

Child development

- Piaget's theory of intellectual development says that children pass through four separate STAGES OF DEVELOPMENT; in each of these thought is qualitatively different.
- In the SENSORIMOTOR PERIOD, the child develops the concept of an OBJECT, and learns to manipulate objects physically.
- In the PRE-OPERATIONAL STAGE, the child learns to attach verbal labels to objects and to manipulate names as if they were objects. The child is EGOCENTRIC, both intellectually and morally, and makes characteristic errors of thought, such as the failure of CONSERVATION.
- ATTACHMENT between parents and child starts with BONDING, and is particularly intense up to the age of five, when SEPARATION ANXIETY and FEAR OF STRANGERS are very strong. Differences in attachment can be measured in the STRANGE SITUATION test.
- Poor attachment can result in CHILD ABUSE, and a complete absence of attachment can result in the syndrome of MATERNAL DEPRIVATION.
- Attachment is the first stage in developing SOCIAL RELATIONSHIPS, which in childhood pass through Erikson's series of five CRISES, each of which can be helped or hindered by different PARENTING STYLES.

The physical transformation of the single cell of a fertilized ovum into a newborn baby is complex and remarkable. No less complex and no less remarkable is the psychological transformation of that wriggling neonate into a sentient, intelligent adult that can write plays, paint pictures, drive cars, read newspapers, understand nuclear physics, or study medicine. In the same way as the fertilized ovum is not a *homunculus*, containing miniature versions of the various organ systems of the neonate, so neither is the mind of the neonate a miniature version of the adult brain, merely requiring a little more effort, a little more memory or a little more attention. As the fertilized ovum contains the essential plans for building a neonate, in the form of its DNA, so the mind of a neonate is not a *TABULA RASA*, a blank sheet, but contains the essential physiological and psychological equipment from which an adult mind can be *constructed*. The neonatal mind does not therefore contain any specific information about the nature of objects in the world or of three-dimensional space, about

people, or about social relationships. The neonate looks out on a world which, in William James' words, is 'a blooming, buzzing confusion'; the neonate cannot *know* that the pattern of light and shade that sometimes appears in its visual field and the strange noises that accompany it are its mother talking to it, but it can learn about the association and then start to predict when the events will occur. And also it needs to learn such subtle, and apparently trivial and obvious facts, as that the pattern of light and sound come from an OBJECT that continues to exist even when not being observed by the child.

Adult human beings are not simply 'thinking machines', absorbing information which is then converted into other forms of information before being output; they are also, perhaps predominantly, individuals with feelings and emotions, which are attached to the objects around them, which have ideas about how those objects work, and which form social relationships with the particular objects which are other people. All of these different aspects develop in parallel during childhood, each assisting and interacting with the other aspects. In a book such as this, only a few basic ideas about child development can be presented, which are chosen to emphasize particularly important points: those concerning intellectual development, and Piaget's stage theories; the development of attachment; and the formation of social relationships. Other aspects of development are also considered elsewhere in the book, as for instance in Chapter 6 on language, Chapter 11 on Freud and emotional development, Chapter 17 on ageing, and in Chapters 28, 29 and 30 on psychopathology. In so far as adults have necessarily all once been children, so every part of psychology has its developmental aspect.

INTELLECTUAL DEVELOPMENT

The central figure in understanding intellectual development is JEAN PIAGET (1896–1980), a Swiss psychologist who regarded himself as a biologist studying the nature of mind and who developed the field he called GENETIC EPISTEMOLOGY (*genetic* in its original meaning of 'developmental' and *epistemology*, the study of knowledge and its origins). Piaget's theories have dominated education and developmental psychology throughout the twentieth century.

Piaget developed a complicated theory of development, a STAGE THEORY, which argued that the successive phases of development of a child are not just successively more complicated, as if the intellect were merely growing in size, but differed qualitatively one from another with the modes of thinking actually being different in type from each other; and in part this explains why children's thought is so difficult for adults to understand. Stage theories cannot be explained

entirely by LEARNING THEORIES (see Chapter 3), which only allow for a gradual accretion of knowledge, without sudden changes in the STRUCTURE OR FORM of thinking. As well as Piaget's, there are several other stage theories in psychology; Freud's theory of emotional development (Chapter 11), Erikson's theory of ego development (Chapter 17) and Kohlberg's theory of moral development.

Piaget argued that four major stages of development existed, for which approximate ages can be given. The order in which they are passed through is invariant and not all individuals reach the highest stages; not all adults reach stage 4, and some retarded children may only reach stage 1 or 2. Interestingly, gorilla infants pass through stage 1 more quickly than human infants, but then never reach stage 2. Although still central to developmental psychology, Piaget's theories are not now accepted in their entirety. A major distinction between Piaget and the NEO-PIAGETIANS is that Piaget considered *all* of a person's intellectual activities to be at the same stage, whereas neo-Piagetians accept that some activities can be at more advanced stages than others.

Stage 1: The sensorimotor period (0–2 years). Consider what it is like to be a newborn baby (that of course you must have been one at some time doesn't actually help much). You have sensations which are not organized, i.e. they are sensations without perceptions, so although aware of areas of light and dark you are not aware of 'objects' as such. Indeed you can have no concept of an object because you are encountering a new world; the very *idea* of an object is itself to be discovered. Similarly there are also noises that make little sense. You also have limbs, can move muscles and kinaesthesia tells you things are happening, but there is no sense of limbs moving *in space*, because the three-dimensional nature of space is not known to you. Finally, sensations arise from within your own body, from viscera, etc., although you cannot know these sensations particularly come from *you*, rather than a separate thing called the outside world, from which you receive no sensations and have no control over. Your only systematic behaviours are certain PRIMITIVE REFLEXES that turn your head towards sounds, or towards things touching your cheek or lips, and move your limbs in the undifferentiated STARTLE RESPONSE to sudden sounds or lights. Of course in saying 'you' or 'aware' I am not implying you have any such self-concept or self-consciousness or self-awareness; and indeed if such consciousness did exist then as adults we would probably be able to remember the earliest years of our life.

From such an unpromising start you, and only you, have to come to understand a strange and mystifying world. The world contains regularities, such as the presence of particular people (but again at that time you have no concept of a person, only of regular associations of sounds, smells and patterns of light); on these regularities you must

build. Of course it cannot be emphasized enough that the one thing you do not have to help you is an adult, thinking, rational, self-conscious intelligence, with knowledge and experience.

Piaget argued that in the sensorimotor stage the child understands the internal logic of its sensory and motor systems, realizing such non-trivial conclusions as that certain patterns of light are related to certain movements that can be made, so that the thing seen is a hand, your hand, under your control. Additionally, you learn that other patterns of light, perhaps your mother, or the cot-sides, are regular, with certain sensations when touched although outside of your direct control, so that your body has certain distinct limits. Simple associative learning also teaches us much; objects are sucked and chewed, and some found to be associated with pleasant visceral sensations (food) whereas others are not and cease to be sucked. The first *intellectual* development, in which an explicit *idea* transcends mere reflex association of sense and movement, is the development of OBJECT CONSTANCY. Piaget suggested it had developed by eight months of age, and more recent work suggests about five months. Before that time objects exist only when they can be seen or touched, and their components of movement, position, colour, etc, are perceived independently; they are only *events* or *actions*. Once constancy has developed, they exist in the child's mind even when the sensations that produced them are no longer present. This is shown in a simple, elegant experiment typical of those carried out by Piaget on his own children. A small white doll moves along a track, goes behind a screen and emerges from the other side, stops and then returns to its starting point. Both young and old infants satisfactorily track the object with their eyes. The experiment is then changed so that a white doll disappears behind the screen but a red toy lion emerges on the other side. Younger infants continue tracking the moving object, apparently oblivious of its change of identity, whereas older infants show surprise and keep looking back to the screen, as if to await the reappearance of the doll. The older infant not only has a concept of the object which exists when the object is no longer visible, but also has an internal model of how the object should behave, and hence predicts or expects the doll to merge at a point and time. As an example of an implicit intellectual model of object constancy, imagine your surprise if you read the front page of a newspaper, then read an inside page, and on returning to the front page found a different story despite holding the newspaper the whole time. Our world model says that objects like newspapers simply do not behave in such a way (although such behaviours are allowed in television screens, which change images unpredictably). Such interpretations are not reflexes but are intellectual analyses in a pure sense. The sensorimotor period develops and elaborates such insights, with the development of SECONDARY BEHAVIOURS; a child may see a ball on a rug, want the ball and yet be unable to

reach it; at 8 or 9 months of age the child pulls the rug to get the ball, and in so doing has put the actions together mentally before actually performing them.

Stage 2: The pre-operational stage (2–5 years). Towards the end of the sensorimotor stage, the young child has a sophisticated repertoire of motor acts and sensory analyses equivalent to those of most young mammals. In stage 2, the beginnings of linguistic development separate the intellectual development of the child from that of other animals.

Although object concepts have existed for the sensorimotor child, in the pre-operational stage those objects have *names* attached to them as labels. The names can then be manipulated in lieu of the objects themselves. Such SYMBOLIC THOUGHT, the manipulation of symbols which represent objects, dominates the next few years of development. Words and names are funny things, with strange properties. For instance, although 'Daddy' is a 'man', not every man is Daddy; OVER-INCLUSION, the failure of that realization, is a common problem for the early pre-operational child. Thus a child aged 2:1 (i.e. 2 years and 1 month) said 'That's not a bee, it's a bumble bee. Is it an animal?'. The causal relations between words also have to be learned and can be faulty, producing the error of TRANSDUCTION: 'I haven't had my nap, so it isn't afternoon' (4:10); and the mere existence of a name, or the juxtaposition of objects, is felt to be sufficient explanation for causation e.g.

Adult: 'What makes the [railway] engine go?'

Child: (4:0) 'The smoke'.

Adult: 'What smoke?'

Child: 'The smoke from the funnel'.

The pre-operational child also suffers from CENTRATION, a fixation upon one aspect of a stimulus, rather than upon relationships, so that in Figure 10.1a, the child will know there are equal numbers of eggs and egg-cups, but in Figure 10.1b will say there are more egg-cups than eggs, since the egg-cups take up more space. This problem, combined with a lack of understanding of reversibility, results in the failure of CONSERVATION (Fig. 10.2). A child is shown two identical glasses of water, A and B, filled with the same amounts of water. The water from B is then poured into C while the child watches, and the child is then asked which glass holds more water. The pre-operational child either says that C contains more water, because it is wider, or that A contains more water because it is deeper. The child uses the words 'more' and 'less' but they cannot be applied appropriately to a fluid, which can change its shape and yet still conserve its volume, and instead they are applied to the container itself. Therefore, although the pre-operational child has a large and rapidly expanding vocabulary

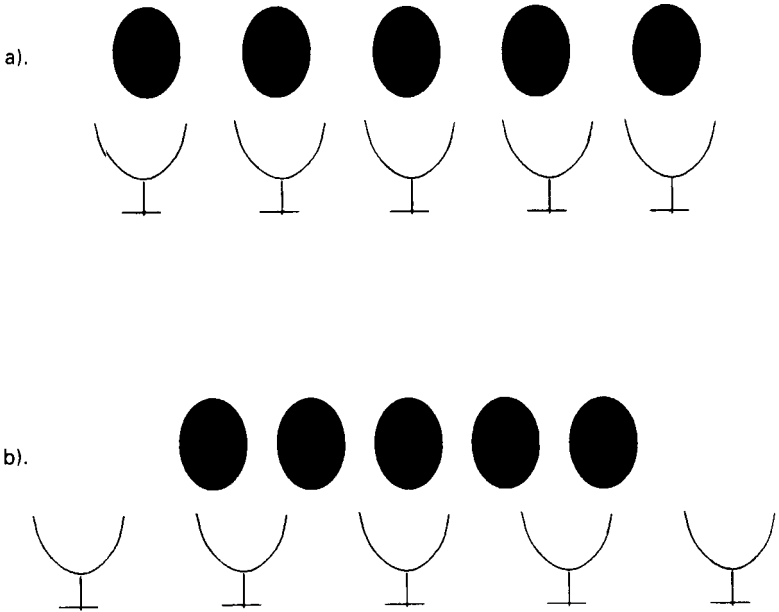


Fig. 10.1 Piaget's egg-cup experiment. Shown the situation in a) the pre-operational child will say that there are the same number of eggs and egg-cups, but after rearrangement as in b) will say that there are more cups than eggs.

to name its internal concepts (see Fig. 10.3), it is unable to use those labels accurately to make predictions about how objects will behave in the real world. The labels stand in isolation, and as such they can be extremely useful ('Give me a drink of water' or 'My head hurts') but are limited in their effectiveness as tools for manipulation and prediction.

Stage 3: The concrete-operational stage (6–12 years). During this stage the child not only uses words correctly, but manipulates them as if they had the properties of objects, as it were, putting into words what it has already learned about actions during the sensorimotor period. Therefore, in the conservation task the concrete-operational child realizes that the volume of water is unchanged by being poured into another glass. The intellectual limitation in this stage is that such operations are only applied to real or CONCRETE objects; hypothetical or abstract objects cannot be considered. As a ten-year-old I well remember being told about algebra, and that the letter x in an equation could represent any number, and said 'Well it can't be a number, it must be some particular number'; a year later the concept posed no difficulty, and I had passed from concrete operations to *Stage 4: The abstract-operational stage (12 years onwards)*, in which symbols

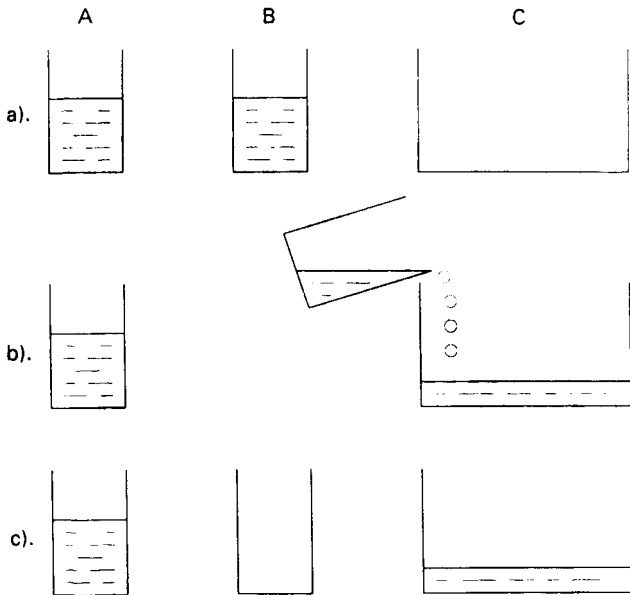


Fig. 10.2 Piaget's conservation test. *a)* A pre-operational child sees two identical beakers A and B which contain the same amount of water and the child says there is the same amount of water in each. *b)* In front of the child the experimenter pours the water from B into a wider, flatter beaker, C. *c)* When asked whether the beakers contain the same amount of water then the child says either that C contains more water (because it is wider) or less water (because it is shallower).

had properties, had arbitrary relations to one another and to the world, and could be manipulated via transformations to correspond as well as one wanted with the actual world.

This account of Piaget's thought has so far emphasized intellectual or cognitive skills. Piaget felt that such skills dominated our thinking, and themselves affected all other aspects of our psychological existence. As an example, Piaget described the pre-operational child as being *EGOCENTRIC*, seeing the world only from its own view-point; and intellectually this is shown in Piaget's *MOUNTAIN TEST* (Fig. 10.4), in which a child looks at a model of mountains and is asked whether a doll can see particular objects such as a house. A pre-operational, egocentric child cannot answer correctly, seeing the objects only from its own view-point. At this stage the child is also morally and emotionally egocentric, seeing problems entirely from the view-point of its own interests, and being unable to see the interests of other people; it is incapable of *PERSPECTIVE-TAKING*. The onset of lying and deception occurs also at the end of the pre-operational stage when the non-egocentric child realizes that others are not aware of its own

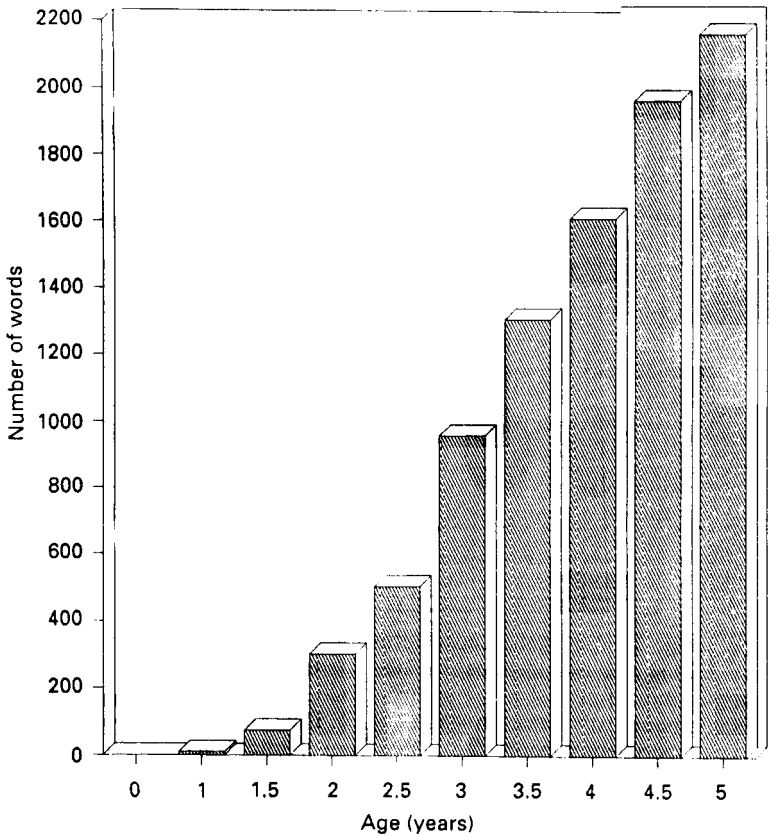


Fig. 10.3 The number of words in the vocabulary of children aged from one to five years. Adapted from Lispiit I. P (1966). Learning processes of human new-borns, *Merrill-Palmer Quarterly*, **12**, 45-71.

thoughts. The dominance of intellectual processes over other activities is also seen in the games that children play. For the first two years, games are entirely related to sensual gratification, involving tickling, noises, and motor activity, such as knocking over bricks; in no sense does the *idea* of a game exist at this stage. Pre-operational games are egocentric, the child ignoring the rules, and using the game as a vehicle for its own amusement, independently of the other players. During the concrete-operational stage, the rules are strictly observed, being regarded as inviolate and immutable, with absolute authority, being almost concrete (as if graven on tablets of stone). Finally during the adult, abstract operational stage rules are seen as arbitrary, to be experimented with to produce better, more interesting games according to the needs of the participants.

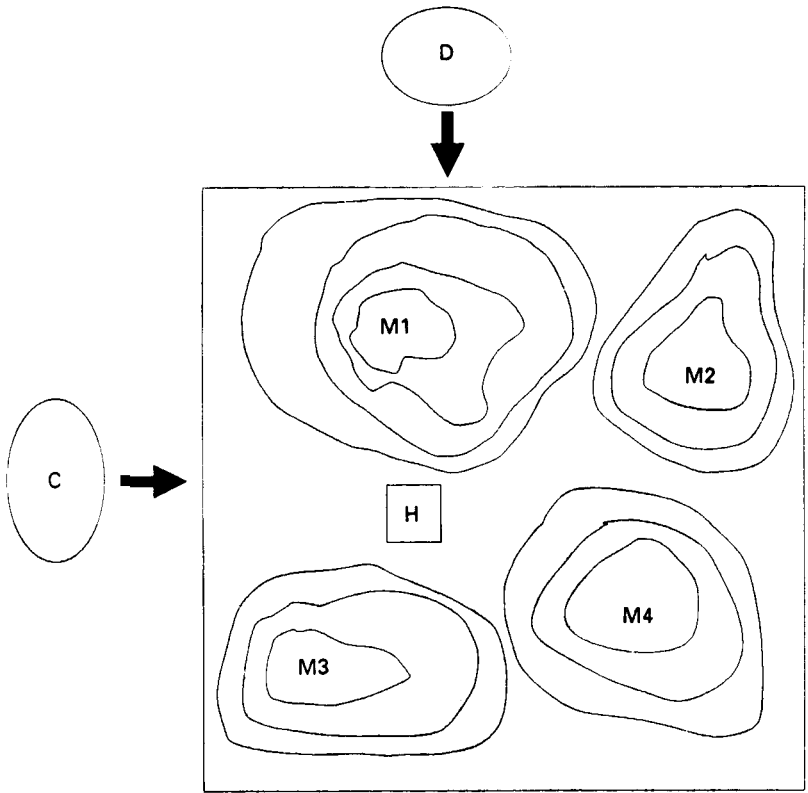


Fig. 10.4 Piaget's mountain test to show the egocentricity of the pre-operational child. Seen from above, the child, C, looks at a realistic model of mountains, M1, M2, M3 and M4, on which are placed various objects including a house, H. The child is asked if they can see the house and they say they can. They are then asked if the doll, D, can see the house, and if pre-operational then they will also say that it can, even though mountain M1 is actually blocking the doll's view of the house.

ATTACHMENT

From birth onwards, children begin to form the earliest of social relationships, that of attachment, in which they show **BONDING** to specific persons, typically the parents. Until about the age of six months the attachment is fairly undifferentiated, reacting to any smiling face. However, as object constancy develops, the child can differentiate adults, attachment strengthens to particular adults, and removal of the child from the parents is manifested as **SEPARATION ANXIETY**, a continuous screaming or sobbing, rejection of food or comfort offered by strangers, and clinging when the parent returns. The anxiety is particularly great when the child is left with *other* adults (see Fig. 10.5), **FEAR OF STRANGERS**. Separation anxiety and fear

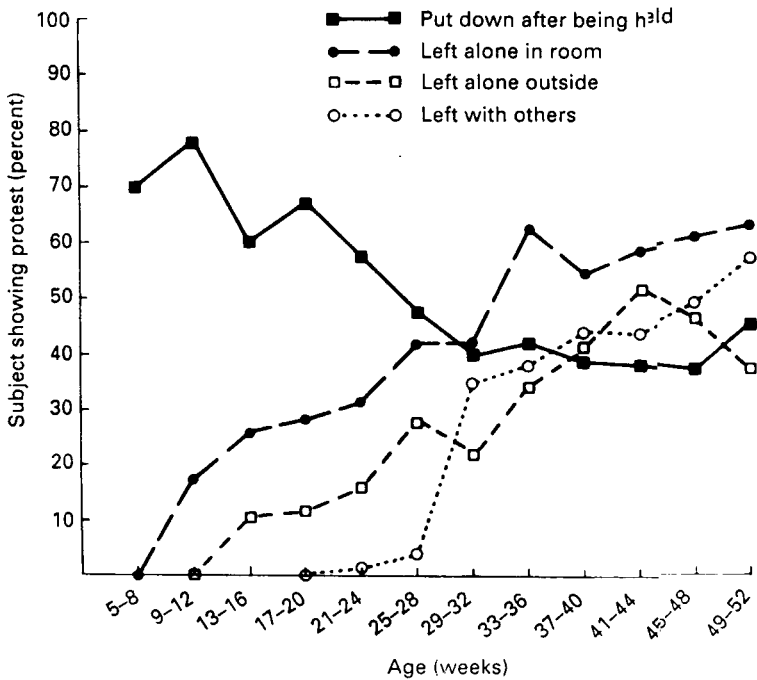


Fig. 10.5 The proportion of infants showing protest (crying) when placed in different situations. Note the sudden rise of protest in children at 29 weeks of age when left with *other* adults, reflecting separation anxiety, and attachment to the parents. Reproduced with permission of the Society for Research in Child Development, from Schaffer H R and Emerson P E (1964). The development of social attachments in infancy, *Monographs of the Society for Research in Child Development*, 29, 3.

of strangers reach a peak at about one year of age, and then fall off, allowing relationships to be formed with siblings, grandparents, etc, and by the age of four or five the anxiety has almost disappeared. Admission to hospital for children under five can provoke severe separation anxiety, and it is now policy in most good paediatric units to allow parents of young children to stay in hospital with their children as long as they wish. Careful studies in both humans and monkeys suggest it is separation from a parent that is the principal source of distress, rather than being in a strange place, although distress is less if the infant remains in a familiar place while separation occurs ('mother goes to hospital' rather than 'child goes to hospital').

Not all children are attached in the same way, and empirically this has been particularly well studied by Mary Ainsworth, in the STRANGE SITUATION test. Children about eighteen months old play in a strange room with their mother present; the mother then leaves, returns, and departs again; a stranger enters and leaves; and the mother then returns. Most children show SECURE ATTACHMENT, exploring the room

and playing when the mother is present and returning to her at intervals as a SECURE BASE, but are upset when she leaves or when the stranger enters, and cling to the mother on her return. Some children show ANXIOUS, AMBIVALENT ATTACHMENT, being distressed even when the mother is present and are ambivalent about using her as a secure base. A few children show AVOIDANT ATTACHMENT in which they avoid the mother, do not use her as a secure base, and show no distress on separation or when a stranger is present. These differences seem to arise from parents' treatment of their child, avoidant attachment being associated with cold, angry indifferent mothering, and ambivalent attachment being associated with warm mothering insensitively applied at inappropriate times. There is also evidence that these patterns continue into later childhood, and possibly adulthood, and produce abnormalities of emotional relationships.

Child abuse. Attachment is not a one-way process between child and parent, but is reciprocated, with obvious biological advantage to each side. Parental attachment to children is facilitated from birth by the appearance of the neonate, which like all young animals has a large head and large eyes which make it attractive to adults; by social interactions, in the form of imitation of parental actions; and after the age of one month or so, by smiling and laughing in response to parental actions. Occasionally, attachment by parents is severely impaired resulting in the syndrome of CHILD ABUSE, in which children are physically damaged, with broken bones and other NON-ACCIDENTAL INJURIES, or are severely NEGLECTED, resulting sometimes in death of the child. Abusers come from a wide range of backgrounds, but on average abusing parents tend to be from lower social classes, younger than average, with many children, and re-married, step-fathers being particularly likely to abuse. Interaction is abnormal in the strange situation test, showing avoidant attachment. Perhaps most important of all, abusers often have a history of abuse themselves in childhood, perpetuating a cycle of abuse from one generation to the next. Children are more likely to be abused if unwanted, physically or mentally handicapped, premature or treated in a special care baby unit, or if they are 'irritable' babies who seem to cry a lot.

Maternal deprivation. Infants and young children are often separated from their parents, but usually only for brief periods of minutes or hours. Occasionally, separation is prolonged and does not end, as when children are orphaned or abandoned and placed in institutions where they are cared for physically but cannot form emotional bonds with any particular carer. Separation from parents is followed by the behavioural sequence of PROTEST, acute distress and crying, DESPAIR, a period of misery and apathy, and finally DETACHMENT, in which the child is apparently contented and loses interest in its parents. However, the British psychiatrist, John Bowlby (1907–1990) has shown that children showing such parental deprivation are far more likely as

adolescents and adults to become DELINQUENT, committing petty crimes, to be PSYCHOPATHIC, being unable to form affectionate relationships, and to be of diminished stature, so-called EMOTIONAL DWARFISM, or intellectually retarded. Although the syndrome was originally called *maternal deprivation*, it is far from clear at present whether mothers are especially important compared with fathers, or indeed whether the important factor is having *someone* who acts as a full-time carer. That early formation and maintenance of emotional bonds is important for subsequent development is not however disputed.

SOCIAL INTERACTIONS

Attachment is part of a broader process by which children learn to become part of the larger social world, and learn to interact with adults and other children. This process starts early in life. A study of nine newborn children awaiting adoption, who were cared for by one specific nurse for the first ten days of life, and then on day ten were cared for by a different nurse showed increased crying and distress after the change, suggesting that the infants had already adapted to the specific habits of their carer.

Social interaction occurs even in children two months old, often involving IMITATION, which acts as an important foundation for OBSERVATIONAL LEARNING (see Chapter 3), and also rewards the parents and helps bonding. Erikson has argued that psychosocial development passes through a series of stages, or DEVELOPMENTAL CRISES, in which the person encounters certain social problems, which must be coped with. Central to the developmental sequence is the concept of EGO IDENTITY, the person's sense of who they are and what they want to be (see also Chapter 17 and Figure 17.1). The first crisis, in the first year of life, is of BASIC TRUST VS. MISTRUST: the infant learns that there are other individuals in the world whom it can trust and who will care for it. The second crisis, between the ages of 1 and 3, is of AUTONOMY VS. SHAME AND DOUBT: the child attempts to become autonomous and if this independent behaviour is encouraged by parents then confidence in its own abilities is fostered. The third crisis, between the ages of 3 and 6, is of INITIATIVE VS. GUILT. The autonomous child starts to play on its own and with other children, and to help in the house: if initiative is encouraged by the parents then the child is rewarded, whereas if the initiative is not encouraged by parents then guilt is fostered. The fourth crisis, between the ages of 7 and 11 years, is of INDUSTRY VS. INFERIORITY: the child attends school, and within the much wider social world of its own peers and its teachers, finds both rewards and punishments for hard work and industry, often involving conflicts between the wishes of parents and teachers (to work hard and succeed), and peers (not to be 'a swot' or a 'creep'). The fifth crisis

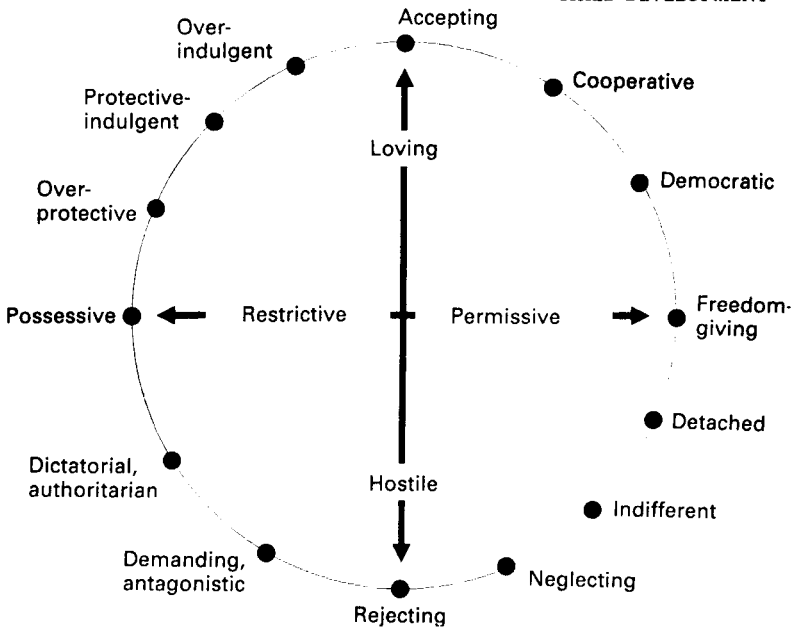


Fig. 10.6 A factorial model of the two major dimensions of parental style shown in rearing children, with some of the many combinations that can result. Adapted from Fischer K W and Lazerson A (1984), *Human Development: from conception through adolescence*, New York, W H Freeman, 409.

occurs in puberty and ADOLESCENCE, the final stage of childhood, and involves IDENTITY VS ROLE-CONFUSION: the child has to cross the social barrier and become a fully-fledged adult, with a sense of personal identity and direction in life, forming new, adult social relationships with parents and siblings, and taking responsibility in the outside world. Passage through all these crises is affected by the PARENTAL STYLE adopted by parents in dealing with their children (Fig. 10.6). Two major dimensions have been identified, of which all combinations are possible: on a LOVE-HOSTILITY SCALE, loving parents are warm, accepting their child's needs, and rewarding their achievements, whereas hostile parents are dissatisfied with their children, and either belittle or ignore them; on a PERMISSIVE-RESTRICTIVE SCALE, permissive parents rarely establish rules for good or bad behaviour, and do not enforce rules that do exist, whereas restrictive parents have strict rules, which are enforced intolerantly. There are many correlations between parenting style and subsequent child development: typical are findings that parents who are aggressive, particularly in their use of punishment, have children who are more aggressive; overly possessive or protective-indulgent parents have children who are dependent; restrictive, more authoritarian parents have children who are independent; and the children of permissive parents are often not achievement oriented.