, verbalising what you’re thinking, responding to other people’s actions).

Big/small people activity

Cassie (C) and the teacher (T) are playing with The Dress-Up kit’s big/small people cards. There is a felt board with felt body and clothing pieces for making small and big people.

[C tips the different-sized people out and picks up a big woman.]
1. C: That’s the mother.
2. C: This is the dad [putting a medium-sized boy beside ‘mother’].
3. T: Is Mum bigger than Dad?
4. C: Yeah, and this is the little sister.
5. C: This is the dad [finding a larger male piece and placing it next to the mother].
6. C: And that’s the little brother. The little brother is with the big boy [lining up the male pieces in order].
7. T: And who is this one [pointing to the smaller girl]? 
8. C: That’s the daughter … all the girls are gonna be together [lines them up from biggest to smallest].

Here the child has identified the people she has made by applying criteria logical from her experience concerning size and family classifications of mother, father, daughter, little and big brother. She has used adjectives as non-numerical qualifiers to describe the different people she has placed on the board, such as ‘little’ (4, 6), ‘big’ (6) and ‘all’ (8). Overall, numeracy concepts being demonstrated by the child indicate capacities to:

- verbally describe groupings of objects using comparative language:
  - by identifying objects alike or different with respect to specific attributes;
  - by ordering objects within collections; and
  - by sorting and re-sorting a group of objects and talking about different criteria.

Creating a numerate culture

By creating the numeracy kits for the children to use at the centre and at home we were providing them with access to specifically designed resources that would enrich and stimulate their numeracy learning. They had access to similar kinds of numeracy-enriching opportunities while at the centre, but in most cases they were not likely to have access to such play materials or interactive opportunities at home. Being able to take the kits home meant that the families of the children could support them in their play, they could develop a better understanding of their children’s numeracy potential, and they could perceive a tangible connection between centre and home. For example, one mother commented to the centre director that it was not until she sat down to play the games in the kit with her son that she was able to discover how much he knew. The kits have become a talking point between the families and centre staff, and within the community. The children’s families visit each other, take the kits with them, and share each other’s kits. The fact that the kits are returned each week with contents intact is tangible testimony to the families’ appreciation and valuing of the kits.

The process of mutual enculturation was a key factor in this research. In similar research involving investigations of the impact of home support and culture on mathematical development, Starkey and Klein (2000, p. 677) noted that their findings ‘reinforce the view that there is a need to provide more support for low-income children’s informal mathematical development prior to entry into elementary school.’ Closer to home is the work of a distinguished mathematics educator who promotes the idea of mathematical knowledge as a cultural product and who urges educators to meet the challenges of thinking about learning as being culturally situated (Bishop, 2002). The following focuses on the children’s communications, their mathematical problem-solving, and the responsive nature of the teaching strategies offer lenses through which learning may be perceived as culturally situated.

Children communicating mathematically

‘Language is part of practice, and it is in practice that people learn’ (Lave & Wenger, 1991, p. 85). The use of the kits, combined with the availability of a range of linguistic models provided by adults and peers, gave access to the mathematical meanings in the examples in the main section of this paper. This section presents examples of the children spontaneously offering conversations during other experiences, as well as with the kits. They demonstrate talk that became increasingly explanatory,
modelling the ways of talking being used by staff and visiting educators.

A four-year-old was observing a snail crawling over pieces of celery and carrot when she said: 'I'm patting him. He didn't like it [as the snail slid off the celery]. I'm putting him on the carrot. He's trying to get off. One of these snails was on my garbage bin at home. He's going to fall off it in a minute. He's going down.' Apart from the spontaneous nature of these descriptions, there is an offering of a connection with a home experience and mathematical positioning language as specific details of the snail's movements are given.

The following extract of spontaneous play was observed when some children were interacting with one of the kits. It is being presented here to demonstrate the extent to which the children were engaging in 'language in practice,' by using narrative—a form of abstract representation of reality valued in formal learning contexts.

The butterfly story

Two children, B and R, came to play with a Bees and Bugs kit which contained a role-play prop of a butterfly, a play ‘space’, and containers of wishing stones, bees and smaller butterflies on pegs marked with numerals. They used these objects as the story unfolded. Soon after the story began another child joined the group to observe.

B: Pretend these are the butterflies. This can be all the honey. What do we need? Some honey. Let's do a story, R. … One day there was a mother butterfly with two babies. They lived together in a house and the butterfly went far away down to the river and she got some honey from the bees, and the mother got some more honey.

R: Pretend we've got some more.

B: Don't take the honey … And she put it back to the bees and she jumped on the rock this way and she flied away to the bees. Here's some more bees. And she swimmed away. After the story we're going to sing a song.

These two children moved away and proceeded with the concert. The onlooking child, S, asked to play with the Beads and Bangles kit, and spontaneously provided the following report of what she was doing:

Bangles, bangles. My brother can count. He goes one, two, three, four. Here's the last one. It's a game, isn't it? I have two teddies. I'm going to put two around my neck. I'm going to take all mine off and put them round my neck. Where did we put the knot? [She pulls the knot out with her teeth.] I want to take them off this one and put it on that one. When I'm finished, G. can have this one. Can you do a long one?

Here the children have initiated and independently sustained an imaginative context for interacting with each other and the kit materials. In her observations of children's dramatic play, Riojas–Cortez (2001) noted its potential to highlight bilingual children's knowledge. She concluded that:

Sociodramatic play allows children to exhibit their funds of knowledge. Funds of knowledge tell teachers what children know and are capable of knowing … Such information is crucial for the development of a culturally reflective curriculum (p. 39).

The children were learning to negotiate and were finding strategies for entering play experiences comfortably and confidently. In the context of citing the seminal works of Harris (1990, 1992) as he provided cultural explanations of Aboriginal numeracy education, Buckley (1996, p. 12) reflected the aims and orientations of this particular preschool program when he wrote:

Aboriginal education needs to occur within a framework which will deliver to Aboriginal people the support for them to successfully achieve in both the wider community and the Aboriginal community without any loss of Aboriginality.

These views are strongly supported by early childhood researchers and educators in their pursuit of equitable and accessible learning cultures for all children (Ball & Pence, 1999; Dahlberg, Moss & Pence, 1999; Grieshaber & Cannella, 2001; Mallory & New, 1994). Ball and Pence (2000), for example, in reporting their work with pre-service teachers in Indigenous early childhood settings in Canada, urged that early childhood educators work towards promoting ‘culturally situated understandings of children, their families and their ECE program needs in varying ecological contexts’ (p. 25).

Moreover, from a situated learning perspective, it is possible to perceive that, even when there was no observable pedagogical influence occurring, ‘the practice of the community creates the potential “curriculum”’—the children were developing an understanding of:

what the whole enterprise is about, and what there is to be learned. Learning itself is an improvised practice: A learning curriculum unfolds in opportunities for engagement in practice. It is not specified as a set of dictates for proper practice (Lave & Wenger, 1991, p. 93).
Lave and Wenger go on to point out that misunderstandings about informal education programs derive from misperceptions that 'changing the person is not the central motive of the enterprise in which learning takes place' (p. 93). Rather, 'the effectiveness of the circulation of information among peers suggests, to the contrary, that engaging in practice, rather than being its object, may well be a condition for the effectiveness of learning' (p. 93). In situated learning there is a 'decentring' of the view of the teacher as central to the pedagogy, which 'moves the focus away from teaching and onto the intricate structuring of a community's learning resources.' Participation is perceived as 'a way of learning — of both absorbing and being absorbed in "the culture of practice". An extended period of legitimate peripherality provides learners with opportunities to make the culture of practice theirs' (p. 95). In the present project, the learning process as it evolved over time became centrally significant.

Children solving problems independently

Indications of the children taking ownership of their own learning and adopting the learning strategies of the community were evident moment by moment. In the example provided of Ryan matching the rings to the dots when playing the hand-card counting game in the Beads and Bangles kit, we see independent problem solving. Studies by eminent mathematics educators in the United States (Fennema, Franke, Carpenter & Carey, 1993) have indicated, according to Kersaint and Chappell (2001, p. 57), that children:

are able to solve a multitude of problems prior to any formal instruction in mathematics. The assumption is that students who really understand an idea can use it in numerous ways, remember it longer, and can use that knowledge to learn more mathematics. In this way students have a larger stake in what they learn.

The final comment emphasises the power of having a sense of ownership of the learning process. This would seem particularly pertinent for learners who begin a formal education carrying with them culturally-identifying characteristics that may position them on the periphery of the main events, and detached from opportunities to participate fully and 'own' the meaning-making (Lave & Wenger, 1991).

The value of using games and open-ended imaginative contexts as intrinsically motivating experiences for mathematical problem-solving has long been expounded in the psychological literature (Malone & Lepper, 1987) and more recently by mathematics educators (see, for example, Gough, 2001; O’Doherty, 2000). An observation reported by Yelland (2001) in a study of children playing computer games was that children repeatedly chose games whose imaginative contexts were appealing to them, rather than the content frames carefully selected for them by their teachers.

Responsiveness

The role of responsive teaching strategies in early learning has been documented quite extensively in the early childhood literature (Dockett & Fleer, 1999; Fleer, 1995, 1996; MacNaughton & Davis, 2001). A brief summary of the main strategies evident in this particular setting illustrates its usefulness as a mediating communication role that positions the learner as having shared control over the learning process.

Clarifying/Elaborating: ‘You need to find six bears to go on the bus.’

Recognising success: ‘Yes.’ ‘Good.’

Collaborating: ‘Let’s count the dots on the die.’

Confirming: ‘Yes, that’s it, that’s his shoe.’

Encouraging reflection: ‘How many did you put there?’

Offering choice: ‘Do you want to try this game now?’

Accepting approximations: ‘OK. You put it at the front of the bus, then.’

Direct questions: ‘Which card has four on it?’

In the early numeracy education discourses, explanations of responsiveness and its relationships with identity formation have highlighted the possibility that responsiveness can be perceived also as a culturally-situated phenomenon (Macmillan, 1998a, 1998b, 1999, 2001, 2002). In summarising the present project’s contributions to these discourses, culturally-situated responsiveness was evident when the children were:

• immersed in the language of numeracy in order to develop specific concepts and skills;

• having their evolving knowledge recognised and approximations accepted at the same time as the need for mathematical precision was being modelled; and
• engaged in numerate learning contexts that allowed for degrees of flexibility and imaginative or real-world involvement.

Congruence between ECE philosophies and national numeracy policies
The similarities in philosophical consciousness between early childhood education philosophies and practices and national numeracy policies are evident when examining the Australian Association of Mathematics Teachers’ (1998) Policy on Numeracy Education in Schools. Both contain messages about:

• learning being context-specific: that is, what children say and do as they participate in the activities and experiences of the culture enriches and stimulates learning;
• educators identifying and being aware of the learning opportunities inherent in the activities of the communities in which they practise;
• educators responding to individual students’ specific learning needs and interests while emulating the values and codes of the educating community in which they belong; and
• communicative confidence and competence being key factors in the acquisition of an identity within any community.

The implications of these coherences for future practice are that:

• early childhood educators can embrace the notion of children acquiring multiple identities as learners in informal settings;
• mathematical language will evolve and be acquired by children when it is modelled in contexts that are perceptually attractive and imaginatively engaging;
• mathematical meanings can be mutually negotiated; and
• mathematical meanings are already embedded in play and routines that children experience at home and that form the curriculum of early learning settings.

Implications for future research in early childhood education, but particularly for those settings in which children’s cultural backgrounds may be different from the dominant culture in one respect or another, are:

• for those with the necessary cultural capital at their disposal to become members of educating communities so that the research process is shared, meanings are shared and outcomes are shared;
• for practitioners to actively seek out connections with those whose professional positions provide them with the cultural capital for sharing in the community;
• for research processes to be undertaken that analyse and subsequently articulate the complex nature of early childhood educators’ skills and competencies;
• for research that followed the children into school and found out how these earlier experiences impacted on later school-acculturation process; and
• for research to be undertaken that contributes to understandings of what culturally-situated learning means and its coherences with early childhood education.

Acknowledgements
The author wishes to thank the staff, children, parents and friends of the preschool for participating in the study and contributing a variety of resources, financial and otherwise, to the project. She is also grateful for the invaluable contributions of colleagues and university students. A small university research grant was used to prepare the initial set of kits.

References


Despite a growing interest in children’s drawing, there are few meaningful frameworks for examining what it is that children are doing when they draw. In this paper particular aspects of Vygotsky’s sociocultural theories are re-examined in relation to young children’s drawing processes. Using one kindergarten child’s drawings of the growth and development of a Painted Lady butterfly as an example, I show how drawing in a social context mediates new knowledge and understanding. Drawing processes that encourage children to talk about, share, revise, revisit and re-contextualise their drawings extend young children’s thinking as well their awareness of different possibilities for representation. I make recommendations for the use of drawing as a powerful meaning-making tool for young children.
When we consider children’s drawing to be a form of communication and a meaning-making tool, then the social, the cultural and the historical relationship with this meaning-making process demands careful consideration.

Past and present social interactions influence cognitive construction (Vygotsky, 1962; Wink & Putney, 2002; Moll, 2002). For example, a child who has been involved in writing the grocery list and selecting the items in the store will have a very different understanding of grocery shopping than a child who has been sat in the grocery cart and told not to touch while the adult shops. Cultural and social structures also influence the way we think. For example, Asian children who used an abacus had different concepts of number from children who did not (D’Ailly, 1992). Children acquire the rich body of knowledge accumulated by their culture that, in turn, influences their knowledge and thought processes (Vygotsky, 1978).

Vygotsky (1978) viewed learning and development as dialectical in nature. He saw learning and development working together as a dynamic process in a sociocultural/historical context that operated on three levels. The first level is the immediate interactive level, the second is the structural level, and the third is the more general cultural or social level. While I have separated these levels for the purpose of discussion, they function as levels closely interwoven within the whole context.

The immediate interactive level
At an immediate interactive level, there are two meanings for the social context. One is when we construct our understanding through our interactions with others. Less often considered are the other, more solitary, interactions with artefacts and materials in the learning context. Vygotsky proposed that, even when we are carrying out a mental action in isolation, we are not really participating in an individual mental process but are rather still operating in a social context. For example, we are using the social and cultural tools of language when reading a book, even when doing so alone. Books are themselves social, cultural and historical artefacts. When reading a book we are constructing our interpretation of the text from our own experiential base that is itself determined by the cultural, social and historical context (Wink & Putney, 2002). I consider drawings to be artefacts that represent holistic reflections of experiential and cognitive knowledge grounded in a sociocultural, historical and political context. The process of drawing reflects the social contexts in which drawing takes place (Brooks, 2002, 2003).

The structural level
The structural level includes social structures that influence the child, such as the family and school. Within the structural level the child encounters new ideas in formal and informal contexts. These ideas reflect the beliefs and values of the family and the wider community.

The more general cultural level
Our interactions with social, cultural and historical artefacts shape the way we learn and develop and in turn shape the way we construct new artefacts. The learner reflects the culture in which he or she is situated.

Vygotsky (1978) included visual representations in his list of culturally, socially and historically produced artefacts and it has been viewed that ‘the signs and symbols developed by a particular culture and the child’s interaction in learning these symbols are essential in developing … higher mental functions’ (Gredler, 1997, p. 13). Higher mental functions are ‘cognitive processes unique to humans and acquired through learning and teaching. They are deliberate, mediated, internalized behaviors built upon lower mental functions. Examples are mediated perception, focused attention, deliberate memory, self-regulation, and other metacognitive processes’ (Bodrova & Leong, 1996, p. 160). When analysing children’s drawing processes, my focus is not on the performance level the children achieve but rather on the methods or the process by which performance is achieved. I am interested in what children bring to the task, their interactions with their environment, and how they work to solve the problems or questions they encounter. Vygotsky considered visual images, graphic symbols and models, plans and maps as instrumental tools in mediating cognition. When we consider the mediating potential of children’s drawing and drawings, it is important to consider the social, cultural and historical understanding that is an inherent part of this dialogue (Brooks, 2002, 2003; Gardner, 2001; Rinaldi, 2001).

Vygotsky (1978) suggests that new mental processes exist in shared contexts before they are internalised, and that the learner is an active and interactive agent in his/her learning. For Vygotsky, cognitive construction is always socially mediated. The social context is part of the developmental and learning process. John–Steiner
summarises Vygotsky’s sociocultural/historical ideas well:

Central to his approach is a view of the mind which extends beyond the ‘skull’, which does not situate thinking in the confined spaces of the individual brain or mind. Instead, he proposes a sustained dynamic between other humans both present and past, book, the rest of our material and non material culture, and the individual engaged in symbolic activity. For Vygotsky, interaction with caregivers, peers, teachers and the material world is the basis of intellectual development. (John–Steiner, 1997, p. xviii)

In order to more clearly illustrate the potential for a Vygotskian social constructionist analysis of drawing processes, I provide the following example of Jenn, in my kindergarten class, who was studying the growth and development of a Painted Lady butterfly (this was part of a much larger study: Brooks, 2002). I examine the situation in detail with particular reference to the three levels of social context and their relationship to drawing.

**Drawing the growth and development of Painted Lady butterflies**

**Background and setting**

My kindergarten class was studying the growth and development of Painted Lady butterflies as they progressed from tiny caterpillars to larger ones, then chrysalis, and finally emerging as butterflies. The children were five years old, and this topic is part of the kindergarten curriculum for Alberta, Canada. On one very large table I had placed pencils, crayons, small squares of drawing paper, and resource books on caterpillars and butterflies, as well as the small plastic containers that held the food and the individual caterpillars we were going to study. Several children decided to adopt a caterpillar, observe, discuss and represent its growth and development.

The learning environment for this group of kindergarten children reflects the three levels of social context outlined by Vygotsky (1978):

1. The **immediate interactive level**: in the kindergarten class there is the social context of children grouped around a table in a classroom. They are interacting amongst themselves and with the text, the materials, and the adults in the room in relation to the caterpillars.

2. The **structural level**: structurally the classroom is within a school, which itself is situated within the wider community surrounding it. Families are an integral part of the functioning of the school, as well as supporting and extending children’s growth and development beyond school.

3. The **general cultural or social level**: the child, the classroom, and the school exist within a more global context and within a historical timeline of local and wider educational theories and practices.

As I describe and analyse each of Jenn’s drawings I will make reference to some or all of these three levels.

**Jenn’s First Drawing**

Several children are gathered around the table to look at the caterpillars. Jenn has chosen to adopt a caterpillar and is completing her first drawing of it.

In her drawing I can see that she has drawn the food with a graphite pencil and placed it at the bottom of the clear plastic container. She has managed to show just how much food is actually in the container by colouring only to a certain level. The marks she uses to draw the food convey the mashed-up consistency of the leaves. Her line rendering of the container suggests that it is made of clear plastic while the ellipse of the lid suggests that it is round. I can see that Jenn has begun to adopt some of the visual conventions from her culture to help her convey what she is seeing. She has not made the lid circular, as she knows it is, but has rather adjusted the circle to the ellipse she can see.

Jenn seems particularly interested in the food the caterpillar eats. Her questions are about how the food was prepared and who put it in the container for the caterpillar. She wants to know how long this food will last and how much caterpillars eat each day. She makes reference to a mother caterpillar that might have left this food for the baby. She discusses her ideas about these questions with other children around the table and hears there are many different predictions and ideas about the caterpillar’s food. In the reference books there are no clear-cut answers to her questions, but she seems intrigued that each species likes a different kind of leaf and that the butterfly knows which leaf to lay her eggs on. After we had discussed what the food was made of (mulberry leaves), Jenn added the green colour with felt marker. She also drew the caterpillar’s head down while eating it. The caterpillar was drawn bigger than it actually was; however, the drawing showed me that she noticed...
that the many legs of the caterpillar were positioned along the whole length of the body.

Jenn brings her own unique experiences, beliefs, assumptions and values to the event. She also brings the beliefs, assumptions and values of those she has had meaningful contact with throughout her life. She is a product of her cumulative past experiences. 'Thinking, you see, denotes nothing less than the participation of all our previous experience in the resolution of a current problem' (Vygotsky, 1997, p. 175).

Vygotsky proposed that knowledge exists in a shared context before it is internalised. Vygotsky suggests that it is through language that we are able to construct new ideas and concepts. When I consider drawing to be a form of language, then in this context I saw Jenn formulate, share and discuss her ideas about the caterpillar through her drawing. She saw other children’s representations with suggestions and ideas that were not only different from her own but that were also rendered in a different way. She saw representations and information in the texts that were different again, and she probably had to continue to reconstruct and adjust her original thinking to accommodate these new ideas. During this process it seemed that Jenn elaborated and transformed her understanding of the caterpillar’s eating habits. In this context, Jenn drew on multiple sources of assistance and, through semiotically mediated ‘negotiation’, she created ‘a temporarily shared social world, a state of intersubjectivity’ (Wertsch, 1985, p. 161). She adapted and changed some of her original thinking and ideas to accommodate the new ones. This was a transformative process that took place in a social context. In this analysis of Jenn’s first drawing the first two levels of social context are evident: the immediate interactive level and the structural level.

**Jenn’s second drawing (the fat caterpillar)**

Three days later, before working on her next drawing of the caterpillar, Jenn re-examines her previous drawing in her portfolio. As she looks at her drawing she reviews aloud for herself her cumulative knowledge about the caterpillar. She uses her previous drawing as a point of reference that assists her review; she takes stock of what she has done and learned. This helps with her comparison of the caterpillar’s previous state with what it looks like now.

I hear from her comments that she notices the caterpillar is much bigger now. She also comments on a couple of tiny, black, hairy deposits in the container. The child sitting next to her has the same deposits in her container. Together they discuss what they might be. They then ask me what I think they are and together we all look at a reference book. The book tells the progressive story of the caterpillar’s growth. Together we read that the caterpillar’s skin does not stretch as it grows like our skin does and that caterpillars split and shed the old, tight skin for a new one. Together we deduce that the deposits must be the old skins. Jenn draws a fat caterpillar that she tells me is struggling out of its skin while her peer draws what looks like the deposits of shed skin in her container.

![Figure 2](image)

**Figure 2.** A fat caterpillar struggling out of its skin.

I notice that Jenn’s caterpillar is drawn with lines that are more random and energetic and give a sense of the caterpillar’s struggle. In this drawing the food is drawn in a less significant manner than in the last drawing. This suggests to me that perhaps it is not so much the focus of her attention this time.

In this context, I feel that these children are able to set personally significant and meaningful learning goals that acknowledge what each brings to the context while also extending their understanding. In this way learning is not an end in itself but rather a way of participating in a social event to master new knowledge. Knowledge is not simply factual, but is also knowledge that grows out of socially and personally meaningful explorations and questions formulated by and amongst children. These real questions move the participants to pursue an answer and encourage the disposition to wonder, hypothesise and discuss.

The analysis of Jenn’s second drawing again shows examples of the first two levels of social context. Referencing a text that categorises and presents information in a systematic manner is an example of the third level of social context. The books contain references to more general concepts and ideas about caterpillars, and bring with them connections and exposure to global perspectives.

**Jenn’s third drawing**

A few days later, Jenn’s caterpillar crawled up to the lid of her container and spun a web around itself to secure itself while pupating. The chrysalis no longer looks like a caterpillar, although what was inside the chrysalis would...
sometimes wriggle and move. At this stage, there was much speculation by the children about what was happening. Jenn had also been watching and listening to some of the children try out new watercolour pencils. Her preference up until now had been graphite pencils. The novelty of the new pencils along with the different colours of the chrysalis seemed to prompt Jenn to try out this new medium. She stood for a while longer watching how the other children used them. She watched carefully while some children wet the page first then drew with the crayons. Others drew first then put a wash over the crayon while still others dipped the crayon in the water like a brush and then drew with it. Jenn asked each child why he or she did it that way. In her own drawing, she tried all three approaches.

Figure 3. Jenn’s chrysalis drawing.

In this drawing I can see that Jenn was able to transfer some of the new information from her observations of others using watercolour crayons into her own drawing repertoire. In this social interaction with her peers, Jenn is interweaving the visual texts of others into her own visual text. This socially constructed intertextual transaction combines the understanding and practices of others in a new form in Jenn’s drawing.

While the chrysalises were transforming we took the children to a local butterfly house to see other species and to talk with an entomologist. This gave the children a chance to make some connections between what was happening in their classroom and what was happening in another context. In the butterfly house, the children saw many different kinds of caterpillars, chrysalises and butterflies. They saw differences in the butterflies but, perhaps more importantly, they noticed the similarities amongst them. They recorded this information in detailed drawings in their sketchbooks. They noticed that, while each caterpillar grew and developed in a similar series of stages, they could take different amounts of time to complete the growth cycle. While each stage had similar features, each species had its own set of peculiarities. I felt that these comparative complexities again might challenge some of the assumptions Jenn had about caterpillars and butterflies and cause her to re-evaluate some of her thinking.

The entomologist who talked with us not only added to the children’s knowledge but also helped the children understand that there was a whole theoretical discipline attached to the study of butterflies that some people felt worthy of devoting their careers to. He also helped the children understand that care and preservation of nature was something we should all be concerned about and contribute to. Some of the children drew pictures of the entomologist as he talked.

As the children reviewed their field sketches they were able to remember more about their field visit because the sketches acted as prompts or mediators for memory. These memories could be shared amongst children and between the children and adults. This notion of a shared mental process is unique to Vygotsky (1978) and is different from a more traditional Western notion of memory that sees memory as something internal that matures only with age. As the children and the teachers shared their stories about their visit to the butterfly house, both teacher and child had access to more information than they might have had individually. The drawings served as tools for remembering while the discussion around the drawings acted to mediate retrieval of the memories from the drawings. The teacher’s guidance of the discussion elevated and extended children’s thinking.

The visit to the butterfly house exposed the children to a more general cultural or societal level of social context. They had an opportunity to experience larger categories of butterflies as well as some of the professions and organisations concerned with butterflies and their habitats. The labels showing butterfly names introduced a whole new vocabulary, the Latin origins, and a scientific language that structured one’s thinking about butterflies.

**Jenn’s fourth and fifth pictures**

A few days later there was great excitement when our butterflies began to emerge. Jenn and the other children stood transfixed as they watched them struggle out of their chrysalis. We put the butterflies in a glass aquarium and kept them for several days so that the children could continue to watch them. Jenn did two more drawings.
Apart from the almost exaggerated size difference, the two drawings of the butterfly were identical, so I was led to believe that she drew the same butterfly from two different points of view, one close up and one farther away. It was only when she asked me to write the captions for her that I fully understood what she was trying to convey. One drawing is from the point of view of the child looking at the butterfly; the other drawing is from the point of view of the butterfly looking at other butterflies. Jenn had used her drawing to shift her understanding of observing the butterfly to a much higher, intersubjective cognitive level. Her drawing allowed her to consider both her own and the butterflies’ points of view. Jenn seemed to be showing her reflexive relationship with her audience. It illustrates that Jenn seems to have an awareness of others in the social context.

As well as providing an example of the extended notion of social context at the immediate and structural level, the analysis of the two drawings helps to clarify the influence of the third level of social context. It provides a concrete example of a child’s awareness and appropriation of a graphic convention that has been culturally constructed.

**Jenn’s review and reconstruction of her drawings**

When we released the butterflies, Jenn seemed to miss watching them. She took her portfolio of drawings and decided to make a small book out of them. It seemed to me that, in her own way, she might perhaps be trying to give some permanence to the event. In my classroom, we often made books about memorable events and these then went into our class library. Jenn laid out her drawings and then sequenced them. Then she made a title page, stapled the pages together, and brought the book to me to read. As she finished reading she looked at me in wide-eyed amazement as if discovering something for the very first time, and said, ‘Now I know what happens!’ Jenn then dashed off to the writing table where she quickly recreated the elements of her book and again brought it to me. ‘This happens over and over again, doesn’t it?’ she said.

Jenn had not only physically ordered and put together the representations of what had occurred, but she had also put together her prior knowledge and made
a significant cognitive leap. She had, in her hand, a new socially, culturally and historically-created artefact that contained tangible evidence of the transformation of her thinking.

Revisiting Vygotsky's sociocultural theory in relation to drawing

Immediate interactive level

At the immediate interactive and dialogical level, drawing serves a useful function in supporting learning in the social context of the classroom. Drawing and learning dialogues operate on two levels. There is the interpersonal level where new mental processes first exist in shared contexts before they are internalised. Then there is the intrapersonal level where new knowledge is internalised and the dialogue continues at a metacognitive level. Vygotsky (1978) recognised the school as an important site for promoting the shift from personal experiences and interpersonal dialogues to more complex supraempirical systems and metacognitive thinking. When children are exposed to other ideas through their interactions with others in their community, they are able to grow into and shape the intellectual life of those around them. While it is important to recognise these two levels as distinct, it is also important to remember that they work together in a continuous dialogic spiral.

Interpersonal level

Setting a social context for drawing and for learning ensures opportunities for interpersonal exchanges and the creation of new knowledge. In kindergartens, interpersonal dialogue often begins with exploratory behaviour accompanied by verbal dialogues that share observations and prior experiences amongst small groups of children. Physical handling of, and experimentation with, objects seems to be an essential precursor to any in-depth investigation or abstraction. During the phase of interpersonal sharing of knowledge, children build an understanding of an object that does not solely depend on sight. The handling of objects brings a spatial and textural awareness. This physical knowledge is an important factor in children's later ability to represent objects (Brooks, 1995).

At an interpersonal level, one of the functions of drawing is to provide a referent to the object, drawing the experience into the symbolic realm. A drawing thus provides a point of referral for discussion, reflection, re-evaluation, reconstruction, re-contextualisation and comparison. While drawing, children talk with their peers about what is being drawn and how. The drawings provide a common point of reference that can be shared amongst others. When children draw out their ideas, others are able to see what they are talking about and enter into a dialogue. As the drawing proceeds, we are able to see new knowledge that is being presented. This knowledge exists at an interpersonal level. Drawing is the mediator for an interpersonal dialogic exchange, the foci of which are emergent ideas and theories. Ideas often contain physical and spatial information that may well be lost in a primarily verbal exchange. The nature and content of the exchange between teacher and child in relation to drawing and ideas has a potential to be an exchange that aims to understand what the child is trying to depict and what the emerging ideas might be. A drawing allows new knowledge to exist in a shared state before being assimilated into new perspectives. Drawing not only acts as a mediator between new and existing ideas, it also acts as a social mediator that facilitates a common understanding. The interpersonal level could be viewed as the foundation from which the intrapersonal level grows.

Intrapersonal level

Intrapersonal dialogues are necessarily harder to see and provide examples of, as we cannot see what is happening inside another person's head. Jenn's reconstructed drawing of her book is an example of metacognitive thinking becoming visible through the transformations represented in and through their drawings. Jenn used her drawing and her intrapersonal dialogue with her drawing to develop a representation that more clearly describes, and confirms for her, her understanding of life cycles. Her reconstructed drawing represents an intrapersonal dialogue made visible through drawing. The challenge was not for Jenn to produce a more realistic drawing but rather to more clearly represent ideas about butterflies. 'The nature of human visual perception is not one of recording the objective reality that exists independently of observation but rather of actively constructing an image of the world that is only partly based on retinal stimulation' (Ruby, 2000, p. 216). The eye registers only part of the data. The brain forms rapid hypotheses that complement the retinal image and constructs an interpretation of what is seen. Children respond to, and benefit from, discussions and critiques that focus on the message or idea that the representation had the potential to convey. It is a discussion that focuses on the construction of the representation rather than on a verisimilitude to some
unattainable reality. Discussions and critiques that focus on emerging and key ideas held in children’s drawing might better foster the use of drawing as a powerful meaning-making tool.

Through the process of redrawing, Jenn’s thinking about the caterpillar’s growth and development changed. Drawing at an intrapersonal level helped Jenn integrate her new knowledge with her previous experiences and ideas. In her reconstructed drawing, we see evidence of both previous and new thinking. The drawing reveals a transformation of thinking that is indicative of an intrapersonal dialogue or internal revision.

When examining Jenn’s drawings collected over time, a historical and developmental progression of information and ideas emerges. Each successive drawing seems to relate to, and build upon, ideas contained in the previous drawings. If we think of drawing as involving many steps and perhaps many drawings in the pursuit of an idea, this opens possibilities for children using drawing over again in many different ways and contexts. Tracing the qualitative changes in behaviour was important for Vygotsky’s (1978) understanding of learning as a process of motion and change. In a similar way, observations of these qualitative changes in drawing are important for our ongoing understanding of how children are learning.

**Structural level**

‘A child does not just become a thinker or a problem solver: she becomes a special kind of thinker, rememberer, listener, and communicator that is a reflection of the social context’ (Bodrova & Leong, 1996). In the context of the school setting, ideas and ways of processing information are shared amongst the teachers and children. The materials, spaces, time, and the social contexts that are offered and constructed in the classroom have direct implications for, and influences on, learning that occurs. When drawing is supported through the provision of interesting and high-quality drawing materials, and the spaces set aside for their use promote drawing in a social context, not only are the children able to exchange ideas about the topic they are studying but they are also able to support each other in the use of materials and different ways of using them. When collaborative work is valued, the classroom is structured in ways that supported this value position. When the responsibility for learning is shifted from the teacher, and shared among the whole class group, this provides a richer and more dialogic learning environment. When all the decisions about what to learn and how to learn rest with the teacher, this seemed to deter children from becoming co-constructors of their own learning.

**General cultural and social level**

The study of caterpillars was linked to experiences outside of school and the wider cultural community by taking the children to the butterfly house and by having the entomologist share details of his profession with them. Our visit helped children see connections between what they learn in school and what happens outside of school. When children experience these connections they see some relevance for their learning.

Visits to locations outside the classroom are valuable if active links between school and community are emphasised. The information collected on these visits can be brought back, revisited, and processed in more depth. Drawing was the medium of data collection and transfer of information in this study. Rather than visits aiming to summarise learning that had already taken place at the culmination of a study, the visits outside the classroom were springboards for further investigation. It was fieldwork in an anthropological sense. We went equipped with clipboards, cameras and questions. Information was gathered on these visits with the understanding that it would be used in our ongoing investigations in the classroom. Drawing was invaluable for field notes and for focusing children’s attention. Fieldwork linked what the children did in school with the community at large as well as supraempirical structures in that wider community. Drawing was a critical element in this linkage. While each drawing was individually constructed and contained a personal understanding, collectively the drawings mediated these more personal meanings and helped to move the children to more generalised understanding of their experiences.

Examples of symbolic images are probably more prevalent today than they have been at any time previously. Interfaces with technology tend to be image-based while media such as film, television and the Internet that carry current ideas and information are also primarily image-based. Acknowledging this image-rich, lived experience of children in schools is important if children are to see school as relevant to their experiences outside the classroom.

**Conclusions and recommendations**

It is important to pay close attention to the kinds of activities, opportunities and discussions that accompany
the interpersonal level. It is at this time that children’s ideas, questions and misconceptions are most visible. Drawing can help children make their ideas visible. When drawing is one of the modes of exchange, these drawings can be preserved as a record of children’s thinking that can be reviewed and revisited by both teacher and child. Drawings may also serve as a vehicle of exchange within the wider learning community.

It is important that strategies for learning, thinking, and using drawing as a meaning-making tool be modelled and talked about individually, in small groups, as well as in large group discussions. This approach to learning recognises the particular skills and experiences each child brings to the learning situation and works to involve the child in a continuous dialogic spiral where the collective understanding and discussions work to support individual constructions. Drawing functions well as part of this dialogic model.

The support, time and opportunity for children to pursue complexity in their drawing also have to be part of the teaching and learning environment. The focus of the discussion around drawing should be about the meaning and information it contains, rather than on drawing skills and aesthetic qualities. This shifts the focus from performance criteria to a concern with the meaning that the children are trying to make of certain phenomena through their drawing. This approach opens a dialogue that actively involves children at a cognitive level. Drawings provide valuable insights into children’s thinking. Drawing is an invaluable teaching and learning tool.

While it is important to draw at the interpersonal level, it is worthwhile pursuing the cognitive complexity and abstraction that drawing seems to support at an intrapersonal level. This often means asking more from children through drawing. Interpersonal and intrapersonal levels may operate in an integrated, recursive and ongoing cycle, building more complex concepts and representational repertoires. One of the qualities of drawing is its generative and divergent possibilities. One of its great strengths lies in its ability to immediately reflect back to the person drawing the ideas that are revealed. This is perhaps why young children find drawing such a powerful tool. It is immediately holistic and interactive in ways that writing is not.

References


EXCELLENCE IN TELEVISION FOR YOUNG CHILDREN
—entertainment, engagement and empowerment

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The notion of excellence in early childhood education is increasingly recognised as both subjective and problematic. The search for excellence can be, however, a motivating force for those committed to providing experiences that enrich and enhance the lives of young children within diverse Australian communities. This commitment is shared by the production team of the Australian television program, Play School. Play School seeks to achieve excellence by providing a program that not only entertains but also engages and empowers the young child as a creative, curious and capable participant. This paper provides an overview of the exploration of excellence within the development of the Play School program. The notion of the continuum ‘from entertainment, to engagement, to empowerment’ is explored as it impacts on the processes and production behind the scenes and program content of ABC Play School.

Introduction
The television program Play School has been produced by the Australian Broadcasting Corporation (ABC) since 1966. It has been much loved over its 38-year history. Play School is a program designed specifically for an early childhood audience and has become an aspect of childhood that now spans several generations. Older members of the Australian community fondly remember the early days of the program and now in some cases share this significant aspect of childhood with grandchildren or great nieces and nephews. The program’s rich contribution to childhood experience has been recorded recently in an exhibition at the National Museum of Australia in Canberra. This exhibition included historical elements, such as the ‘flower’ and ‘rocket’ clocks, that are familiar to past viewers.

The Play School program is currently screened across Australia each weekday morning and afternoon through the ABC television network. The half-hour viewing, currently at 9.30am and 3.30pm each weekday, is a ritual for many families with young children. Clark (1998) also suggested that a major proportion of the viewers of the afternoon session of Play School are groups of children in long day care centres. A longitudinal study undertaken by Weddell and Copeland from 1995 to 1997 investigated children, teacher and parent responses to Play School. Weddell and Copeland (1998) found that Play School was one of the programs most frequently watched by young children, along with Sesame Street, The Book Place and Barney:

“Parents reported that the presenters (people and puppets), music, games and stories were aspects of the viewed programs that children responded to and enjoyed. Teachers also commented that they used songs, stories and games which were familiar to children based on the previously mentioned programs. The ABC materials (resource booklets, tapes and story books) are the most commonly used resources in preschools and kindergartens (p. 8).”

While valuing its place in early childhood experience and recognising its historical significance, the team responsible for the production of Play School continues to explore new possibilities and directions for the program to ensure that quality and the vision for excellence continues to be realised. This paper provides an overview of the Play School program and explores the question: ‘What is excellence in television designed for an audience of young children?’ The assertion that excellence in children’s television involves moving beyond entertainment to engagement and empowerment is explored as it impacts on the program. The paper concludes with a number of suggestions for the shared exploration of the possibilities for play and learning that emerge from the program.
The nature of the program

The format of each Play School episode is characterised by the personable style of the two presenters, generally one male and one female, who speak directly to the child viewer. This style of presentation is built on the approach developed by the British Broadcasting Corporation [BBC] production of Play School which began in 1964. Cynthia Felgate, founding Executive Producer of the BBC version of Play School, described the audience she and her colleagues were addressing as ‘one child in a room’ (Messenger Davies, 1995, p. 19).

The ‘para-social’ interaction, in which presenters talk directly to and ask questions of the child viewer, has been shown to effectively elicit responses from the children (Noble, n.d.). Kelly (2000, p. 9), a parent viewer, also noted this quality in her letter to the editor of a popular magazine for parents of young children, Sydney’s Child. Kelly wrote: ‘my mind flew back to the well-known format of Play School, where the presenters often sit on the floor to do some pasting, cuddle a kitten, or trip about the studio, imitating a horse.’ Luke (1990) argued that this interpersonal relationship fostered between Play School presenters and the viewer was a significant advantage of the program over other television programs designed for young children. She commented:

Viewers are personally addressed by the presenters through a monologue to the camera which appears like a personal dialogue with viewers and through eye contact [to the camera] . . . [Presenters] talk unhurriedly with each other and to the viewer. Directions to the children . . . are slow and clear. Enough time is provided to allow viewers to absorb the message (p. 55).

Pauses within the dialogue are also used to enable time for the child to make comment or to respond to questions asked by the presenters. Luke (1990) also identified this aspect of the dialogue and noted that ‘unlike Sesame Street these pauses aren’t filled in but are left empty to recreate the realistic pauses of social interaction in a natural setting.’

The familiarity of presenters and the personalised nature of the dialogue have meant that many of the Play School presenters have become the trusted and loved friends of young Australian children. Play School presenters invite participation in a range of experiences and activities including singing, moving, playing, listening and constructing. There is an emphasis within each episode on opportunities for playful responses to the various elements of the program, both during the viewing period and through subsequent exploration afterward. A longitudinal study undertaken by Waters, Ungerer and Barnett in association with the Australian Broadcasting Authority (1998, p. 8) to track the exposure to television of young children from four to 30 months indicated that:

Children energetically responded to, and interacted with, specific television content, and the unique attributes of many preschool programs encouraged their attention. These attributes include lively music, human voices, peculiar sounds, non-human characters, activity, movement and short segment stories. In programs like Play School adult presenters directly address children by asking questions and encouraging them to join in with singing, dancing and other activities.

The toys featured in Play School also have a significant reputation, with Big Ted, Little Ted, Jemima and Humpty being familiar characters to many young Australian children. Recent findings suggested that the ‘Faces’ section on the Play School website, which focuses on the toys and presenters, is one of the most popular areas of the site (ABC, 2003, p. 3).

Each weekly series of episodes of Play School focuses on a particular theme. In information for outlines and scriptwriters the following suggestions were made regarding the choice of suitable theme: ‘The theme must be relevant to the preschool child, it must be of interest to a child of this age, draw from the child’s experience and add to the child’s understanding of the world’ (ABC, 1999, p. 4).

Each day of the week on Play School emphasises a different interest. Monday is ‘useful box’ day; Tuesday, dressing up day; Wednesday, animals or pets day; Thursday, imagination day; and Friday, science or investigating day. The identity of each day serves as a means of ensuring that the theme of the week is responsive to the range of children’s interests, play and learning. Regular features also include the story, the clock, the day of the week or calendar, and the ‘through the windows’ film.

What is excellence for children in relation to television?

The new sociology of childhood critiques the notion of quality and excellence in relation to children’s services. The notion of quality as being a unitary and objective truth is questioned, recognising that what is excellence and quality for one person in one context or situation
will be different for another. As Bush and Phillips (1996, p. 66) commented:

*The subcultures and plurality of values in societies often means that no one definitive definition of quality exists. It is a relative concept that varies depending on one's perspective—indeed quality is both a dynamic and relative concept so that perceptions of quality change as a variety of factors evolve.*

Similar dilemmas also exist in relation to ‘what is excellence in television for children?’

Criteria for assessing excellence will vary between child viewers at different ages and stages, and for children with different interests, personalities, temperaments, and learning styles. It will also vary for children from diverse socio-cultural contexts, for children of language backgrounds other than English, and for differently-abled children. Educators and carers in family situations, in centre-based care, and in diverse school settings will also evaluate the program from their own individual perspectives. Excellence in children’s television for those involved in production (such as set design, lighting and mixing) or those in finance or merchandising will also be based on particular criteria. This view is reinforced by Bazalgette and Buckingham, who commented: ‘the issue of quality (television for children) is problematic, particularly if the grounds for judgment are not made explicit. But it is ultimately unavoidable’ (1995, p. 9). So, while recognising that the question of quality is both contextual and complex, a number of principles for excellence in children’s television have been identified and these inform the development of the program. The commitment to providing quality entertainment for the young Australian viewer has been pivotal to the production of *Play School* since its inception.

The role of the ABC as the national broadcaster brings with it particular responsibilities. The ABC Charter specifically states that the ‘functions of the Corporation are to provide within Australia innovative and comprehensive broadcasting services of a high standard as part of the Australian broadcasting system’ (ABC, 2002, p. 4). On interpreting the charter, some specific requirements are identified. These include a commitment to innovation; comprehensiveness; high standards; national identity and cultural diversity; (programs that are) informing and entertaining; encouraging and promoting the arts; broadcasting programs of an educational nature; and independence (ABC, 2002, p. 5). In relation to ‘high standard’ the following comments are noted: ‘perceptions of quality differ, and the factors constituting quality can vary for different genres and program forms. The ABC endeavours to provide the best possible programs it can, whatever the genre, across all its services’ (ABC, 2002, p. 5).

While the need to entertain is fundamental to the medium of television, *Play School* seeks to move from this basic requirement of entertainment to embrace a commitment to engagement and empowerment. These aspects are recognised as significant to the experiences of play and learning, particularly in early childhood (Dockett & Fleer, 1999). The suggestion is that quality and excellence in children’s television emerges as we move through the continuum from entertainment, to engagement, to empowerment. This concept has been used to inform the development and evaluation of *ABC Play School* from an early childhood education perspective. It may also be a continuum that applies to quality in early childhood education and to education generally.

**Entertainment and engagement**

Skagerlind (1998) suggested that a basic requirement for effective television is that it must be entertaining for the anticipated audience. To ensure the program’s ongoing appeal to the child audience, members of the *Play School* team regularly observe young children’s responses while viewing. Program development also continues to include an early childhood perspective as articulated by professionals familiar with the early childhood field and the current literature and research. The *Play School* production team resists the current shift in focus to the child as consumer and the move toward capitalising on this newly discovered market (Beder, 1998) through commercialisation and the development of associated products. The *Play School* production team continues to offer what is believed to be positive experiences of play and learning for young children. As Messenger Davies (1995, p. 20) notes in relation to the BBC *Play School*, ‘Producers do not pander to what consumers want. They give people what they believe to be good for them.’

The *Play School* production team resists the image of the child as passive viewer. Rather, the child viewer is conceptualised as an intelligent, strong, creative, and curious participant (Edwards, Gandini & Forman 1998; Woodrow, 1999). This image of the child requires that the program does not just entertain but also provides experiences that will engage and empower the young child within diverse contexts.
Many elements are considered in order to entertain and facilitate the engagement of the child in each Play School program. These include elements that are responsive to the age of the particular audience for which the program is designed. While acknowledging the diversity of the Australian context and the multiplicity of childhood experiences, Play School provides elements that appeal to the preschool viewer.

**Familiarity, consistency, diversity**

Each Play School program includes familiar elements allowing the young child to develop security within the predictability of the half-hour of viewing. In commenting on this aspect of the BBC Play School, John Lane, a director of the program, said, ‘Play School and its presenters and characters may be one of a few sources of security children have in their lives’ (Messenger Davies, 1995, p. 22). Revisiting a familiar environment, seeing familiar faces, and the continuing presence of the toys provides a secure base from which new elements can be explored. It is when children feel secure and comfortable within an environment that they are most willing to explore, create, take risks, and respond positively to challenge and possibility. The consistent elements of the clock, the day of the week, a read or told story—all provide a counterbalance to the unfamiliar elements which might be included within the film, the ‘makes’ or play experiences. Visitors to Play School add interest and in recent times visitors have included a marionette puppeteer and puppet, a jazz band, and animals such as kittens, frogs, axolotls and goats.

The presenter’s use of the toys as partners in play and storytelling connects with the young child’s use of toys in play. Again there is a balance between consistency and variety, with familiar toys being seen in diverse roles and situations. For example, the doll Jemima explores roles as diverse as hang glider pilot, mountain climber, and Cinderella.

The colourful set used at Play School also juxtaposes elements that are familiar with new additions and diverse configurations to create interest. Basic structures are used in various ways to provide a layout which is complementary to the action. The manipulation of basic elements such as blocks, shelving, and arches to create different contexts for play also models the creative use of basic construction materials that may be available in the home such as blocks, tables, lengths of fabric, and recycled materials.

The use of repetition and familiarity enables play, creative expression, discovery and investigation to occur within a secure and familiar context. The use of familiar presenters and the personalised interaction between presenter and child viewer helps to engage the child.

**Content**

The choice of theme and specific content emerge from the collaborative process of program development, and the input of early childhood professionals is actively sought and utilised. Themes are selected on the basis of the richness of possibilities and for the degree of interest for young children. Such decisions are conscious attempts to facilitate the engagement of the child viewer. While the chosen theme gives overall direction to the program for the week, the use of the sub-themes gives freedom to explore the possibilities that arise. This ensures spontaneity and allows time for the exploration of aspects which may seem tangential to the main theme but are no less significant.

**Resources**

Play School attempts to reflect the linguistic, cultural, socio-economic and geographical diversity of the audience. The use of cross-cultural resources, recycled materials, and different scripts on labels and signs as in the series ‘Going Out’ provides some evidence of this. The natural integration of songs, books and games that reflect different cultural and linguistic traditions promotes an authentic rather than tokenistic approach.

*‘Through the windows’ films and animations*

The inclusion of ‘through the windows’ films and animations provide an additional element within the program that effectively supports the entertainment and engagement of the child. These short segments allow for the importation of content that would be impossible to attain within the confines of the studio. They are visually rich and can provide ready access to diverse contexts and situations. The content of the ‘through the windows’ films is carefully selected to ensure that the program includes a broad range of childhood experience and positive images of diversity and difference. This is reflected in recent programs that included a Jewish family celebration, a day out to a fun park for a lesbian family, and a Christian baptism.

Process films are also included on Play School. These show a sequence of activities or reveal the background production of a familiar object and are responsive to the young child’s natural curiosity. Research undertaken by
Timing and pacing are carefully monitored within each program to ensure that the child viewer has time to process and respond to the program. Pauses are frequently scripted to allow for the child’s response to a question or comment. The careful organisation of passive and physically active elements within each half-hour program helps to engage the young child who may enjoy a kinaesthetic response to the audio and visual stimulus.

Timing and pacing

The presenters, it acknowledges that there is not one set of words or actions can no longer be justified. While this flexibility may at times be confusing for the presenters, it acknowledges that there is not one universal experience of childhood and supports the diversity and richness of the oral culture that pervades early childhood experience across Australia.

Music

The use of music throughout each program lends an additional dimension to elements such as the story, dramatic play, and games. A highly creative pianist provides accompaniment that reflects the action being portrayed by the presenters. Music is used to support content, mood and pacing.

Simplicity as well as richness is provided by the musical accompaniment, acknowledging that there are many different ways that children at different ages and stages will connect with what is offered within a program. This multi-layering adds depth of content and offers different points of connection for children from diverse family and social contexts.

Music on *Play School* is enriched by hand and body action. The inclusion of actions for songs supports both the entertainment and the engagement of the young child, acknowledging that young children use many different languages to express their ideas and feelings (Edwards, Gandini & Forman, 1998). Decisions regarding the choice of actions are based on several considerations. First, there is a commitment to the creative exploration of possibilities rather than replication of a correct response. The actions used for a song depend on the particular context or situation, and different actions are used within the same song at different times as a way of modelling a range of options. Second, there is the recognition that there are many different versions of familiar songs used within both families and early childhood centres. New versions of songs and rhymes are also continually created by children within playgrounds and schoolyards (Marsh, 1995). Given that there is no universal or one right way that a song ‘is done’, the rigid attachment to a particular set of words or actions can no longer be justified. While this flexibility may at times be confusing for the presenters, it acknowledges that there is not one universal experience of childhood and supports the diversity and richness of the oral culture that pervades early childhood experience across Australia.

Dialogue

The para-social interaction of the presenters also facilitates engagement. This occurs through the use of questioning, and pausing to allow for the child’s response. The use of the phrase ‘you too’ throughout the dialogue serves as an invitation to the child and supports the personalised interaction with the child viewer. Similarly, the use of the personal pronoun, such as ‘my’ and ‘I’, is avoided in order to prevent a sense of ownership by the presenter and exclusion of the child viewer. Messenger Davies (1995, p. 19), in discussing the BBC version of *Play School*, commented, ‘Sesame Street was conceived as a product, *Play School* as a conversation.’

Presenters are also reminded to look directly into the camera. Although there are frequently two presenters working collaboratively in storytelling, dramatic play, and ‘the makes’, they are encouraged to minimise the eye contact between themselves and to direct their dialogue and eyeline to the camera. Although the adult role is important within the program, it is subservient to the focus on the child viewer. Presenter personalities, while warm and engaging, do not dominate the program or take on ‘pop-star’ status. The strategic use of editing and the use of camera angle on *Play School* also ensure that the program is made for the child audience and that it reflects the child’s point of view. Bazalgette and Staples (1995) described the different styles of production in programming for children compared to the production style for family films. Aspects such as photographic, editorial and performance style were identified as being significantly different between the two genres.

Empowerment

While attempting to entertain and engage the child throughout the program there is also a commitment to empowerment. The educational philosopher Paulo Friere (1972) described empowerment as participation and transformation. *Play School* seeks to empower children, recognising that they are intelligent, highly curious and imaginative beings able to engage with the possibilities offered within each program, and to transform them in
unique and creative ways. Approaches adopted within the program seek to provide children with possibilities, choices, options and provocations (Edwards, Gandini & Forman, 1998) that can support playful exploration and assist children in the making of meaning.

The makes

The ‘useful box’ is fundamental to ‘the makes’ or craft experiences on Play School. This is typically a large cane box overflowing with familiar resources that are readily accessible within most homes. Examples include recycled materials such as cardboard and plastic packaging, paper bags, scraps of paper and fabric. As Achilles (1999) suggested, a wide variety of materials recognises the individuality in children and encourages free choice participation. The use of open-ended and familiar materials is an attempt to say ‘you can do this too’.

The modelling of trial and error by the actors, within ‘the makes’, is based on a socio-constructivist approach to knowledge acquisition (Vygotsky, 1978). It is also a conscious attempt to promote collaborative responses to problem-solving. The exploration of several possible alternatives is modelled to strengthen the sense of a range of possibilities rather than there being one right way.

Peer scaffolding, in which one presenter cues off the other, suggests a playful interaction in which the process is as important as the outcome or product. The social interaction is strengthened as ‘the make’ evolves with an acknowledgement that different people can make different contributions, all of which are valuable.

Use of told and acted-out stories

Phillips (2000, p. 1) asserts that storytelling plays a significant role in early childhood. ‘Storytelling has the ability to build a greater sense of community, enhance knowledge and memory recall, support early literacy development and expand creative potential in young children.’ Told and acted-out stories, as well as stories read from books, are included on Play School to suggest that anyone can tell a story and that stories do not just exist in books written by experts. A range of storytelling techniques is utilised and the toys are frequent participants. Familiar experiences or rituals are often explored, but with a unique Play School twist. Examples include ‘front yard fix’ and ‘sleep-overs’. This suggests that there are interesting stories to be found in everyday experience and that all members of the community have valuable stories to tell.

The use of the toys in the stories can empower the child as producer of his or her own drama, and the use of familiar household objects suggests that any object can become part of, or be given new significance, in a story. The use of different storytelling techniques can also empower the child as storyteller. Storytelling on Play School has been supported by the natural integration of elements such as painting, music and mime. Adult errors or misadventures are included as a valid and fun part of play and exploration. This was particularly evident with the inclusion of Andrew’s attempts, as the Fairy Godmother, to transform Noni, the frog, into a princess in the Puppets series.

Songs and movement

Familiar songs are modified by new words, new actions, or additional verses developed spontaneously in response to a particular situation. Playful responses to the familiar validate the creative rather than the correct response. Such responses suggest that songs are flexible and modifiable, and that anyone can transform a familiar song or create a new song for any situation. Adults and/or children can also work together to produce alternative actions to accompany a song. The child is seen as free to transform the familiar, to create something new and unique. As Hildebrandt (1998, p. 70) commented, ‘an atmosphere [is created] in which children and adults feel safe in their roles as composers, lyricists, orchestrators, choreographers, instrument makers and musicians.’

Singing and gesture are used to reflect or reinforce action, again affirming that there are many ways of communicating, particularly in early childhood. For example, at times a simple melody or song will be used to accompany action, as in the song ‘Doodly Do’ to support the process of making a puppet. Singing is used as another mode of self-expression. Facial expressions and hand gestures also communicate intent to the younger child or children from language backgrounds other than English.

The modelling of peer scaffolding by the two presenters also supports empowerment. This is evident in the creative movement responses to music as presenters explore many different ways to move. Rather than providing a complex choreographed dance routine that children may seek to emulate but find difficult to attain, the focus is on simplicity and playful exploration. The two presenters may respond to the same musical stimulus in different ways, or the dance response may evolve as the
music changes and as the two presenters cue off each other. At times the musician may also be a partner in this play. Within this approach, there is a conscious effort to focus on process rather than product and to empower the child as choreographer of his or her own dance or movement response. This validates the process of creative expression rather than reinforcing the reproduction of formulaic dance routines which may entertain and encourage physically active responses but may involve little, if any, creativity or problem-solving by the child.

‘Through the windows’ films
‘Through the windows’ films frequently explore an experience from a child’s point of view. Filming from the child’s height and from the child’s point of view, and the use of the child’s own voice to tell the story, reflect and reinforce the image of the young child as strong and capable. The ‘through the windows’ film of a child’s father painting the Sydney Harbour Bridge, for example, reflects the child’s perspective, and the inclusion of a family conversation in Polish provides an authentic depiction of identity for the child involved and for the viewer.

Possibilities for play and learning
Families within home settings, as well as early childhood educators within centre-based or family day care, can use the experiences of play and learning presented on Play School. Play School can be a daily source of entertainment or an effective surrogate carer for two half-hour time slots each day. However, the program can also be a source of engagement and empowerment for young children. The possibilities and processes within each program offer infinite opportunities for further exploration by adults and children together. This can be facilitated by active engagement of the adult or ‘more informed other’ (Vygotsky, 1978).

Adults caring for young children can support the empowerment of the young child by:

• providing opportunities for shared viewing. Shared viewing enables the adult to be responsive to the opportunities that the program might offer, to listen to the child’s comments, or to observe the facial expressions or gestures of the infant or toddler that may be suggesting a possible interest that could be revisited and further explored;

• the provision of time and space. This supports ongoing investigation. Play and exploration need to be unhurried. Andress (1990, p. 24), for example, suggested that ‘time—a delayed response factor—may be a factor in increasing participation’ in movement experiences. Young children enjoy revisiting new experiences and repeating familiar ones. Playful repetition can build mastery and provide a secure base for further creative exploration;

• providing access to open-ended resources. Families and carers are encouraged to help the children set up their own ‘useful box’, to be alert to the creative and play potential of recycled materials, household objects, and inexpensive and readily available resources. Using familiar toys in storytelling and play episodes can also model imaginative and creative use of these characters;

• constructivist and playful interactions and approaches to learning. The adult can become co-player, with the focus on process rather than product, modelling trial and error, and creative responses and seeing the mistake as an essential part of the learning process; and

• accessing the ABC Play School website for further information, creative possibilities, and ideas.

Conclusion
Within all that is offered through Play School, there is the recognition that children will interact with the program in ways that are personally meaningful, and that each child will form his or her own connections with what is seen and heard. Some elements will be taken up and utilised in immediate responses, others ignored or passed over, and others stored away to be used subsequently when some other experience or interaction provides the catalyst. Excellence in television for children is not just measured by the apparent interest of a passive viewer who may appear absorbed for the duration of the program. Nor is it necessarily reflected in the reproduction of craft items or the perfect re-enactment of songs, dances, or play scenarios. Young children need time for reflection, and empowerment may not always be demonstrated in the immediate, overt response. Some children will move and vocalise during the program. Other children might be provoked into immediate action and leave the television to go and find toys or recycled materials to use in their own inventive combinations. Others will be thinking, theorising, remembering, planning, predicting, empathising, and wondering, and may revisit elements of the Play School program at some later time. All are highly valuable responses and suggest that the program is successful in
further empowering the child as an active and creative initiator of play and learning.

Adults educating and caring for children in both home and group settings are encouraged to heed children’s subtle responses, their silences as well as their noise and action, and to allow children time for revisiting experiences in their own way and in their own time. The Play School team encourages all adults who share in the experiences of early childhood to enjoy the privilege of being a partner in play and learning, able not only to entertain but also to engage and empower young children. The excellence of Play School is perhaps best measured by the creative possibilities it provokes, as evidenced in the diversity of young children’s play, creativity, questioning and investigation.

Acknowledgements
Dr Cathie Harrison is a lecturer in early childhood education at the University of Western Sydney, Bankstown Campus. She has been involved with ABC Play School since 1999 as an early childhood advisor and outliner. This paper was first presented at the Australian Early Childhood Conference, Excellence for Children, held in Sydney in July 2001. The paper was subsequently redeveloped during a period of professional development leave from the University of Western Sydney in 2003. The author would like to acknowledge the contribution of the university to her collaborative work with the ABC, and also the contributions of Virginia Lumsden (Executive Producer of Play School) and Deborah Boerne (Series Producer) to the development of this paper.

References


BOOK REVIEW
Young children’s behaviour: Practical approaches for caregivers and teachers (2nd edn) by Louise Porter
(2003) MacLennan & Petty, Sydney

This revised edition of Porter’s popular book reflects real growth in the author’s knowledge and experiences. There has been considerable (and thoughtful) reorganisation and expansion of the original material. The use of more positive and up-to-date language and ideas serves to increase the text’s accessibility to students, teachers and practitioners of early childhood. The fundamental philosophy of this text Echoes the original—emphasising guidance and prevention rather than control in the discipline of young children. The revised edition, however, is more firmly grounded in contemporary views of high quality practice, and informed by current observations of, and discussions with, caregivers in the field. Porter also draws on comprehensive, up-to-date research and commentary about child development and appropriate caregiving practices, helping teachers and carers to make practical decisions about dealing with behaviour difficulties.

Porter appears to have deliberately reorganised the material and ideas to emphasise connections between theory and the practice of education and care within the early childhood sector. Each of the book’s five sections has an introduction clearly outlining its theme and offering connections between the relevant chapters. The sections are:

- Foundations of a guidance approach: discusses theoretical perspectives, and the beliefs and values that inform our practice;
- Children’s emotional needs: explores the emotional and social needs of children, focusing on self-esteem and the interactions between adults and children;
- Responding to inconsiderate behaviour: focuses on understanding, and principles for responding appropriately to, general behavioural disruptions;
- Specific behavioural challenges of young children: examines behavioural challenges common to the early childhood period; and
- Caring for adults: looks at supporting staff, collaborating with parents and policy development.

The language and key ideas in this revised edition have been expressed differently, to reflect a change in emphasis towards a more positive and proactive position in regard to understanding, preventing and reducing behavioural difficulties. Rather than ‘teaching considerate behaviour’, Porter now talks about the ‘prevention of inconsiderate behaviour’; ‘listening to children’ has become ‘communicating to solve problems’; and ‘developmental concerns’ has become ‘developmental challenges’.

Ideas that were presented in a more piecemeal fashion in the earlier edition have been consolidated into a more coherent framework. This is shown in chapter 14, Family issues, in which Porter integrates much of her previous material relating to the familial and social contexts of the child with new material which complements and enhances the discussion. This allows the reader to explore related issues, and will encourage students in particular to make clearer connections between observed behaviours and the underlying triggers and stressors.

Porter addresses issues about why difficult behaviours occur and encourages the reader to be self-reflexive—to consider his/her own beliefs about the child when developing appropriate guidance practices. The importance of implementing practices that are theoretically informed, consistent with a service’s program, and guided by the overall ethical and quality practices of the early childhood sector is explored. This is supported by expanded discussions of suitable, practical caregiving strategies to address inconsiderate behaviour in general. These general strategies do not gloss over specific behavioural difficulties however, as Porter looks explicitly at topics such as fussy eating, group-time disruptions, tantrums, super-hero play, attention deficit disorder, and gifted children.

In Young children’s behaviour, Porter presents the reader with a range of strategies and approaches, rather than specific solutions, and does so in a very personable, accessible writing style. The concepts presented in this book will encourage learners and practitioners to reflect on, and possibly even rethink, their own approaches to guiding children’s behaviour. This is a very useful text for those teaching and learning about children, and for all caregivers in children’s services.

Maree Aldwinckle
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