



## DRAWING

### Making thinking visible

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In this chapter I hope to add a further dimension to our understanding of the role of drawing in children's learning. While not asking early childhood educators to disavow past (and dearly held) beliefs about the roles of drawing, this added dimension is in agreement with newer theories of how children learn, and explores the possibilities these theories afford the educator and child for collaborative learning (Forman, 1996; Kolbe, 1996a).

#### CHANGING THEORIES, CHANGING PRACTICE

The theories which inform our practice as early childhood educators are changing as new philosophies, research results and cultural changes alter the way we see young children's learning. Currently postmodern and constructivist theories hold sway over the previous theories of Piaget and post-Piagetians (see Elliot, 1995; Fler, 1995; Light et al., 1991; MacNaughton, 1995; Mallory & New, 1994; Rogoff et al., 1993). These new theories propose that children gather knowledge from the world and culture which surrounds them, and that they do this in conjunction with others. 'Others' include parents, friends, caregivers, teachers, television, walks, books, radio, music, and religion and nature. It is also recognised that this is an interactive process and that children are thus active participants.

In the city of Reggio Emilia in Northern Italy, there is an exciting vision of what these new theories look like in practice. One of the central tenets of this complex and extraordinary educational experience is the notion that children have 'a hundred languages' (Commune di Reggio Emilia, 1987; Edwards et al., 1993; Malaguzzi, 1993; New, 1990; Vecchi, 1993). These graphic or symbolic languages are a vehicle through which children can '... communicate their ideas, feelings, understandings, imagining and observations' (Katz, 1993:25). Katz (1993) and Kolbe (1996a) have commented that we have vastly underestimated very young children's ability to use such symbolic languages skilfully and with meaning. Such visual materials and experiences in symbolic languages are

provided on a daily and ongoing basis in the Reggio Emilia schools, so the common misconception that these schools are art-based is understandable when one is confronted with often alluring and bewilderingly beautiful major pieces by very young children. But to indulge in this belief is to 'miss the point' as Katz (1993:27) dryly states.

#### FORMS OF COMMUNICATION BY ADULTS

Given the metaphor of a hundred languages, drawing can be considered a form of communication. If this is the case, it holds that, as with any form of communication, drawing can take on many guises and tasks. For example, written language has many forms. Poetry is a distinct form of written language and not easily confused with an annual report. Often several written forms are combined, such as in a novel which includes libretto or prose interspersed with poetry, or in a well-crafted research report, which makes sense of figures and condenses years of work into two or three pages of tightly written prose.

When we use spoken communication we utilise many forms, from the terse to the loving, from the eloquent to the monosyllabic, and it is our facility with the spoken form which makes such nuances possible. Although it is reasonable to say that we assume we are expressing our thoughts clearly when we speak, the proliferation of 'communication' workshops and courses may indicate that communication processes are more complex and multifaceted than we often recognise.

Transfer this notion of communication to drawing. What can we see and understand in each drawing? Take Leonardo da Vinci whose paintings are well known centuries after he painted them. We are given a glimpse into how these paintings were created by the sketches in which he sorted out questions of style and form before committing himself to paint. In these drawings we can see da Vinci thinking aloud and solving problems. These preliminary sketches not only illuminate the problems he struggled with, but also show us the changes he made as he worked through various solutions.

By looking further we can see the mind of da Vinci at work. A man of prodigious intellect, he was an inveterate inventor. His notebooks are peppered with sketches of ideas such as battlements, water works and flying machines. He seems to have used these sketches to commit an emerging idea to paper, to be able to think about it some more. We can almost see him flipping through his sketch book a few weeks later, pondering, and then refining the idea in a further drawing.

Consider the many guises and tasks attributed to drawing. Da Vinci, in his sketches for *Mother, Child and St John*, strives to make a crayon capture love, adoration and world-weary sorrow. Or consider the technical drawing an architect gives to a builder, usually devoid of colour and movement, an idea on paper which can be replicated in three dimensions by those who know how to read the conventions. However, technical drawings like this do not have to be stripped of beauty. As with written communication, there are many occasions on which several forms of drawing are combined. Botanical drawings and paintings, achingly exact in their physical description of the plant, also have beauty in form and colour, and so the idea of the plant is enhanced by the construction of the drawing or painting and by the artist's perspective.

Comic strips, political cartoons, maps, technical drawings, even drafts for dress patterns are forms of drawing readily accessible to children. Surrounded by this multitude of

examples, it is reasonable to expect children to have some knowledge of diverse drawing conventions at an early age.

All these forms of drawing have one thing in common: because the drawer put pen to paper, ideas are made visible. Thought has moved from the drawer's mind to paper and can now be shared with others. In much the same way, written or spoken ideas are shared once spoken or written. Jerome Bruner discusses this product of thought:

Externalisation produces a record of our mental efforts, one that is outside of us rather than vaguely in memory. It is somewhat like producing a draft, a rough sketch a mock up... it relieves us in some measure from the always difficult task of thinking about our own thoughts (1996:23).

### DRAWINGS IN EARLY CHILDHOOD SETTINGS: MEANING AND METAPHOR

For many years the role of drawing in Australian early childhood settings has been at worst an 'activity', and at best a process owned by each child as they step through stages in some autonomous forward motion (Kolbe, 1996a, 1996b; Derham, 1970). The concept of children moving mystically through stages, their fragile creativity emerging, has perhaps constrained us from seeing the many tasks and guises children attribute to their graphic expression.

Young children's self-expression in the visual arts is something of a 'holy cow'. This early childhood inner sanctum of burgeoning creativity and therapeutic emotional release is one which I challenge with some trepidation. Francis Derham, doyen of Australian early childhood visual arts in the 1950s and 1960s, sternly admonished:

I deprecate any discussion of a child's work by the adult in the presence of the child or other children ... not until past adolescence are children ready for public discussion of their work, and even then, unless delicately handled, it will block their progress (Derham, 1970:74).

So firmly held are our beliefs about self-expression and creativity as the central tenets of the purpose behind providing young children with experiences in the visual arts, that we may not always question the cognitive possibilities such experiences afford them. If a child is *thinking* on paper, the desire to communicate this idea to others must be respected. Other children quite easily recognise such ideas and utilise them to further understand and build on their own ideas. On one occasion I observed three toddlers — Mike, Wendy and John — drawing together. Wendy and John were engaged in drawing a picture of Dorothy the Dinosaur, the subject of a song much loved by toddlers in Australia. Mike, listening to their conversation, glanced across and said in a puzzled tone, 'Where's Dorothy?' Wendy and John took no umbrage at his question and pointed to various parts of their pages, saying 'In the middle'. Mike looked more closely and said 'her spots is yellow, no green spots'. Indeed he was right. Their round shapes with green spots were incorrect, but the two children were unmoved, and continued to construct a jointly understood story about rain at a Dorothy concert. In this instance, Mike's questions moved him no closer to the idea they were constructing, but in fact clarified matters for the other two children. It appears to me that there is a role for both teachers and children to think through the ideas which are sometimes inherent in a child's drawing.

While talking recently with three three-year-old boys about dinosaurs, I realised that they were constructing a hypothesis that a 'bone' dinosaur was not as frightening as a 'skin' dinosaur. In other words a skeleton of a dinosaur ('bone' dinosaur) is not as potentially dangerous as one with skin, because 'skin' would mean that the dinosaur was alive. This idea was shared between the boys and mulled over, becoming one of their collectively held notions of dinosaurs. My role as the adult was to clarify each step of the discussion with questions attempting to make things clearer for the children — to act as a sort of partner/interpreter. The other boys soon took up this technique and asked each other clarifying questions, which both affirmed and elaborated on the speaker's idea. This construction of an idea, based on sketchily held bits of information, led the boys to further and more elaborate ideas about the differences between being alive and dead.

In this instance the boys were using the spoken word as a means of communication, so my role as partner/interpreter would be acceptable early childhood practice (Nimmo, 1994). However these three boys had previously tackled making maps together, via the medium of drawing. The story of their journey from individually held ideas and knowledge to a commonly agreed graphic convention and understanding of maps was an exciting process to observe.

## MAPS: AN EXTENDED INVESTIGATION

### Individually held information and interest

The three boys noted above, on separate occasions, had expressed interest in maps. Ben (3 yrs 1 mth), while reading a book with an adult, explored a road on a map with his finger. Upon reaching the graphic for the ocean, his finger stopped and he asked, "What is this?". Told it was the ocean, he nodded and said 'I've stopped'. He appeared to understand one of the cartographic conventions of maps. Craig (2 yrs 10 mths), while driving with his parents, announced that a street sign said 'Turn here for Grandpa's house'. In this case it seems Craig understood the convention of road signs even though he was not yet reading, familiarity with the route had given him the clue. The third child, John (3yrs 2mths) whose favourite reading material in the car is the street directory. John puzzles over this material, attempting to make sense of it in much the same way as Forman (1996) describes children wrestling with the written word.

### *Identifying knowledge bases*

Given this evidence of the boys' interests and abilities, I decided to videotape them discussing maps together. The maps proved to be a physical focal point in the discussion, used frequently as a visual reference. After Ben identified a road on the map, John jabbed his finger on another road and said 'this is one too!'. This use of visual material as a basis to discover what each boy knew also provided an opportunity for them to teach each other individually held information. For example, Craig, on considering the map, announced to the other two, 'the blue is the sea and the green is the grass'. The other two nodded and Ben announced 'these are roads'. John nodded saying 'and these is corners'. Hunting through the map they discovered examples of this newly acquired information. They then asked a few questions, such as what a blue squiggle meant (the symbol for a river) and constructed some of their own theories, such a 'this is a windmill' for the graphic indicating a lookout. It was using these maps that they started to announce place names and

destinations. Both Ben and John talked about Sydney and Melbourne and 'my house'. Craig pointed to a place on the map and said it was 'Grandpa's house'. There was also considerable tracking of roads with fingers, indicating 'going' somewhere.

Attempting to give the boys as much scope as possible, I included weather maps. They proved to be very proficient with these, indicating that they understood the graphic for rain (rain drops), storms (lightning) and sunshine (sun). John decided that it was 'Raining in Melbourne, here'. From this observation it is possible to see that the boys understood what maps were for, and were prepared to construct theories, and give and accept ideas from the others.

### *Putting ideas on paper*

The following day I gave three boys a large piece of paper and asked them to draw me a map. Seated on the floor they each started to draw directly in front of them and, as is the way with such young children, circular shapes dominated. Ben made a small mark on one of his lines and said it was 'my house', and then moved the pen along making a mark that was 'the road to the shops'. Craig, glancing at Ben's work, nodded, made a mark on a line, 'my house', moved the pen along and marked another spot 'Grandpa's house'. Kim (3 yrs 2 mths), who had joined the other two as John was away, watched closely, and stopped his wild circular movements to make one mark, 'my house'.

### *Cognitive narrative*

It is at this point, what I will call a cognitive narrative began. Each boy was no longer 'talking to himself' within the drawing medium, instead they began a shared conversation of both spoken and drawn concepts. Ben leant over the paper and made a long straight mark, saying 'Blaxland Road' (Blaxland Road is one of the roads leading to our school). The other two started to make more straight lines, but did not name them. Then Ben, lifting his pen, made a mark in the middle of the sheet of paper, saying 'The park'. I asked him if there was a road from his house to the park. Without hesitation he placed his pen on the previously named 'my house' and drew a line to 'the park'. He asked me to write 'Ben's road to the park', and as I was doing this Craig drew a line from his own house to 'the park'. Kim watched closely, then drew a road, again from his graphic symbol for house to that for 'the park'. The boys all waited until I had finished writing the names of their roads, then Ben drew 'the beach', another small mark isolated from the other marks. Again, he and Craig drew roads from their houses to the site. Kim managed to draw a line to the site, but stopped short of the actual mark. Ben leant over and with his pen completed the road, joining it to 'the beach'.

### *Shared meanings*

It was during this process that the boys create shared meanings, the narrative including jointly held understandings. They went on to create another site called 'Mum's work'. In drawing their roads to this site, Ben invented a variation. Instead of creating a new road from 'home' to 'Mum's work', he traced his finger down his existing 'park road' and then drew a line at a 90° angle to 'Mum's work', thus utilising an existing road graphic. He then drew several more of these secondary roads, not naming them. Deciding he needed another destination, he made a mark near his house calling it 'the pool', and drew a connecting road.

Kim, glancing across and seeming daunted by the physical distance between his house and the pool, made a mark near his house, called it 'the pool', and drew a short road to it.

On completion of their work I talked to them about the graphic convention of the legend on a map. I asked if they wanted one on their map and upon their agreement, I drew a small legend in the corner of the paper, using the colours they had used for their roads.

#### *Revisiting the narrative*

The next day, Kim and Craig asked me if they could draw another map. With John and Ben, they first reviewed their previous map, remarking on the legend. 'See, that's you', said Kim pointing to Ben's green marks; 'Yeah, and that's me' said Craig pointing to his ochre marks. They then sat around another large sheet of paper. Each boy drew his house, then Ben announced that this was a map about the park. He drew a mark separated from the others and each boy drew a road from their house to the park. In this map there were none of the extraneous marks which characterised their first map. It appeared that they were consolidating their understanding of common destination and routes to and from. Finding some toy cars they drove them along the roads, talking about the park and constructing a verbal picture of the park's swings and slides. They played on the map for a further thirty minutes, 'driving' back home to get food and toys.

Together these boys constructed a map, creating common sites or destinations, and using common graphic conventions such as a line for a road and a mark designating a particular destination, also requiring that the adult write road names and places. Together they constructed a cognitive narrative, aided by the visibility of their ideas through the drawing. This map was a vehicle for the boys to demonstrate their understanding of maps, as well as a tool with which they taught each other further ways in which they could communicate these ideas. Most salient was the fact that without each other, they would not have been able to construct such a sophisticated concept. Ben's role as destination maker, Craig's quickness in picking up the ideas and Kim's willingness to learn, all combined to create the cognitive concept of a map which was clear to its creators and to us, the observers. The boys made their thinking visible.

The interactions between the boys, both gestured and spoken, supported the intellectual development of the concept, clarifying each leap forward with a graphic, which was then practised until grasped by all. I am mindful here of George Forman's words:

At times I think we are downright Puritans, that is, we think learning must involve struggle and pain to be worthy. However quality teaching does involve a subtle form of help, a response that is leading but not pushing, a response that is suggestive but not final, a response that is descriptive, but not necessarily directive (personal communication, 1997).

In this instance it was Ben who was the teacher, communicating an idea which the others took and used to construct an agreed convention, which then became a vehicle for dramatic play, and a verbal and graphic interplay of ideas.

#### **Teacher's role**

The previously held image of the child whose delicate creative ability matures slowly and who is immersed in 'self-expression' has given rise, perhaps inadvertently, to the role of the teacher as observer. Teachers have been relegated to providers of opportunities, rather

than as collaborators, investigators and questioners within an interaction with the child and the ideas embodied in their drawings. (Not all drawings children create are an idea which can be discussed, it is for the discerning teacher to know what type of drawing being produced is; see below).

What is the role of the teacher in understanding these ideas? The teacher's role is complex. Terms which describe this role include: provider, observer, partner, collaborator and provocateur.

Firstly, the role of provider as dictated by Derham still stands. Providing time, good quality materials and opportunities to use them is essential. Drawing should not take a back seat to other visual arts. The role of drawing in forming thought needs to be honoured by its prominence in the arts programme.

Secondly, as teachers we need to observe children. Honouring the child's right to decide whether indeed the drawing they are doing represents a particular idea or not is essential. Identifying whether a drawing represents an idea is difficult and depends on a sound knowledge of the child and excellent observation skills. This observation is not casual, it is direct and structured. Recording sequentially each stroke a child makes, the conversation while the action takes place, as well as the actions and speech of the companions will provide data for further analysis. It also offers children a visual memory of how they constructed a drawing. I often have children check to see whether I am making appropriate marks on the observation sheet. This has one pertinent advantage: it shows children that what they are doing is important. Believing that their work processes are held in high esteem underlines the point that it is the process rather than the product that is important. Toddlers often overlay their work with other marks, either random or figurative. Noting the sequence and appearance of each shape can uncover several recognisable symbols within a 'busy' page.

Thirdly, as a partner in the process the teacher takes a more supportive and companionable role, accompanying the children as they work and being a supportive presence taking an interest in their work as it unfolds. We must acknowledge our involvement in the construction of an idea, and in this acknowledgement place ourselves as a partner in the creation of the idea. Our place in the interaction or communication, and our role in constructing the context in which the interaction takes place is part of the planning process. In our role as participant/observer, offering knowledge, listening to, watching and recording children's understanding of knowledge and designing the context in which this knowledge is shared, all assist in the process of making thinking visible.

Collaboration may involve offering suggestions and the loan of knowledge. From the teacher, technical assistance such as simply showing a child how to grip the pen efficiently or reminding them about a previous experience, means that this collaborative role is one in which the teacher is embedded within the cognitive narrative of the work.

Finally as provocateurs, teachers can 'push the edges' of children's thinking, through offering pertinent questions and suggestions. Recently, Virginia (4 yrs) painted a picture of a house. Virginia is a careful painter and more inclined to be innovative in other work. The house seemed to be a stereotypical house, sitting on a line for the ground and under a line for the sky, with two windows, a door and a chimney with smoke spiralling out of it. We looked at it together and she explained parts of the painting. Then I asked her what happened between the sky and the ground. She considered this and then filled in the space with birds. As her ground line was halfway up the page, I asked her whether anything happened underneath the ground. (I wondered whether she would suggest underground

pipes.) Her eyes lit up and she said, 'Dirt and worms'. Working for another fifteen minutes she carefully illustrated a worm family in black dirt.

I do not advocate all teachers using the above form of questioning with all children. However, I know Virginia very well, our relationship is strong and we often discuss complex ideas. A strong relationship, combined with a context and history of discussion, is essential. There is a fine line between provocation and criticism. Peers often ask far more searching questions than I feel comfortable, as noted above when Mike asked, 'Where's Dorothy?'

#### DRAWING AS COMMUNICATION: THINKING TO DRAW, DRAWING TO THINK

We need to offer drawing as a means of communication. Within the interaction surrounding drawing, the skill level of the child is important. Very young children may not be ready to draw symbols recognisable to adults, but their verbal outpourings are available to us and to their peers. Listening and watching encourages the notion of drawing as communication. Offering the child the notion of drawing as 'ideas on paper' — of drafts — begins very early and encapsulates the belief that it is the process rather than the product which is important.

Additionally, the role of peers in the process of drawing and idea generation is a resource we have often underestimated (Nimmo, 1994). It is possible to say that within Australian early childhood literature the rhetoric that children are individuals has led us towards a pedagogy focused too much on the individual child, in isolation from others (Bruner, 1996; Flear, 1995). We may have undervalued the importance of peer teaching, interaction and cognitive narrative within the newer theoretical umbrella of social constructivism. Drawing, such a natural yet complex act, is an important tool for children to clarify, communicate and generate concepts within an interaction between paper, mind, peers and adults.

Drawing is a communication tool which children can use to express ideas, not only in externalising their own thoughts but as a mean of clarifying for others what it is they are thinking. Within each early childhood setting there are various cultural tools. Drawing, when handled skillfully and respectfully, is one such tool. In an increasingly visual world, giving children drawing as a tool recognises that the visual representation of ideas is part of the symbol system of our wider culture. Practice and skill in using this tool will enable children to make their thinking visible to others.

#### References

- Bruner, J. (1996) *The Culture of Education*. Cambridge, MA: Harvard University Press.
- Comune di Reggio Emilia (1987) *The Hundred Languages of Children*. Reggio Emilia: Comune di Reggio Emilia.
- Derham, F. (1970) *Art for the Child under Seven* (4th edn). Canberra: The Australian Pre-School Association.
- Edwards, C., Gandini, L. & Forman, G. (eds) (1993) *The Hundred Languages of Children: The Reggio Emilia Approach to Early Childhood Education*. New Jersey: Ablex Publishing Corporation.
- Elliot, A. (1995) Scaffolding young children's learning in early childhood settings. In *DAP Centrism. Challenging Developmentally Appropriate Practice*, edited by M. Flear, pp. 23–34. ACT: Australian Early Childhood Association.



- Fleer, M. (1995) Challenging developmentally appropriate practice: An introduction. In *DAP Centrism. Challenging Developmentally Appropriate Practice*, edited by M. Fleer, pp. 1–10. ACT: Australian Early Childhood Association.
- Forman, G. (1996) Design documentation and discourse: cornerstones of negotiated learning. Paper presented at 'Weaving webs: Collaborative teaching and learning in the early years curriculum conference'. University of Melbourne.
- Katz, L. (1993) What can we learn from Reggio Emilia? In *The Hundred Languages of Children: The Reggio Emilia Approach to Early Childhood Education*, edited by C. Edwards, L. Gandini & G. Forman, pp. 19–40. New Jersey: Ablex Publishing Corporation.
- Kolbe, U. (1996a) Redefining 'art': A perspective on the Reggio Emilia approach. Paper presented at the 'Unpacking Reggio Emilia: Implications for Australian early childhood practice conference'. Macquarie University, Sydney, 4 May.
- Kolbe, U. (1996b) Towards collaborative learning through visual arts experiences with three and four year olds. Paper presented at 'Weaving webs: Collaborative teaching and learning through the early years curriculum conference'. University of Melbourne, 11–13 July 1996.
- Light, P., Sheldon, S. & Woodhead, M. (eds) (1991) *Learning to Think*, vol. 2. London: Routledge.
- MacNaughton, G. (1995) A post-structuralist analysis of learning in early childhood settings. In *DAP Centrism. Challenging Developmentally Appropriate Practice*, edited by M. Fleer, pp. 35–54. ACT: Australian Early Childhood Association.
- Malaguzzi, L. (1993) History, ideas and basic philosophy. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The hundred languages of children: The Reggio Emilia approach to early childhood education*. New Jersey: Ablex Publishing Corporation., 41–90.
- Mallory, B. & New, R. (eds) (1994) *Diversity and Developmentally Appropriate Practices. Challenges for Early Childhood Education*. New York: Teachers College Press.
- New, R. (1990) Excellent early education: A city in Italy has it. *Young Children*, Sep., 4–10.
- Nimmo, J. (1994) Building community to realise the potential of children: The challenge of Reggio Emilia. Paper presented at 'The challenge of Reggio Emilia: Realising the Potential of Children Conference', Melbourne University, 25–27 September.
- Rogoff, B., Mistry, J., Goncu, A. & Mosier, C. (1993) *Guided Participation in Cultural Activity by Toddlers and Caregivers* (vol. 58). Chicago: The University of Chicago Press.
- Vecchi, V. (1993) The role of the atelierista. In *The Hundred Languages of Children: The Reggio Emilia Approach to Early Childhood Education*, edited by C. Edwards, L. Gandini, & G. Forman, 119–127. New Jersey: Ablex Publishing Corporation.