

JEAN PIAGET: AN ENDURING LEGACY

THE THEORIST (1896–1980)

Jean Piaget was born in Neuchâtel in Switzerland, achieving a doctorate in Natural Sciences in 1918. In 1929, he became Professor of Child Psychology at the University of Geneva. Piaget became aware early on that mistakes in learning made by young children were consistently different to those made by older children; he accounted for this by arguing that thinking, or more specifically cognitive processing, in younger children is essentially different to that in older children and adults. This led him to develop a theory which could explain thinking in children. He, therefore, proposed that children and adults demonstrate typical patterns of thinking and learning at different stages of their lives.

KEY PUBLICATIONS

Piaget, J. (1926/2002) *The Language and Thought of the Child*. London: Routledge Classics. [Originally published in French in 1926]

Piaget, J. (1947/2001) *The Psychology of Intelligence*. London: Routledge Classics. [Originally published in French in 1947]

UNDERSTANDING THE THEORY

SCHEMA

Piaget believed that when young children are presented with new information they may not immediately understand it unless they have already constructed within their own thinking relevant knowledge and understanding, which they have gained from interacting with the environments in which they are growing up. It is through interacting with their environments that children from their earliest years begin to build internal mental representations in their brains, which Piaget referred to as *schema*. Cathy Nutbrown (2006, p. 7) has explained *schema* as 'a way of labelling children's consistent patterns of action'. Nutbrown went further



Patterns of behaviour are learned through experiences created by adults

and indicated how practitioners can observe schema or patterns of children's behaviours taking place. Through observing schema or patterns in children's behaviours, practitioners can then become much more informed about how to create situations in which children learn more effectively and with more purpose.

ASSIMILATION AND ACCOMMODATION

In attempting to understand schema, it is also important to differentiate these from *concepts*. Hayes (1994, pp. 143–4) has referred to schema as being like cognitive maps, which enable such activities as planning whilst concepts are to do with classifying objects and phenomena. Hayes also emphasized how Piaget had placed great emphasis on children acting on their environments, which are at the heart of children's thinking. By acting on their environments, children *assimilate* and then *accommodate* new information, which then guides their behaviours and learning. *Assimilation* is where new information comes to be absorbed by the child within their *schema* without any real manipulation of that information. *Accommodation*

is where *schema* then develop, in order to facilitate the acquisition of the new information.

View the YouTube video, 'Schemas, assimilation, and accommodation': www.youtube.com/watch?v=BMc9TPwoVxQ, which explores 'schemas', 'assimilation' and 'accommodation' and how these processes contribute to what Piaget referred to as 'equilibrium'.

STAGES OF INTELLECTUAL DEVELOPMENT

Further to his ideas on *schema*, Piaget argued that cognitive development in children follows a series of stages, which he suggested are 'invariant', that is, they pass through one stage before progressing to the next. Piaget's stages are as follows:

THE SENSORIMOTOR STAGE (0-2 YEARS)

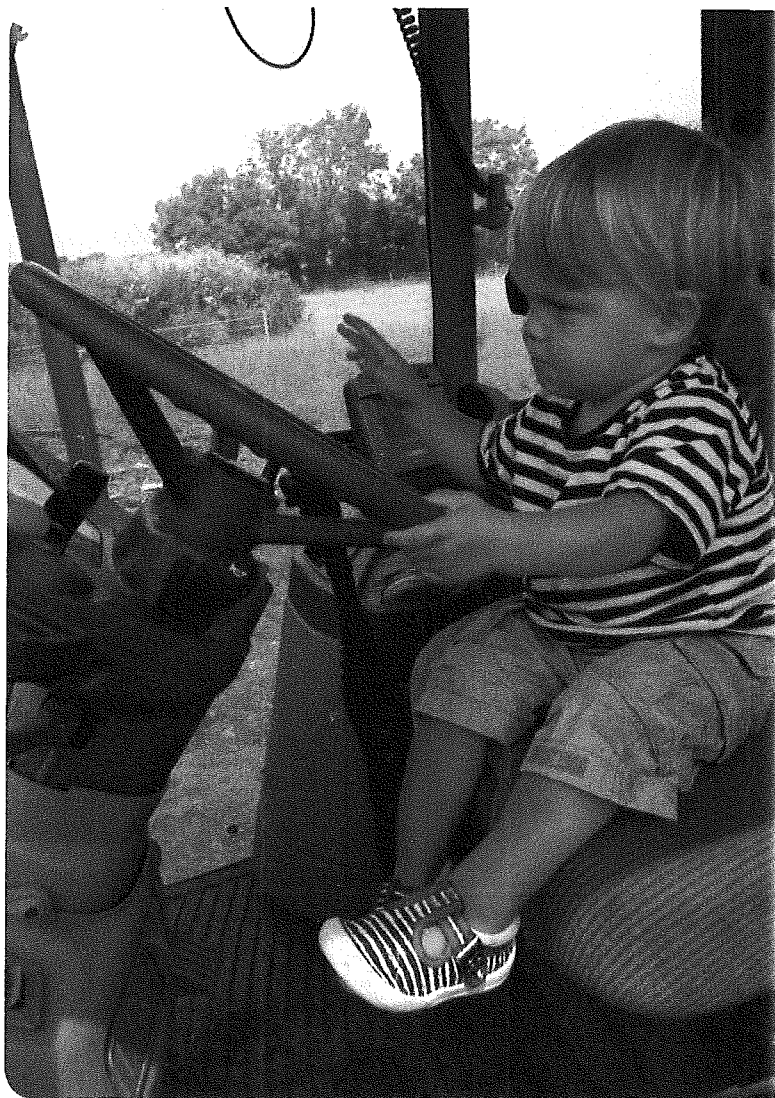
Piaget saw the first stage of cognitive growth as the *sensorimotor stage*. This is when infants learn through their senses. They do this through, for example, sucking, touching, and visually attending to others around them. Piaget suggested that newly born infants are not capable of 'thinking', but instead engage in a whole range of reflexive activities such as grasping, which are essentially innate and which they are born with.

THE PREOPERATIONAL STAGE (2-7 YEARS)

Language is a key feature of this next stage as it is language that greatly facilitates the development of *schema* through *assimilation* and *accommodation*. This stage involves two further sub-stages – the



Experience of the environment builds intellectual development and promotes learning



Learning through imitation is a powerful means of developing thinking

preconceptual (2–4 years) and the *intuitive* (4–7 years). During the first of these, children increasingly engage in imaginative and symbolic play which typically involves an increasing use of words and symbols to represent objects or people. Imitation of the behaviours of others can be observed during this stage. Piaget saw play as an essential element in the cognitive development of young children at this stage. He acknowledged, however, that children's thinking during this stage can be limited by such factors as 'egocentrism', 'rigidity in thinking' and 'transductive reasoning' (MacBlain, 2014). 'Egocentrism' seeks to explain why young children appear unable to see the world from the perspective of others. With 'rigidity in thinking', Piaget believed that children of this age have not developed to a level whereby they can reverse sequences and adapt meaningfully to a change in the appearance of their immediate environment. 'Transductive reasoning'

can be observed where young children make inferences about relationships when, in reality, there are none. Such thinking begins to disappear around the age of 4 years. Thinking, however, in the latter stage of the preoperational stage appears to remain intuitive, i.e. it is based on such observables as shape, size and colour, as opposed to being logical (MacBlain, 2014).

Piaget believed that during the *intuitive stage* (4–7 years) children are developing their thinking to levels where they can start to stand back and see the whole, as opposed to previously being only able to see the details of things. He referred to this process as *decentring* and suggested that children's thinking also remains limited here, in as much as they have not yet fully developed the capacity to shift attention away from the detail of something and transfer it to the whole and back again. A child at this stage, for example, who is observing an adult pouring a fixed amount of water from a short fat glass into a long slim glass, will typically say that there is more water in the taller glass. Piaget referred to this type of thinking as *conservation* and proposed that a child's capacity to conserve marks the ending of the preoperational stage and the beginning of the next stage, concrete operations.

CONCRETE OPERATIONAL STAGE (7–11 YEARS)

A key difference between the preoperational stage and the concrete operational stage is that, in the latter, children have now developed the capacity to apply logic as a way of problem solving. Piaget proposed that logic, which is characterized by operational rules, develops gradually, as children construct newer and more



Thinking needs to be supported by careful observation and purposeful activity



Exploring the natural world builds capacity for logical thinking and future problem solving

complicated skills and organize these into increasingly complex semantic structures. In this way, children's thinking becomes more flexible, though it remains constrained by the need to have concrete objects present. Piaget used the term 'horizontal decalage' to explain the inconsistencies in development which can be observed in children. This can be better understood in terms of the inconsistent performance by children when engaged in tasks that require them to process similar mental operations. Whilst some children will readily succeed with certain tasks, other children of the same age will not.

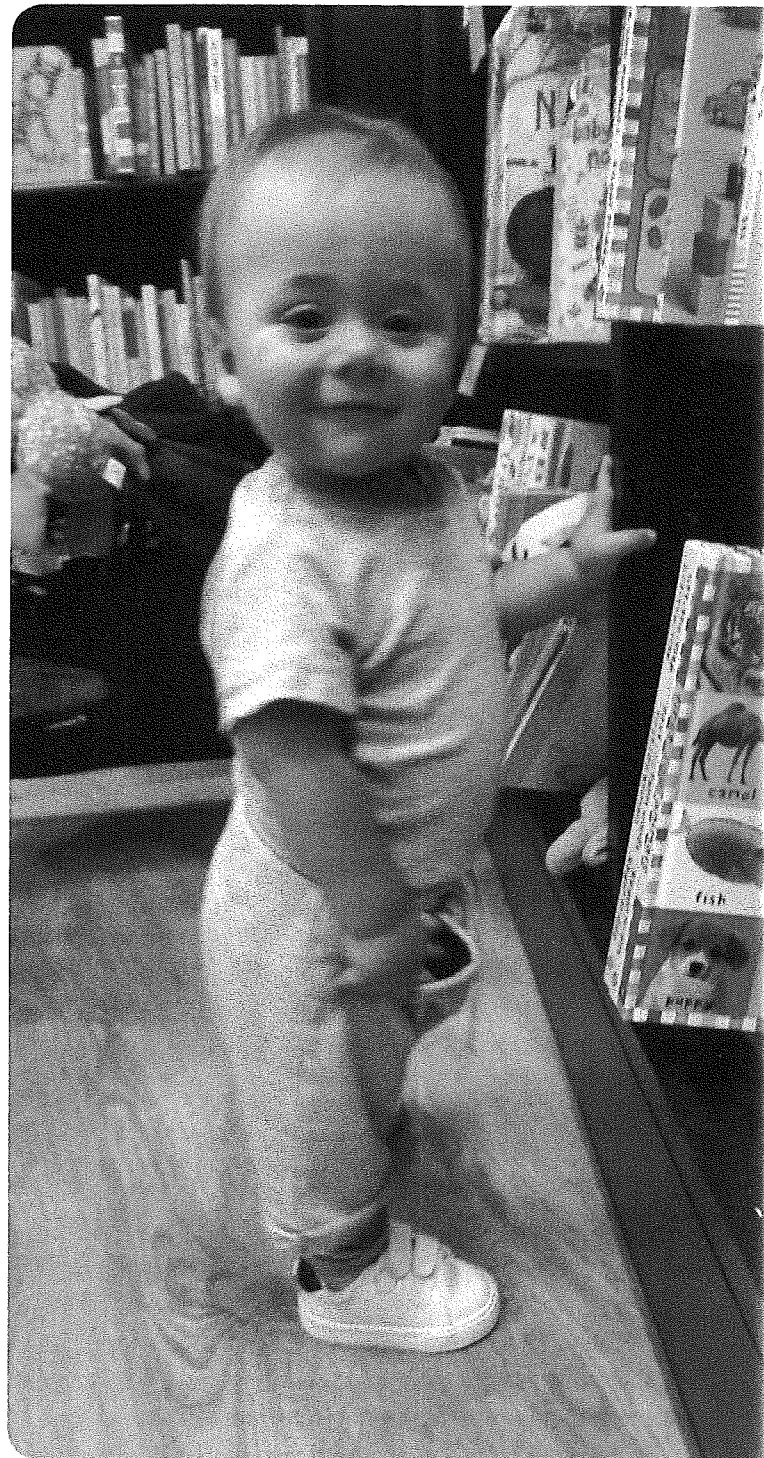
FORMAL OPERATIONAL STAGE (11-15 YEARS)

It is during this stage, Piaget argued, that children's cognitive development can be observed at its highest level. Thinking at this stage is more flexible and more symbolic and is no longer limited to the experience of the child, or their immediate reality. Children can, for example, start to think and talk with others about the future and can transcend themselves to other places and situations using language. Experiences can also be dealt with in a more objective way. Piaget further argued that during this stage thinking becomes more logical, with children being observed engaging in deductive reasoning. Children begin to test hypotheses and to be more objective and reflective in their thinking.

WHAT THE THEORY LOOKS LIKE IN PRACTICE

Piaget argued that teachers need to engage children in tasks that are stimulating and that are appropriate to their stage of development, as opposed to trying to accelerate their learning. Though this view gained acceptance at the time, it also generated considerable debate and, in some quarters, was heavily criticized, particularly by those who viewed children's cognitive development as uneven across the general population. Whilst Piaget initially believed that teaching should be appropriate to the age of the child, he later altered this view, acknowledging that children's thinking develops at different rates and, therefore, they may be capable of engaging in more sophisticated and intellectually challenging learning. This is an important point, for during the 1960s and 1970s much practice in the UK was informed by Piaget's early views that children might not have developed their thinking enough to progress to more challenging elements of learning.

Piaget was not just interested in how children arrive at correct answers to problems, but also why they failed to arrive at the correct answers. This has become an important aspect of practice in early years education and primary schools where practitioners and teachers are encouraged to understand children's misconceptions and why they may repeat errors.



Experiences provided by adults prepare the way for intellectual development and future learning

CASE STUDY: EGOCENTRISM IN ACTION

Jane is 2 years of age and is playing the game 'hide and seek'. To her older brother's frustration, on each occasion that they play the game she turns around and covers her eyes. She thinks that because she cannot see her brother and her eyes are closed, he is unable to see her. Piaget believed that this kind of thinking, which he referred to as *egocentrism*, pervades the thinking of children at this age. He also suggested that it went some way to offering an explanation as to why young children can be observed to ascribe feelings to objects around them.

CASE STUDY: RIGIDITY IN THINKING

Martin's dad is looking after him whilst his wife is visiting relatives. He begins to prepare lunch and cooks four sausages and some vegetables. He then sits Martin in his highchair and places two sausages in Martin's bowl and two on his own plate. On reflection, he reconsiders the number of sausages he has given himself as he is quite hungry. He quickly reaches over and takes back one of Martin's sausages for himself. On seeing this, Martin goes into spasms of anger because he has had one of his sausages taken from him – now there is only one sausage in his bowl. Martin's dad, however, who has recently studied the work of Piaget, promptly cuts Martin's one remaining sausage into lots of smaller pieces – Martin looks at his bowl, which now has 'lots of sausages' in it, and immediately stops crying and starts to eat – he now appears happy because he 'thinks' he has 'lots of sausages'.

CASE STUDY: TRANSDUCTIVE REASONING IN ACTION

Young children make inferences about relationships where there may be none. Take Oliver, for example, whose mother is pregnant with his sister-to-be. He observes his mother to have a very large tummy and when he sees other women who are overweight, he asks his mother if they will also be having a baby. Here, Oliver is relying only on what he observes, that is size, as opposed to applying logic.

Importantly, Piaget focused on the idea of *readiness* and the notion that instead of children being accelerated in their learning, they should be viewed as being at certain *stages of readiness* before being progressed, by their teachers, on to approaching tasks and problems that are more intellectually demanding.

STRENGTHS AND WEAKNESSES OF THE THEORY

Piaget has been criticized on the grounds that he saw cognitive development as being defined by different stages, in contrast, for example, to the thinking of Vygotsky and Bruner. Later on, Piaget (1970) modified this view, as with other aspects of his theory, to suggest more of a 'spiral' process of intellectual development in children, reflecting an expanding and upward process through which children actively engage in reconstructing existing knowledge. He did not, however, account for why

children are driven to move from one stage to another. Methods used by Piaget to investigate how children learn have been criticized as the sample sizes were small, the language used in his experimental situations was at times too complex for the children (Meadows, 1993) and he tended to observe his own children.

Donaldson (1978) was especially critical of the sort of questions Piaget used in his experiments with children, suggesting that these were too often asked in a manner as to 'catch children out' rather than help them. Piaget was also accused of generalizing observations which were taken from white, middle-class children of largely educated parents. Donaldson (1978) cautioned that Piaget had suggested how children were limited by the stage of development they were at when, in fact, his perceived limitations of children's thinking and development were more to do with the nature of the tasks he set the children. Donaldson's ideas,

related in her celebrated text *Children's Minds*, are worth considering as they offer excellent insights into the potential shortcomings of Piaget's ideas.

LINKS TO OTHER THEORIES

Piaget believed that knowledge and meaning are actively constructed by children through interacting with the environments in which they live and grow up. Such a belief can be seen as a major departure from the ideas of the behaviourists who viewed children's learning and development as more of a passive state where children are, in effect, the recipients of information that arises from the environments in which they live (MacBlain, 2014). Piaget's ideas were well received at the time and grew in popularity, influencing the practice of many early years practitioners and primary teachers for decades. Indeed, his ideas continue to influence much thinking practice in the early years even today. Piaget also departed from the emphasis that behaviourists had placed on undertaking 'artificial' experiments with children in laboratory settings, choosing instead to observe and listen carefully to children as they engaged in natural activities and in natural settings. In contrast to the behaviourists, Piaget very much led the way in exploring and accounting for those internal processes that underpin learning and explain thinking. He gave to researchers in the field of education and psychology new ways of explaining early child development, most notably observation with an important emphasis on child-centredness and language.

For Piaget, it was the 'whole' child that should be at the centre of experimentation and not just the observable behaviours. Those who embraced the ideas of Piaget and, particularly, early years practitioners have also been drawn to the similarities between his ideas and those of other theorists such as Froebel, Montessori and Dewey, especially the view that young children learn best when engaged in practical activities where the role of teachers and practitioners is to nurture children's social and emotional development by removing any artificial barriers to learning (MacBlain and Bowman, 2016). Like Dewey, Piaget viewed the role of the teacher/practitioner very much in terms of child-centredness and dependent to a large extent on the environment. The child was to be viewed in terms of engaging in 'discovery' and this was to be at the very centre of learning.

ACTIVITIES AND POINTS FOR DISCUSSION

Activity: Identify activities that you have observed children engaging in that might indicate increased cognitive development. Then, consider what role language might have played in this process.

Discussion Point: Do children develop through identifiable stages? If so, what is your evidence for believing this and, if not, offer a rationale to support your own views?

EXTENDED AND RECOMMENDED READING

Athey, C. (1990/2003) *Extending Thought in Young Children: A Parent-Teacher Partnership*. London: Paul Chapman Publishing/Sage.

Gray, C. and MacBlain, S.F. (2015) *Learning Theories in Childhood* (2nd edn). London: Sage.

Nutbrown, C. (2006) *Threads of Thinking: Young Children Learning and the Role of Early Education*. London: Sage.

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