

Dimension 1

Drawing to play

The need to play is essential to human intellectual growth and emotional well-being. Children deprived of play through illness, hunger, trauma, abuse or other deprivation often demonstrate signs of emotional disturbance. The greatest of human minds, in fields as diverse as science, technology, art, music, religion, politics or philosophy, all play. They use the capabilities honed in childhood to imagine, dream, create, consider and invent new ways of solving physical, social, intellectual, aesthetic or spiritual problems. Playing with ideas is not just the highest form of human intellectual activity, it is also the most fundamental. It is where we all begin: to wonder, to think and to become independent rational beings. Although unable to articulate their thoughts, a babe in arms looking at the world over their mother's shoulders begins to want to play, to want more than the comforting rhythmic motion of mother's footsteps and the flickering light and shadows that pass by. Humans come pre-programmed to need to interact with other humans, to learn, to communicate and to invent. Coupled to language, purposeful communicative mark-making moved homo sapiens ever further away from their nearest humanoid cousins until they became a separate species that dominates the world, for good or ill.

Playing with mark-making and imbuing it with symbolic meaning was a huge intellectual leap for humankind, probably greater than any other evolutionary development. It enabled out-of-range communication. It established the power of knowledge and its transfer to others. It externalized thought and enabled review and discussion. It enabled people to play with ideas in a new and powerful way. All these possibilities are learnt anew by each succeeding human generation, learning to create ideas and make meaning through marks on surfaces.

'Drawing to play', therefore, is the first dimension of drawing to be examined in this book because it is both the most basic and yet the most powerful use of drawing. The chapter looks first at the way in which infants and young children discover and use drawing to represent and investigate the world around them. It considers the ways in which children continue to hone these skills through play, and how teachers can enable them to develop their knowledge, skills and confidence in handling a wide range of drawing materials. The way in which children use their drawings to support their games is also discussed and, without too much straying into the territory of the dimension of 'Drawing to mean', how they exploit drawing's symbolic nature in so doing. The final section of 'Drawing to play' makes that bridge into the 'Drawing to

mean, through focusing on the playing with ideas that underpins both the child's play and that of the greatest inventive minds, and how drawing can enable that most powerful of playing.

Vygotsky (1986) claimed that consciousness and control appear after a function has been practised unconsciously. There is truth in this, that fluency with any media is vital before it can be used for purposeful, creative action, but there is also a conscious determination to learn and master the function in the first place. Young children are so highly motivated to learn that this determination to mastery appears as play. They are committed to an activity and practise its skills with a joy that leaves adults standing. Never again in our lives do we learn so much about so many things so quickly. The continuation of that powerful, playful determination through childhood and adolescence into adulthood is the distinguishing mark of genius, whether at a personal or historic level of capability.

So, let us begin at the beginning ...

Early mark-making

Around about her first birthday, Rachel stopped having her afternoon naps. This was irritating for her 3-year-old brother, Ralph, since this meant the disappearance of mum-and-son time, tucked up with books or on the floor with card games or at the table with crayons and paper. Now baby sister was awake and part of it. One day, mum had Rachel on her lap while Ralph played with pencils and crayons. Rachel reached out and mum handed her a pen with the lid on to keep her amused. She pushed it around like Ralph but it made no mark so she dropped it. Realizing what she wanted, mum gave her a pen with the lid off and pulled some paper within reach. Rachel pushed the pen around the paper and it made marks and she was visibly pleased with herself. She was doing what her big brother was doing. She was on her way to being a big girl.

In this anecdote of an infant's first use of a pen to make marks on paper are many of the ingredients that are part of learning to draw. First, it was social learning, part of the normal interaction between adult and young child. Second, it was initiation into the world of a more mature way of thinking and doing, and provided intellectual and emotional satisfaction. Rachel had analysed the nature of the process: pushing the pen around made marks on the paper. She had watched carefully how it was done and felt ready to try it for herself. This was an intellectual shift from wanting something someone else had and exploring it in her own way. This was purposefully copying exactly what someone else was doing in order to create the same effect. When she was successful, the satisfaction was obvious.

Rachel grew up to become a marine biologist, contributing to knowledge of the impact and management of fisheries. Ralph works in the world of investment banking, creating software to support international trade on the stock markets. Both are fluently confident in their ability to use graphics in a range of ways and situations, to support the development of thinking, communicate observations, generate ideas and demonstrate abstract relationships, in situations

as diverse as home DIY, quick sketch maps to show where they live, to support hobbies and so on, as well as in their very different work environments. This taken-for-granted graphic fluency developed from the ability to make marks on a surface, combined with the later realisation that these marks can hold and create meaning.

Early drawing activity is largely exploratory, purely experimenting with the process of mark-making, and not always with appropriate materials or surfaces. Playing with food is often an exploration of mark-making that does not always win the approval of parents, especially if this involves flicking. Running around on the beach trailing a stick is a more acceptable large-scale form of exploratory mark-making. Even children who are already drawing recognizable pictures will enjoy simply running and making a trail across this huge open space.

Frequently, young children become obsessed with specific aspects of the world, which they explore repeatedly. They have seen a pattern somewhere and want to discover its scope and potential. It might be looking underneath things (chairs, beds, stones, cars in the street) or through things (cardboard tubes, rolled newspaper, holes in fences) and may include something that embarrasses the parent or carer (the imaginary friend). Young children's mark-making often reflects these current interests and the building of the inner schema to which it is contributing.

Three stories of infants at around age 2 years, which follow, illustrate the way in which young children explore their current schemas through drawing lines.

Zheng

Zheng's inner imperative seemed to be taking a line on a journey, not necessarily making a mark, limited only by the size of the surface available. Trails were drawn with sticks, bike wheels, pull-along toys, or her imagination. By age 2 year and 6 months Zheng saw routes drawn out everywhere. Long journeys went along walls, across parks, through puddles, round trees, upstairs, downstairs and across and around pieces of paper. Her drawings seemed like long looping snail's trails, around and around and across the page, the only breaks being where she unintentionally skipped the pencil across the page or where she decided to start a new trail on the same sheet.

Zheng was exploring paths, tracks and routes both on the macro and micro scale. She was developing a sense of space, line and loci. The marks she made on paper were analogues of the routes in her head. She was not consciously modelling any one of her journeys (or even a combination of them) but simply exploring the schema of 'journey' in another medium: crayon on paper.

Lloyd

At a similar age, Lloyd's passion was corners. He would 'hide' in them, feel them with his fingers, trace the meeting points of their inside edges, and play 'bo' round them. On a visit to his grandparents, he enjoyed whizzing his toy cars around the inside of a large wooden tray, like a race track. His grandad laid a piece of paper inside the tray to protect the picture from the car's wheels, which prompted Lloyd to run off, come back with a pen and trace the route

round the edges, into the corners, across the middle, back and forth. He was highly animated, totally absorbed and thrilled at the result. Then, satiated, tray and paper and pen were abandoned and he was off to play a different game altogether.

Lloyd was exploring topology in a different way from Zheng. Seeing, in a flash of inspiration that would do credit to any adult scientist, that a pen could provide a permanent trace of the route, he explored and exploited it to the full. When he had completed his task he was triumphant: yes! Eureka! The process of drawing had enabled the bridge between outer reality and inner developing schema. By using drawing to support his thinking, Lloyd had creatively explored and internally conceptualized the role and properties of corners within an enclosed space.

Gurdip

In contrast, Gurdip (younger than Lloyd and Zheng, just short of his second birthday) was a dots and dashes man. Short sharp marks, preferably noisy or scraping, so that his mother had given him a thick notepad to absorb the impact of his penwork. Then he discovered going round and round, experimenting with speed, pressure of mark and colour, making really deep grooves in the notepad, round and round. Gurdip started humming then brmring to himself. His father asked 'Is it a car?' and drew one on the next sheet of paper for him. Gurdip did more round schemas on that sheet too and brmmed loudly. The noise seemed to please daddy more than mummy.

Gurdip had experienced an interesting encounter with an adult's perception of what he was doing that would sow seeds of thought for the future. His father assumed a connection to a car but Gurdip's brmring was just an accompanying doodling noise while he was absorbed with watching the satisfyingly deep grooves he was making into the notepad. He watched his father draw the car, stored it away in his head and carried on with what he was doing. He has realized how pictures in books are made. Adults make them with pens.

All three of these children had used drawing as an analogue for motor movement. Gurdip's father, in interpreting the purpose of the activity as symbolic, sowed the seeds in his son's mind of the symbolic potential of mark-making. For Zheng and Lloyd, this would come in a different way on a different day. Whichever route is taken by the child, whether through exploration on their own or aided serendipitously or intentionally by an adult, they have discovered a powerful tool for exploring and developing new ideas. Once they realize the symbolic potential of drawing, they have a new tool to aid and support their thinking, a means of expression with which they can play and experiment.

In affluent countries, because of the access that children have to drawing materials, drawing and language usually first develop within the same period of time (between ages 1–3 years). Where children do not have such access, researchers have reported that the kinds of drawings that they associate with pre-schoolers do not occur. When given pencils and paper, older novice artists progress quickly from initial experimentation with the medium to making images. Reports that these subjects have 'progressed' at an apparently accelerated rate without going through the 'stages' the researchers expect, based on

young children's work in their home countries, should, perhaps be treated with caution. The desire to make representational marks is so ubiquitous that it is more likely that it is the kind of mark-making that is being sought by the researchers that is new to the research subject and that they are mastering at an (apparently) accelerated rate. In some cultures, infants' play is perceived as freedom to do as they like before learning, rather than as part of learning, as may be the view in the cultures from which the researchers have come. Some artistic traditions are passed down through a close-knit family apprenticeship system that does not include the rest of the population at all, and a child within such a family is expected to begin to learn this when they reach a certain age.

There is no 'natural' universal artistic development, despite attempts by some researchers to find and plot one. Young children play, experiment, adapt and learn to use a whole range of mark-making techniques from quite an early age but in different ways and in different cultural and social contexts around the world, and at different times. This book is culturally situated in the UK in the early years of the twenty-first century and should be read with this in mind. The references to school years and ages of children are related to that cultural situation, and recommendations for teacher action should be read as relevant within that cultural context. No universal prescriptions are attempted or intended.

Playfulness and creativity

Aided by the acquisition of language, infants learn to compare, contrast, differentiate and categorize their experiences and perceptions of the world around them. In their playing and their making, young children use their perceptions of the similarities between things, the analogies which they perceive all around them, sometimes by serendipity, sometimes by intent, using and combining them playfully and creatively to design a self-propelling shared world. In this, they are acting in exactly the same way as adult designers. Hence the term 'designerly play' employed by Baynes (1989) to describe such creative playfulness.

From about 1 year old, children begin to repeat back recognizable sounds which parents accept and reinforce and remember as their child's first words. The infant learns quickly that everything in the world has a sound label and all they have to do now is to find out what these all are, as fast as possible. That a mark made on paper can have a name label other than 'crayoning' or 'painting' but can be called 'dog', 'man' or 'mummy' is a considerable conceptual leap into symbolic abstraction, yet one which infants appear to take in their stride. It also changes the child's view of themselves, as agentic, as a creator of imagery. They have entered into a world parallel and yet very different to the world of playing with toys or even of spoken language. The mark they make on paper can be kept, examined, reviewed, displayed for all to see in a way that ephemeral speech and play cannot. Early meta-cognition, thinking about thinking, is aided by drawing.

In the beginning, the child is exploring mark-making for its own sake. As the idea dawns that these marks might represent something, scribbles obligingly

may represent things for the adult enquirer. It is difficult, if not impossible, to know if this assigning of name to scribbling occurs to the infant without adult prompting since many, if not most, drawings are done with adult supervision at this stage. The fear of infants drawing on wallpaper, curtains and other household objects is too real to allow them access to drawing materials far beyond the watchful eye of adult or older sibling. Thus the idea that drawings represent something is so early planted that it is realistically impossible to decide on its genesis. What is clear, is that almost as soon as infants decide that drawing can represent things, it does. Scribbles declared to be 'rabbit' appear to have long ears. Ones declared 'car' have wheels. 'Mummy' has a round head and eyes. It is a self-propelling iterative game. It is soon realized by many infants that adults will produce drawings for them, and the dialogue begins.

This dialogue is between a socially accepted way of representing people, houses, animals and so forth, and the child's desire to communicate. Young children are trying learn these conventions just as keenly as they are trying to come to terms with a whole culture full of other social conventions. Very soon they realize that trying to be an adult straightaway is a bit too difficult right now, so they concentrate their efforts on becoming a bigger boy or bigger girl. By about age 3, apprenticeship into becoming a child in their own society is well under way and this includes learning how bigger boys and girls draw. This is learnt from older siblings, cousins, neighbours and friends at home, nursery and in school Reception classes. Drawing is just one of the games that young children play alongside each other.

As children's drawing capabilities develop, we see not only the development of their motor control of the mark-making tool, but also their growing awareness of their environment, both physical and conceptual. Early drawings are frequently of mummy, the car, the dog or family. Interestingly, few children begin their graphic career with drawings of 'me'. The evidence of early drawings suggests that the child has a very keen interest in the external world and very limited concern with representing their own image. They are committed to forming as clear a map of the world around them as possible and once they realize that drawing can support them in this quest, then they are hooked.

Abstraction and symbolism is the name of the game, not objective realistic representation. The 'tadpole figures' ('head' plus two legs) show all that is important about any human: consciousness and mobility. The 'head' represents the main axis of the human body and includes head and torso. Some investigators into children's drawings have asked inappropriate questions, such as 'Where is the tummy button?' and laid great store by the answers. Children are much more pragmatic than this. The early representations are symbols for people. Circles will do. Eyes and smiling mouth, denoting responsive awareness, come next. Legs are necessary to enable movement from place to place. Arms enable handling and holding. The head and torso remain undifferentiated because there are no major hinges involved. We do not swing our heads in the way that we swing our arms or use them to move about. Representing head and torso separately requires the ability to work out how they join. Necks prove difficult to get right, even for adults. Children tend to put arms in the 'right' place once they begin to represent clothing. Few figures with triangular skirts have arms coming from where their ears should be. Ears

often appear at about the same time; jug-handles usually, as if the absence of arms from this place on the schema has left it wanting and needing to be plenteously endowed.

Making for play

When young babies learn to reach out to hold and explore the properties of physical objects, their earliest exploration is with their mouths. Although they have seen and wanted to touch and discover, their gaze is not necessarily focused on the object once they have it in their grasp. Familiarity with the tactile properties then leads to inquiry about other possibilities: sound, movement, colour, reflectivity. As babies become infants, the symbolic possibilities begin to be seen, through the appreciation of the analogies between one object and another, especially with regard to shape. A large box becomes a house, a garage, a space station, and so on. These play-props are part of the tool box for a game, a fantasy world which mirrors reality but occupies a different plane of existence. When the game ends, the objects that supported the fantasy game are discarded.

Properties can be reassigning as a part of play. Winnicott (1971) concluded that human play arises from our capacity to make bridges imaginatively between our own inner reality and the external world. Children combine objects from outer reality with ideas from inner reality to create a 'dream potential'. From about age 4 onwards, making the play-props may become more absorbing and satisfying than the final product of the effort and imagination. This can often include drawing and cutting out, both in preparation and as part of the play episode. These made objects do not need to mirror reality in every way. For instance, skis for teddy can be made from ordinary paper. The child is quite clear about the 'pretend' nature of what they are doing and can be confused by adults' expectations that these things are anything other than 'pretend'. For instance, when children in a Year 1 class were asked to design and make a travel bag for the class mascot, they did not understand why it needed to have two sides and be able to really hold things (Hope, 2007).

Like playing, drawing involves the use of cognitive maps, ideas and representations to create a 'not yet fully perceived end, making meaning through action or imagined action' (Coghill, 1989: 128). Both Bailey (1971) and Coghill (1989) perceived curiosity as a spur to meaning-making, often embedded in, or projected into, aspects of physical reality that act as place-holders for thought and action, so they can be worked on or changed. As paper becomes alive through cut-outs and puppets, and children take the leap from drawing to animation, using their skills of role play and characterization, so they become involved in deep levels of designerly play (Baynes, 1989).

Children's use of drawn objects in play at this age is intriguing. If a child cuts out a drawing then the thing that is drawn changes its function and it can become an object for playing with in a way that uncut drawings do not (Kress, 1994). Cut-out drawn figures (for example, Figure 1.1) can become simple hand-held puppets that are made to dance across the table, talk or argue, and



Figure 1.1 Cut-out drawn figures (Zara and Hayley)

which might be made to lie down on 'beds', whether doll's furniture or drawn and cut-out for the occasion. Children do not usually draw a bed on a piece of paper and lay the cut-out doll on it without first cutting out the bed. Even less likely is for a child to lay an uncut picture of a person on an uncut picture of a bed as part of playing a game about a character going to bed. The drawing is not the act of creation of a play-prop, although it is the means towards creating it. The final act of creation is the cutting out, metaphorically freeing the puppet from its previous half-life as a line on a paper.

As the child talks through a cut-out character, so they verbalize their own thoughts about a range of situations. This makes their own thoughts and perspectives open to inspection, with the additional advantage over toys, because the child is aware that they have created a character. Whereas a Teddy has a predetermined socio-cultural role or television toys have prescribed roles that children need to learn in order to play the game, paper figures, by their very transitory and child-created nature, allow the child consciously to look inside their own head for the role of these temporary guests in the game.

As the child plays, a storyline develops. The creation is moving, talking, reacting *in role*. The young dramatist has created the characters as well as the script. If other characters are needed, then they too can be made. Adults are more willingly engaged in fantasy play that involves cut-outs than in play involving

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toys and may help to create more characters, perhaps even ones the child has not thought of. Granny might helpfully hold teddy while the child is doing something else, but she will probably become fully involved in paper play. This adult involvement in fantasy actively supports and extends the child's imagination, while giving social value to the child's playful activity. That such adult support in role-playing is initiated through such transitory things as cut-out drawings is important. The temporary nature of such props for of-the-moment games may mean that these cut-outs go in the bin within hours of making. However, these temporary play-props are highly significant in the child's creative and cognitive development. The child and adult are together creating a world from nothing, externalizing the shared imaginary world within their heads through making marks on paper and, by cutting them out, making these marks into an object with character and/or purpose. Externalizing the imagination in a shared social context enables the development of fantasy at a deeper level.

In any 'making for play' activity, whether alone or with others, young children around age 4–7 years, are prepared to do a fair amount of pretending. Realism is not their aim, but enough to satisfy the requirements of their imagination and act as a stimulus for further fantasizing. As children get older, they demand more reality from their toys and from the props that they themselves make (such as clothes for dolls, landing pods for space vehicles), which become ever more complex and demanding in their approximation to reality. The ease with which such toys can be purchased has, of course, been claimed to curb children's creativity and the criticism of children's television-related toys, especially, surfaces to public attention from time to time. Many children, however, especially in the 5–9 age range, seem to design and make additional props for their toys. This is parallel to the activity of adult designers, who usually start by looking at a range of ready-made products to discern where there is a gap in the market that they can exploit, while answering strict user demands and needs. This is not dissimilar to the young child realizing that their game character needs an extra hideout which leads to substituting a box or a drawing for the star-base they do not yet own.

Representational play, in which something that the child makes is used as a place-marker in their imaginary games, is part way towards fully internalized fantasy and inner dialogue. Language-mediated play, as the culmination of representational play, is essential for school success. Schomburg (2000) conjectured that one of the reasons that children with good representational skills do so well in school is that their opportunities for play are not cut off. They transform easily into the kinds of activities that teachers demand. Writing imaginative stories is easier for a child who has already tried out a whole range of self-made roles. In order to see themselves as writers, children need first to see themselves as storytellers. Cut-out drawn characters can help to bridge the gap between role play with toys and telling stories.

However, providing children in school or early years settings with ready printed line drawings to colour and cut out is unlikely to hit the spot. These are more likely to be seen as colouring-in and cutting-out exercises, and completion will lead to 'what next?' rather than to imaginary play. For instance, a teacher provided Year 1 children with a long strip of squared paper, to be

coloured in and concertina-folded, to be called an Inch-worm with a string attached. It seemed to her to have potential to become a springboard for playful activity. Some children pulled them around the floor for a few seconds but most immediately put them away. The Inch-worm had come from the adult imagination, not theirs. In contrast, a few weeks later one child brought in a ghost made, at home with his childminder, from tissue paper bundled and tied around with a string. He recounted the making and demonstrated the potential. The teacher provided a box of tissues and some cotton and offered to help tie the knots. Within ten minutes many of the children had a ghost which was dancing, talking and bouncing on its string. The difference? Empathy. The children understood and imagined Kieran making the ghost and could share the experience. They could take up the baton and run with it into their own imaginary world.

Child-initiated activities are vital for young children, both in and beyond early years settings, to develop their ability to play. Throughout the early years and into Key Stage 1, children need time and opportunity to develop their imagination through such free-play opportunities as well as more structured activities. Teachers and other adults working with young children are frequently encouraged to see play as a process, *a means of learning*, but are often less confident to assert that play is itself an *outcome of learning*, a skill which needs time, opportunity and practice. In order to use drawing or writing to develop creative and imaginative ideas, children need sufficient experience of letting their minds roam free and experimenting with thoughts, ideas and fantasies. Smith (1992) sees pattern-recognition as the mechanism which acts as the brake on fantasy running out of control. This pattern-recognition is socially learnt and practised in play, regulating the interaction between reality and fantasy. Thus children with a rich fantasy life are often the most adept at creative and design tasks. They have learnt to exploit mental fluidity, yet they have a strong sense of what would really work.

The relationship between children's play and the adult trait of playfulness was explored by Lieberman (1977), who compared the results of a set of 'Divergent Thinking Tasks' to a 'playfulness' scale for teacher assessment, on which she found correlation both for small children and adolescents, concluding that the quality of early playfulness affects the development of the adult personality trait. There is, claimed Lieberman, a direct link between the human characteristic of playfulness and that of creativity. Obviously, this does not mean that highly creative people are infantile or concerned with trivia. Rather, that they are constantly playing with ideas and seeking new ways of seeing the world around them.

Maintaining the capacity for inner fantasies is crucial to transform childhood playing into more mature forms of designing, whether the products be musical, artistic, scientific or just everyday living. Craft (1997) identified 'possibility thinking' as the core element in creativity, involving play, asking questions and motivation. For most people, this will come within Craft 'little c' everyday creativity that enables them to be adaptive and spot solutions to problems or opportunities for action, but for some this will be what Craft calls the 'Big C' creativity of the highly innovative artist, scientist, designer, mathematician, musician, and so on. Playing with ideas through drawing is one way

to enhance 'possibility thinking' by enabling each possibility to be recorded, stored and looked at again later.

Developing the necessary hand skills

To this point, the discussion has been focused on the child's cognitive and creative development through playing with drawing. Paired to the desire for an increasingly accurate representation of the human figure and the social world around them is greater control of the drawing instrument. For some strange reason, in educational settings, small hands are often given large, heavy and unwieldy brushes and chunky crayons with broad blunt ends, with which it is impossible to make an accurate mark. This is in contrast to the thinner colouring pencils, biros and felt pens and the brushes supplied with children's paint-boxes that children use at home and which are far more in proportion to the size of the child's hand. Looking at the size of a 4-year-old's hand and scaling up to adult size quickly reveals the size, weight and thickness of the drawing materials that they are being asked to use. It is hardly surprising that they are limited to producing rough bold outlines or that they grip them with the whole hand.

Examining the hands of 4-year-olds quickly reveals just how much of the hand is still cartilage, rather than bone, and how flexible the joints are. This is vital for survival, growth and development. Bones cease to grow once they have calcified and young children take so many tumbles, knocks and bruises that serious injury would ensue if their bone structure was as stiff as an adult's. However, such a highly flexible hand makes tiny precise movements difficult. Attempting to line up a pencil to a particular spot on the paper needs considerable practice, to which the child is trying to add accurate movement of the pencil across the paper and apply an appropriate amount of pressure according to the tool used. Additionally, the child is also coping with a hand that is continuously growing (but not necessarily equally) in strength and size in all dimensions.

Many young children's reluctance to adopt a 'proper' pencil grip may be to do with physical discomfort or genuine inability to control the pencil's movement between their fingers (Figure 1.2). Most children adopt the standard grip naturally without pressure from adults as their hands mature. There are two common pen-grips that can be observed in use by adults for writing, and both right- and left-handers use them. The most common grip (and the one usually encouraged in school) is to have the wrist and arm in a straight line and the pen held within the outstretched but crooked thumb and first two fingers. The alternative position is to have the wrist at right angles to the fore-arm (Figure 1.3). There is no difference in neatness or speed of writing in either position, nor in other less common positions (for example, with the pen held between second and third finger). The standard 'straight grip', although good for neat handwriting, is, however, very poorly adapted for drawing.

The 'straight grip' enables the ball of the hand to rest on the paper and the fingers to make very fine movements with the pen. Ideal, therefore, for right-handed writers, who can see what they have written as they write. Left-handers



Figure 1.2 Straight grip



Figure 1.3 Right-angled wrist grip

have the advantage of being able to see the line ahead and so do not tend to leave the line and go up in the air with their writing, but since they cannot see what they have just written, they need to remember where they were on the page, as instant review is more difficult. The use for writing of the 'right-angled

wrist grip' seems more common among visual thinkers, both left- and right-handed. Being an easy grip for small-scale drawing as well as writing, these people have chosen for themselves the best of both worlds. Perhaps they naturally want to represent the world in a more fluid and less tightly defined way.

The development of children's handwriting has bearing on the development of their drawing style, since both are dependent on the maturation and development of muscle groups in the hand and the formation of neural pathways within the brain, and on the interaction between the two. Children who learn early to produce neat well-formed handwriting often develop a drawing style that reflects well-ordered visual schema, whereas children whose handwriting is less pleasing may produce looser more fluid drawings that suggest a greater ability to juggle uncertainty of visual perception.

Triangular pencils are a great innovation for aiding the adoption of correct 'straight grip' and, since this is the approved grip for writing, the companies that make them have made a great deal of money. They are useful for providing support for children with slower muscle development to be able to produce neater handwriting. However, what began as a useful tool for children with specific educational needs has, in some schools, become blanket provision, whether appropriate or not. Triangular pencils are far less convenient for children who are developing a 'right-angled wrist grip' and will make such children's handwriting worse. Left-handed 'right-angled wrist grip' children will be seriously disadvantaged. Triangular pencils are no good at all for drawing. It is hard, if not impossible to hold them in either drawing position. Triangular *coloured* pencils are an anathema. They are impossible to use for shading.

The 'shading' grip (Figure 1.4) involves holding the instrument (pencil, pastel, and so on) horizontally in the palm-down hand, held between thumb and all four fingers. This is frequently also the sketching grip of choice for proficient adults with a strong visual sense as it is the most comfortable and fluid way to hold a pencil for drawing on a horizontal surface. The fingers are spread along the length of the instrument with the forefinger close to the tip for extra control. The thumb can move along the length of the instrument to fine-tune the balance and degree of movement as required. Children should be taught to lay the pencil on its side for shading, which is the proper technique. Round coloured pencils are best for shading: they can be rolled in the fingers easily to keep the wear on the point even. Traditionally, school writing pencils were hexagonal to aid grip and colouring pencils were round to assist shading.

The 'correct' position for holding a drawing instrument (pencil, pen, charcoal, pastel, and so on), as taught to adults in traditional art classes, was for the instrument to be held in the whole hand pointing forward in a straight line from the elbow, through the wrist to the tip of the drawing instrument onto a vertical surface supported on an easel, as if the instrument was an extension of the pointing hand (Figure 1.5). This 'pointing' drawing grip was designed for standing at an easel and tracing onto paper the observed shapes of scenes and objects by moving the whole arm without moving the fingers. The artist needed only to check with a quick glance that they were getting the parts correctly placed on the paper and joined to each other. This skill was often taught by having students make observational drawings of very simple objects over and over again on the same very large piece of paper. Apparently, examining

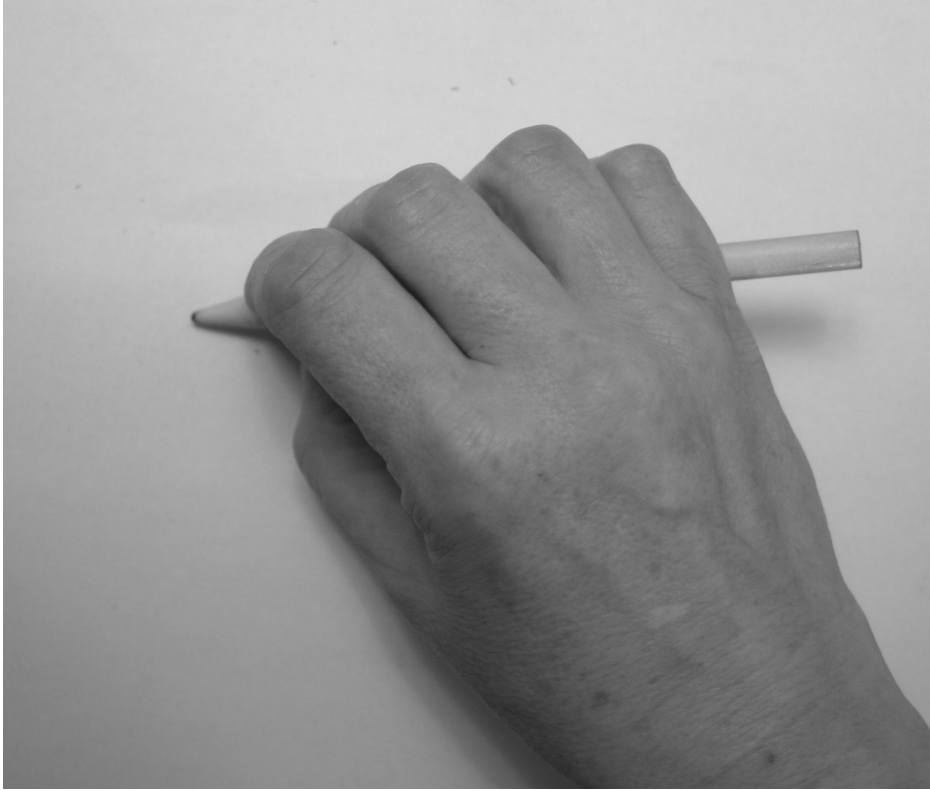


Figure 1.4 Shading grip

Turner's landscape sketches reveal just how far he could draw between glances at the paper. The ability to coordinate the position of the hand on the paper with the position of objects in the observed scene could be taught to children in middle childhood as it once was, but the teaching of drawing technique went out of fashion about a hundred years ago because of the regimented way in which it was taught.

Adults who draw a lot will often change hand position according to felt need, adopting the 'straight grip', 'drawing grip' and 'right-angled wrist grip' at different times, even within one drawing, and will adopt different grips for different drawing tools. Unfortunately, only the writing grip is usually taught to young children in school. The usefulness of other grips for drawing are not demonstrated. Teachers should encourage children to try a range of grips for different purposes in order to extend their skill and capabilities in graphic expression.

Exploring materials and techniques

In the rest of this book, in discussion of the other dimensions of drawing, specific practical suggestions about materials and equipment are less frequently

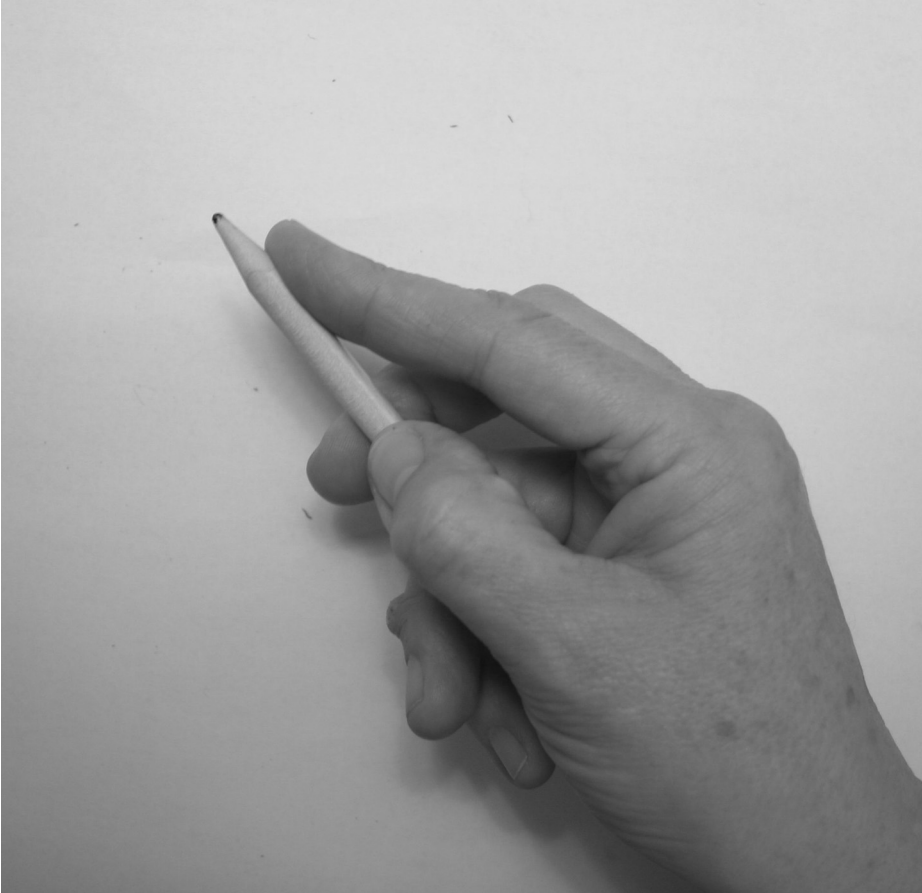


Figure 1.5 Pointing grip

made, since the focus is on the way in which drawing can develop thinking and learning across the breadth of the curriculum. The following extended discussion on materials and techniques, therefore, should be held in mind and read into the use of the generic term 'drawing' throughout the remaining chapters of the book.

A range of drawing and mark-making materials should be available for children's use at all times. Early years teachers are usually better at this than those who teach older children. For some perverse reason, the older the children, the less choice they are offered, either of materials or techniques. It seems to be the view that little children need to experiment and older children need to be told what the limitations are. This seems counter-intuitive because little ones cannot learn everything at once and older ones have the maturity and experience to make informed choices. Paradoxically, therefore, the youngest children, with limited manual skills, experience and understanding can choose to draw or paint what they like with little teaching of techniques or discussion of how to approach the problem of expressing their viewpoint effectively. Yet at the

top end of the primary school, children with much greater manual dexterity, knowledge of materials, techniques and greater personal awareness that enables them to reflect on experience in a variety of ways, are frequently given a tight brief and a limited range of materials with which to respond to it. Free choice time is rare in Key Stage 2 classrooms; free art time almost unheard of.

Even more paradoxical is the fear that teachers of older children sometimes seem to have of the mess that their class will make if given free rein, yet this seems to be containable by the organization within the average early years setting. Waste of resources is also frequently cited as a reason not to allow children free choice, yet the early years Foundation Stage Curriculum recognizes child-initiated learning as vital for children's social, intellectual and creative development. At all stages in the primary school it is important that techniques are taught and stimuli provided, but it is also vital that children are given time and space to explore on their own.

In all primary classrooms, therefore, children should be provided with and encouraged to use:

Fingers	And other parts of the body, including toes.
Pencils	Full range from H to 6B, of as many thicknesses as possible
Felt pens	All thicknesses from flip chart pens to thin line markers
Ink pens	Ball pens, fibre tipped pens, fluid ink pens (Years 5–6)
Brushes	Thin sable ones are best for drawing. Try Chinese writing brushes too
Paint	In a range of types, colours, tones, textures, to use with a variety of implements
Charcoal	In stick form and as charcoal pencils
Graphite sticks	Really chunky as well as thin ones
Wax crayons	Out of fashion, need revival – thick and thin ones
Chalk and pastel	Use in conjunction with charcoal, not pencil
Sticks	Dip in different sorts of paint and ink
Tightly rolled paper	Try range of papers. Roll tightly and secure with sticky tape and dip in ink or paint. Fringe ends first if you like
Found objects	Anything that can be used to make a mark
Rubbers	Why not? Adults do. It is a sign of developing self-awareness, evaluative skills and desire to get things right. Only infants do not want rubbers.

Using *fingers* for painting either really appeals to 4–5-year-olds or they are repelled by getting their hands messy. The idea that all children should begin their experience of art in primary school with finger paints, although sounding logical, is not really valid. Many children will already have had experience of paintbrushes in nursery or at home and so may feel insulted and that they are going backwards in their artistic development. Teachers may need to provide a convincingly real context for using finger paints, such as using them on a non-absorbent surface in order to take prints. The thick consistency of commercial finger paints is ideal for this. However, making their own finger paint

is exciting and trying it out can be an exploration and discussion of texture, viscosity and the effect of the angle at which the painting surface is held. Mixing powder paint with cornflour, glue powder, porridge oats, salt, sand and other common granular substances, then adding carefully controlled amounts of water can occupy children's interest in mixing, experimenting and mark-making, which may not yield any artistic products but will have contributed a great deal to children's understanding of material properties and mathematical proportions. It will also have stimulated language development, especially of adjectives to describe the gloopiness of the paints.

Even quite young children should experience a range of *pencils* from H to at least 4B and it is essential that children in Upper Key Stage 2 are able to use an even wider range. It is impossible to learn to draw properly if only HB writing pencils are provided. Many artists use a 4B or even softer pencil for initial sketching. These soft pencils allow the image to be developed and modified without the need for a rubber, and Year 6 children should certainly be encouraged to rough out the outline and then gradually build the final image through overdrawing with a slightly harder pencil.

Felt pens and markers, ball pens and fibre tipped pens are popular with children as they give instant clear colour. Children frequently draw directly with these instruments, especially for their own pleasure, and then are dissatisfied with the results. In Key Stage 2, therefore, children can be shown that these implements should, for best results, be used to finally overdraw lines made by a soft pencil. Older children (Years 5 and 6) can experiment with pens that have more fluid ink (fountain pens and dip pens) but, again, greatest success in the final product is to be had when the ink is used to overdraw a pencilled line, although children need time to experiment and perfect their technique before limiting them to such overdrawing.

Thin *brushes* are best for drawing. Thick ones are for infilling a large area. The best brushes for drawing have flexible, soft bristles which come to a good point and can take up a decent quantity of paint or ink. Stiff hog's hair brushes produce poor lines and these are fine for the youngest experimenters with paint, but not for children in Key Stage 2. Chinese writing brushes work well with ink; they are designed for special block ink which is not expensive in China but may be difficult to obtain locally in many areas of the UK. These brushes are designed to be held upright, perpendicular to the paper laid on the table. Even if the correct brushes and ink cannot be obtained, children can use ordinary paint and sable brushes to experiment with the technique for holding the brush and try writing Chinese characters and creating Chinese pictures. The upright grip of the brush and the easy flow of the ink encourages a flowing style that is unique and enjoyable.

The problem with the *paints* that are available in most primary schools is that they frequently do not encourage techniques other than in-filling drawings. The combination of cheap water-based paint (whether in powder, block or ready-mixed squeeze bottle) and grey sugar paper will hardly fire the imagination or develop a love affair with riotous colour. These water-based paints can be mixed with all manner of thickeners of different textures for children to experiment with possibilities. Mixing paint with PVA glue plus sand, lentils, oats, and so on, gives interesting textured effects that children can exploit to great visual effect by combining them with their knowledge of colour and form.

Charcoal and graphite sticks are messy but adaptable media in which to work. The blackness of the line varies with pressure and the stick breaks easily under too much pressure. Once children reach the stage of wanting to draw before painting, then charcoal is probably the best medium. They can be shown how to make both light and dark marks on the paper and need to be given time to experiment and come to understand the general rule of light marks for painting over and heavy marks for not. *Chalk and pastel* can be used either on their own or in conjunction with charcoal and graphic sticks. All these materials have the same soft tonal qualities that can be shaded and merged into each other with the fingers. Looking at the pastel work of Degas or Monet demonstrates the versatility of the medium.

Teachers often confine the use of *wax crayons* to younger children. Years ago, large plastic tubs of grimy thick wax crayons with blunt ends were to be found in every primary classroom. From time to time new wax crayons would be bought and a new tub of grimy stubs produced, leaving the old one to fill a far corner of the cupboard. When the new crayons were in the same state as the old ones, the two would be mixed together and the sad process repeated. The advent of cheap felt pens largely saw the grateful demise of the grimy wax. If the wax crayons had been stored properly in single colour boxes, their ends kept sharpened and the children had been taught how to use them, then their demise would not have been so complete. Like charcoal, graphite, chalk and pastel, the quality of the mark depends on the pressure exerted. Also, like these other stick media, wax crayons can be used on their sides as well as in 'shading' and 'drawing' grip. Applied lightly, they can sketch an outline that can be overdrawn and infilled with heavier shading. With care, the shading can be faded out by beginning with hard pressure and lightening, or in reverse, beginning light and applying heavier pressure. These are techniques for confident capable hands in upper Key Stage 2 and it is worth reintroducing the thick wax crayons in Year 5 after the other stick media have been used. Making large sweeping lines with the side of a short crayon can give almost lyrical effects. Children should be encouraged to experiment with holding two crayons (or any other stick medium) together to make lines across large sheets of paper. This playing with materials and lines can help older children feel the early joy in the act of mark-making that they experienced as infants and of which their more recent concerns for pictorial accuracy has robbed them.

This is also true of drawing with *sticks, tightly rolled paper* and *other found objects* dipped in paint of various consistencies and textures, as described above. Making and experimenting with mark-making tools provides opportunities to develop hand skills and visual vocabulary away from the need to produce an accurate likeness of anything. Children may, as a result, decide to try to draw something, probably a well-practised image, with a newly created tool to see how it works. They are unlikely to produce an innovative image at the same time as playing with and learning to wield something unfamiliar, except by serendipity. Creativity requires knowledge of the technique and the materials for its expression and, so, learning to use new materials differently is not likely to produce the children's greatest pieces of art. However, it allows them to be less concerned about the image as they focus on the effects of the tools, the lines they produce, the amount and type of paint that works well, and so

on. In order to allow reflection and build later on the experience, the children need to annotate their experiments, to record the tool and paint type used on each sample. This can then become an almost scientific quest, with the annotation aiding the evaluation and comparison of different tools. This new knowledge can then be applied in a new context, perhaps in combination with collage materials to make a composite picture or abstract work.

Playing with ideas

The ability to use drawing as a powerful means of playing with ideas, exploring themes, expressing feeling and reactions, and of communicating these to others, is heavily dependent on the child's confidence and capability with a range of drawing media and techniques. As well as encouraging children to experiment with a range of drawing media, the use of drawing for drafting needs also to be encouraged. Drafting is a way of playing with ideas that can be evaluated, discussed and advice sought before final commitment, often in another media.

At age 5, children will draw an outline shape in paint and then fill it in but they soon choose to draw in lead pencil and then colour in the shapes. They have realized that the lead pencil gives them the freedom to rub out and change parts of the drawing with which they are dissatisfied. By Year 3 this pencil line drawing often includes the kinds of small details that would be best left undrawn and put in after the paint has dried. By Year 5 (age 9–10 years) children should be encouraged to develop the process of making a painting through creating several layers, using techniques such as applying light background washes before drawing the foreground details.

This applies equally to children's approach to other genres, such as collage where time and effort is wasted on drawing to an inappropriate level of detail or on unnecessarily correcting details of the drawing, where it would be more sensible to cover the whole background first, or even simply draw a plan on scrap paper and use it as a guide without drawing onto the background at all. Lower Key Stage 2 children, especially, often make quite detailed drawings onto backing paper, only to cover these over with large collage pieces, thereby obliterating the only record of what they have spent so long working out. Perhaps this may be because they have been involved in group activities in early years or Key Stage 1 classrooms in which an adult provides a large drawing to which children glue scrunched up tissue paper or small pieces of collage materials to make a mosaic. The children, naturally, believe that this is a technique they are meant to follow in every circumstance.

Plentiful and generous opportunities should be given for children to invent and try out their own ideas, but as Maureen Cox comments: 'sooner or later most of us will actually require tuition in order to give substance to our ideas; without it we will lose interest, thus insuring no improvement, no self-expression and no creativity' (1992: 7). In the early years of life, children manage to pick up a good deal with little or no formal tuition, but later on their own standards of what constitutes a good drawing far outstrips their skills. Without tuition, says Cox, most people cannot draw, and so lose interest and give up altogether. The ability to draw is not natural or automatic, there are skills to acquire and

practise. Unlike many writers on children's drawings, Cox is happy with children copying, since many adult artists do this to improve their skill. She is also happy with cartoons (in contrast to some other writers) as this denotes a widening of children's repertoire and increases their manual control of drawing instruments and self-confidence.

Those writers who approach drawing purely as an 'art' activity seem frequently to want to limit the repertoire of acceptability, as if wanting to train children into the kind of drawings that they see as part of the canon of 'art' and exclude by omission all the many other uses of drawing which children may use, enjoy and exploit. This delineation into art/non-art, permitted/not-permitted puts restrictions on the activity, imposes artificial boundaries and prevents the child from seeing that this very powerful medium for generating and expressing ideas can be used to advantage to model and convey ideas including, but also beyond, those of art. Limiting the child's output to a small range of accepted types generates insecurity. The child 'cannot draw' because they feel they cannot produce the kind of images that are acceptable to the teacher and in front of their peers. If opportunities were provided to develop a far greater graphic range, then children would feel less inhibited.

To identify and discuss some of the dimensions of that graphic range is the aim of this book. Drawing is constantly and uninhibitedly used by adults: from sketch maps to show directions, to quick sketches of room layouts with dimensions to work out how many floor tiles are needed, to family trees, to instructions of how to put flat-pack cupboards together, and so on. Adults rarely make apologies for their lack of artistic finesse when they do these sketches. They are using drawing to think, to plan, to communicate where words fail or are inappropriate. Children need to be shown examples of these and teachers should collect them from their friends and relatives. Accurate observational drawing is just one genre within the field. It is also the one in which playing with ideas through drawing is, for the child at least, the least likely to happen.

Drawing is a powerful means of playing with ideas across a broad field of endeavour, and this is the message of this book. Some thinkers would want to include writing within drawing and there are powerful arguments to support this view. However, that approach is not taken in this book, although writing and graphics frequently interact (and are consciously used interactively) in playing with ideas and this should be encouraged where appropriate. There are occasions when writing is more appropriate than drawing (a list of possibilities, for instance) and labelling of drawings frequently enables clarification, and acts as a prop for understanding ambiguity or plain poor drawing. Children are frequently happy to use drawing for generating design ideas once they realize that verbal labels are possible and accepted. The recording of ideas as they occur and the mind moves on to the next possibility needs to be quick and useful.

Looking at sheets of paper that have been used by adults for idea generation (for example, TONY) will reveal a mess of ideas, some written, some drawn, overwritten, overdrawn, arrows and squiggles, underlying and crossing out (and even crossings out crossed out). This interactivity, the conversation with the drawing, is the zenith of using the *process* of drawing as a means of playing with ideas. The ideas are coming faster and the connections with other good ideas are being realized almost faster than the human mind can compute

them. Making the marks that cement one idea can stop the next idea in its tracks. Speed of recording, by whatever means, is of the essence and marking the relationships between new thought and past thought is a dynamic process that can continue at full tilt and with total absorption until the thought wave is exhausted and the need to sit back and review comes. Then comes the process of reorganization of the thoughts and ideas, which will prompt redrafting in a more readable format. New lines of enquiry can be suggested in this reorganization as the mind takes on a more systematic review of the multitude of ideas that intertwine and litter the page.

Children can do this. They do it spontaneously before they become aware of picture-making and of social expectations that their drawings will be pictorial. They also do it at the stage of emergent writing, when they use drawing and writing interactively to place-mark their story ideas as they record the ongoing narrative that they are creating. This skill can be extended and developed throughout the primary years by encouraging children to use drawing for designing, to use drawing and writing interactively to record observations in scientific enquiries, to brainstorm in groups about a topic for class debate or to support, develop and explain their mathematical reasoning.

One of the inhibitors to the realization of this potential within children's work is their need and desire to master the mechanics. Developing neat writing is frequently more important to the child than recording a creative storyline. Drawing something accurately and realistically is more important to them than roughly indicating its existence. Anning (1993) recorded how her colleagues' use of the words 'scribbling down some ideas' produced horrified reactions from the 6-year-olds with whom they were working. 'Scribbling' was for babies; they drew properly. More than this, their aspiration was to draw ever more properly.

Summary

The booklet '*Start Drawing*' produced by the Campaign for Drawing (2002), categorizes the use of drawing as being for perception, communication and manipulation. The authors speak of the way in which young children will develop one theme or image across many drawings but could equally be applied to the work of the greatest adult artists, scientists, designers or thinkers who use graphic means to generate, develop, organise and play with ideas:

'reflexive oscillation' between impulse, ideas and mark, receiving feedback from the marks appearing on the page, which prompt further thought and mark-making. Usually the drawing is one of a series, where ideas are explored, repeated, refined, practised, worked over, discarded, combined, where alternatives are sought and alternative possibilities explored. (Campaign for Drawing, 2002: 2)

This encapsulates the use of drawing for playing with ideas, the interplay between product and process, container and journey. It is close to the ideal

practice of using drawing to design, the title of the sixth dimension discussed in this book. Between early playing with materials and techniques and a lifetime's experimentation in using drawing for developing powerful innovative ideas lies informed knowledge and capability in a universal and multifaceted tool for human creativity. Inherent in that facility are the layers of meanings ascribed to the lines, dots and squiggles, to their ambiguities as well as to their clarity. The second dimension, 'Drawing to mean', focuses on this all-important aspect of drawing, which, like 'Drawing to play', continues to flow as an undercurrent through the other dimensions until explicitly recombining in 'Drawing to design'.