

JEROME BRUNER AND CONSTRUCTIVISM

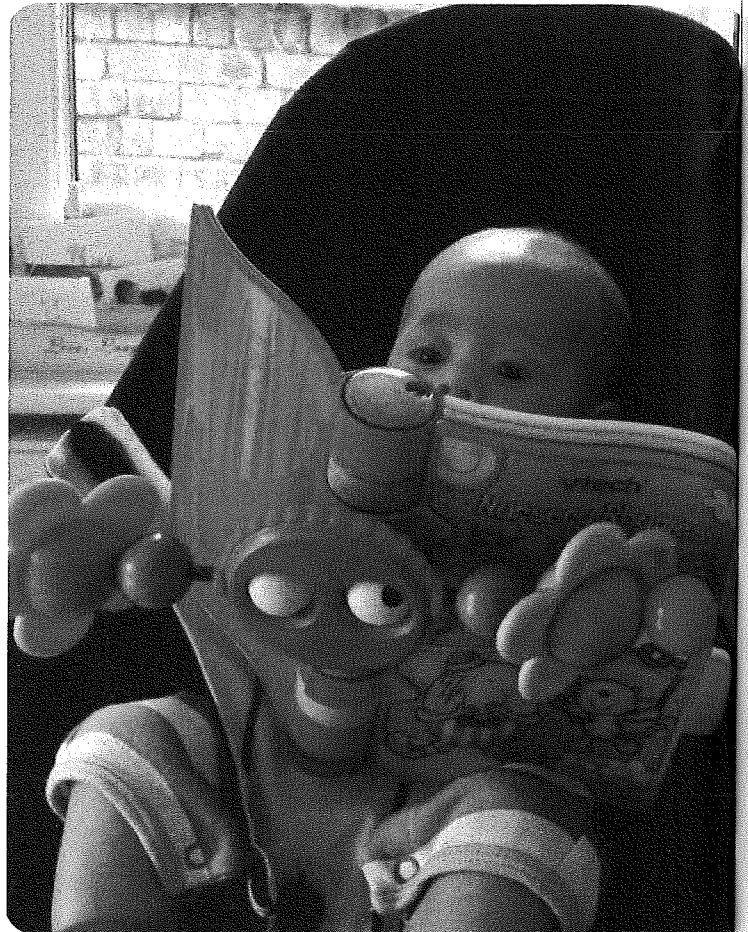
THE THEORIST (1915–2016)

Jerome Bruner was born in 1915 in New York, USA and is considered to be one of the leading contributors to our understanding of learning. Though initially a psychologist, Bruner became an established figure in the field of education and developed new ways of thinking about children's learning. Bruner's purpose in developing his theoretical perspective was largely driven by his need to challenge the thinking of his time, which was dominated by the traditions of psychodynamics and behaviourism, originating in the works of Sigmund Freud, and Pavlov and Skinner.

KEY PUBLICATIONS

Bruner, J. (1960) *The Process of Education*. Cambridge, MA: Harvard University Press.

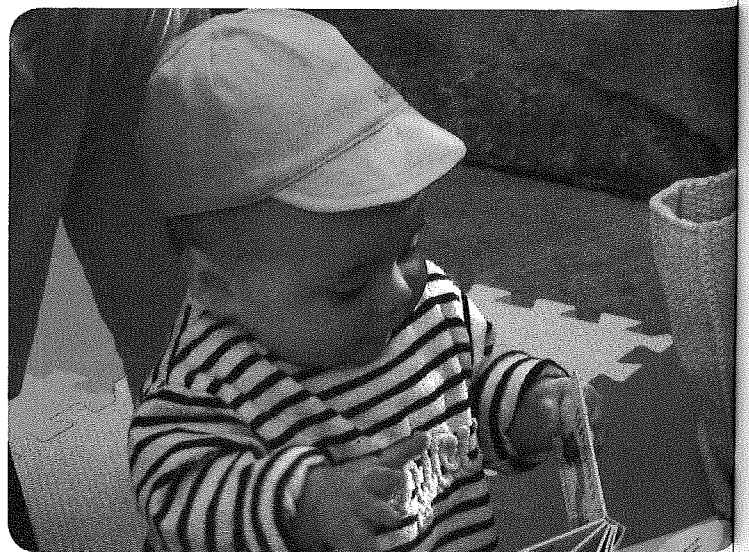
Bruner, J. (1996) *Culture of Education*. Cambridge, MA: Harvard University Press.



UNDERSTANDING THE THEORY

Central to Bruner's theory of learning is the notion of *instrumental conceptualism*, which has three key elements: acquiring new information or knowledge; transforming and manipulating knowledge; and checking knowledge. Bruner based his theory of learning on two fundamental assertions, the first being that children's knowledge of the world is based on models of reality that they construct, and the second that these models are initially adopted from their own cultures, which they then adapt for their own future use.

Bruner rejected many of the theories of learning that influenced practice in school at the time, preferring instead to emphasize how children might and should become more involved in their own learning. His ideas on learning and how these contrasted with other theories of learning were encapsulated some decades ago by Brown



Acquiring new knowledge begins at even the earliest stages of development

(1977, p.74) who suggested that Bruner viewed research into children's learning in problem-solving situations as being overly focused on the type of tasks and stimuli presented to them, with not enough emphasis being given to the 'dynamic qualities' that each child brought to such tasks when attempting to solve them

HOW CHILDREN THINK

Bruner argued that children represent their worlds through three modes, which he called the *enactive*, *iconic* and *symbolic* modes. The first refers to actions, the second to images and pictures, and the third to words and symbols. The three modes do not follow in succession, as was the case with Piaget's idea of successive stages. Instead, they are integrated with one another and their use is linked to the level of experience the child has.

Bruner was particularly concerned with how stimuli are represented by children as symbols and words, how these representations change with experience, and how they connect with existing concepts which lead to generalization. The representation of stimuli through symbols such as words was, for Bruner, of a much higher order than images. He saw the inferences that children make through words and symbols as being key to their learning.

THE ENACTIVE MODE

With the *enactive* mode, an infant's view of an object becomes linked with their physical movements. Consider a very young baby lying in a cot who is offered a rattle by her mother. The baby shakes the rattle, which makes a noise, and in so doing the baby is alerted to the noise. Whenever the child is again offered the rattle, she will shake it; over time, her physical movements will come to be linked to the noise and to the actual rattle, and will become gradually encoded within her memory store through what psychologists and teachers commonly refer to as 'kinaesthetic memory'.

THE ICONIC MODE

With the *iconic* mode, Bruner proposed that children internally represent objects within their thinking as images and in so doing progress their thinking significantly. Being able to store images means that children can extend their thinking to objects which are not immediately present in their environment. Bruner acknowledged that this mode has limitations, as images

held by the child are, for example, restricted to specific observable features such as colour, smell and texture. Though children can represent images of objects and images of people around them internally such as their parents and siblings, the *iconic* mode falls short of allowing them to internally represent more abstract concepts such as kindness and happiness. To do this, they require language, which will then allow them to represent such concepts within their thinking; it is this important element that is central to the *symbolic* mode.

THE SYMBOLIC MODE

The difference between the *iconic* mode and symbols that are central to the *symbolic* mode can be understood as follows: A picture of a cow is an icon as it represents the animal in a real manner; the symbols 'C', 'O', 'W', however, demonstrate the existence of this animal because the combination of these letters has been accepted by everyone (Brown, 1977)

As children's abilities with language develop, they can physically remove themselves from situations and still think about them. They can also engage verbally with others and talk in increasingly sophisticated ways

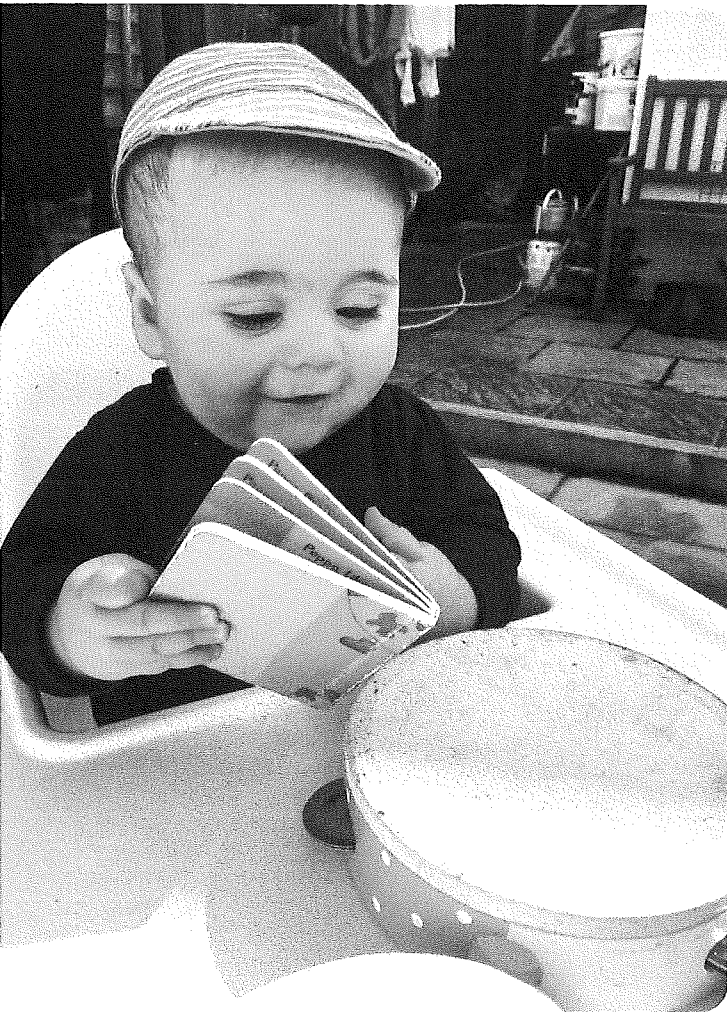


The joys of written language can begin at even the earliest of stages

about situations that are not immediately present to them or about events they believe might occur in the future. Importantly, they can engage with others in problem solving and reflection, which Bruner argued are two of the most crucial features, central to the development of thinking and, more specifically, higher order thinking skills.

THE IMPORTANCE OF STRATEGIES

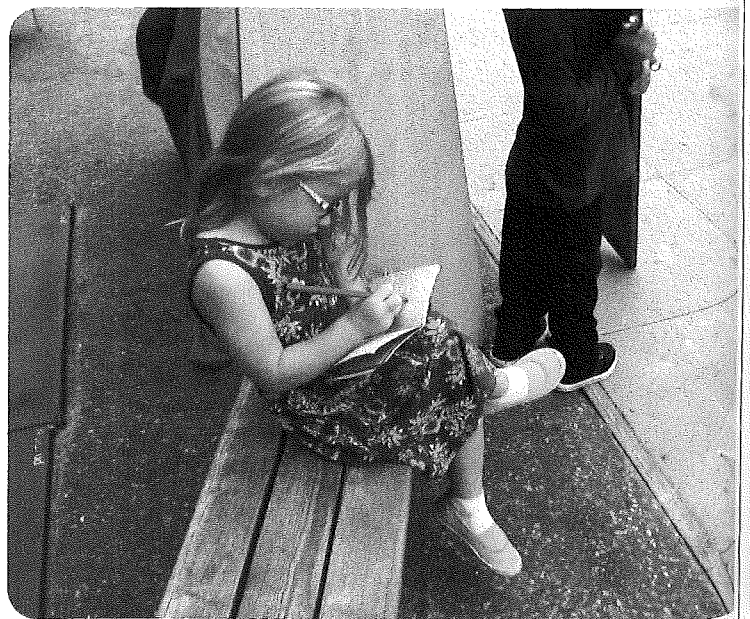
Bruner was particularly interested in the types of strategies used by children when they engage in learning new tasks, and especially when learning involves problem-solving activities. He suggested that the thinking (internal cognitive structures) of children who engage a lot with reading and writing will typically differ from those children who mostly absorb themselves with activities that are much less language-oriented, such as drawing and construction (Brown, 1977).



Through spoken and written language, children learn to represent concepts in their thinking

THE IMPORTANCE OF LANGUAGE

Bruner suggested that children who engage a great deal with adults and older peers through spoken language typically differ from those children who do not. His reasoning for this was that young children naturally engage in verbal interaction with those around them anyway. This type of 'natural' engagement may not, like that of verbal interaction with adults, extend and progress their abilities to internally represent thinking through vocabulary and more complicated language structures. He also suggested that when



Reading and writing offer opportunities for deeper reflection

children actively engage in writing with purpose, a fundamental transformative process occurs, whereby the children can then engage in deeper reflection and critical analysis of their own ideas and those of others.

SCAFFOLDING

The term *scaffolding*, though developed by Bruner, was originally coined by Wood et al. (1976, cited in Gray and MacBlain, 2015, p. 6). This process, whereby adults work alongside children to support and progress their learning, can be extremely effective and highly motivating for children. Amongst the many benefits of scaffolding is the important fact that, rather than being a rigid process, it is very flexible and can be employed by practitioners in almost any setting with very positive results.

DISCOVERY LEARNING

Bruner placed great emphasis on *discovery learning*, where adults create environments with the aim of offering children meaningful and purposeful opportunities to apply their own resources and learn through exploration. In this way, they can extend the cognitive capacity and functioning of the children, both of which lie at the very heart of learning. Much of course depends on the situations that are created, and it almost goes without saying that different situations and activities yield different results.

WHAT THE THEORY LOOKS LIKE IN PRACTICE

It is possible to observe, on a daily basis, the ideas that are central to Bruner's theory being put into practice in early years settings, at primary school and in the home. Often, this is done without adults being fully aware that the activities children are engaged in reflect the underlying principles of Bruner's theory. For example, Bruner argued strongly that the level of interest children have in a subject is one of the key factors in their learning and that motivating children is a key function of the work of teachers and practitioners.

Every day, practitioners in early years settings create activities that excite children and encourage them to work collaboratively to construct new ideas and new thinking. Indeed, the excitement of young children being introduced to a new topic can often be described as almost tangible.



New environments lead to new discoveries and new learning

Bruner also emphasized the importance of teachers knowing what existing knowledge children have and then building on this – the notion of a 'spiral' curriculum where adults provide children with choice and create opportunities for them to develop their vocabulary, the types of sentences they use and how they listen to others and contribute to group activities, for example with creative play. Now consider the following two case studies, which demonstrate key elements of Bruner's theory in practice.

CASE STUDY: CONSTRUCTIVISM IN ACTION

It is a cold and frosty day and Ms Malik takes her group of pre-school children outside to explore the ice and frost that have formed during the night. Along with the other adults, she encourages the children to make marks in the frost and look closely at the patterns that have formed in the frozen puddles on the ground. The children are encouraged to use new words spoken by the adults, such as 'sparkling' and 'slippery', as they experience the physical impact on their senses of the cold and the slipperiness underfoot.

When they return inside, the children are encouraged to take pieces of ice with them and then drop different coloured dyes on to the ice and observe the patterns that form. Again, new words are offered by the adults to increase the children's vocabulary and to give them the language tools to extend their thinking. The children are then encouraged to use these new words and to ask new questions of the adults to support them in understanding the physical nature of the ice and the process by which water comes to be frozen. They are also encouraged to engage in problem solving and investigating 'ice' further, using relevant books and pictures.

CASE STUDY: THE SYMBOLIC MODE IN PRACTICE

The teacher gives a group of children one piece of A4 paper and a book and challenges them to stand the piece of paper on its side and balance the book on top. She is interested in how they cooperate to complete the task, the strategies they employ and their use of language. She listens as they begin:

Cara: This is stupid, it's silly. We can't do this.

Fiona: Wait, I think we could change the shape of the paper.

Nicola: Yes, good idea. What if we fold the paper like in a zigzag shape?

Fiona: Yes. Turn the paper on its side in a zigzag and then we can balance the book on top. That makes the paper stronger.

This example is a good illustration of children constructing meaning at the symbolic level. By starting her sentence with, 'Wait, I think we could...' Fiona has begun to engage in logical reasoning, which is of a much higher order than Cara's response, which is only a reaction to the problem. Fiona's hypothesis is tested not just by her attempts at physically manipulating the paper but also, importantly, by the responses of her peers. For example, Nicola has agreed to Fiona's suggestion to alter the shape of the paper, thereby confirming her logical thinking and hypothesis. By further suggesting that they could make a concertina shape with the paper, she has extended and progressed Fiona's thinking and built on Fiona's existing knowledge.

STRENGTHS AND WEAKNESSES OF THE THEORY

Bruner's theory has much to offer practitioners in the early years. It places children at the heart of the learning experience, emphasizes the importance of language and social interaction, and the progression of thinking through constructing new understanding. Criticisms have been levelled at Bruner's ideas, however, particularly his notion of *discovery learning*. It has been argued, for example, that when given opportunities to engage in learning through discovery, children may acquire misconceptions which go unnoticed by their teachers and which then distort aspects of their future learning. A further criticism is

that, whilst *discovery learning* suits the learning styles of some children, it may not be the most appropriate for other children, who may, for example, prefer a more didactic way of learning. There are also those parents and schools who would perceive this way of learning as a poor use of children's time, preferring instead to use the time in a more formal way with the children being 'taught directly' by teachers.

LINKS TO OTHER THEORIES

Like Piaget, Bruner believed that learning should be a process of social interaction in which children are active participants and involve themselves

fully, for example in problem solving. Unlike Piaget, however, who placed far greater emphasis on the environment, Bruner saw the role of the teacher as being central to children's learning. In contrast to the behaviourists, Bruner was more concerned with what happens 'inside' children's minds between a stimulus being emitted and children making their responses. Behaviourists, he felt, had really concerned themselves too much with how children react to stimuli. Like Vygotsky, he viewed children's learning as a social activity, which could be progressed through language and instruction from others, for example parents and teachers. Bruner developed Vygotsky's idea of learning as a social activity, suggesting, for example, that children can be observed everywhere learning alongside adults who structure activities for them within varying social contexts.

ACTIVITIES AND POINTS FOR DISCUSSION

Activity: Give one piece of A4 paper and a book to a group of children and challenge them to balance the book on the edge of the paper. Observe their attempts and try to identify the vocabulary and sentences they use to communicate their ideas to one another (the symbolic mode). (If they are successful, they will fold the sheet of paper in a concertina shape and turn it on its side, which will enable them to balance the book.)

Discussion Points: Identify examples of 'scaffolding' that you might have observed and then consider the following:

1. Could children have learned just as well without an adult being involved?
2. How can language be used to support scaffolding in young children?

EXTENDED AND RECOMMENDED READING

Bruce, T. (2011) *Early Childhood Education* (4th edn). London: Hodder. (A comprehensive and accessible account of early childhood.)

Gray, C. and MacBlain, S.F. (2015) *Learning Theories in Childhood* (2nd edn). London: Sage. (Chapter 8 is a very readable and informative chapter on the ideas of Bruner and how these relate to practice in the early years.)

MacBlain, S.F. and Bowman, H. (2016) 'Teaching and learning', in D. Wyse and S. Rogers (eds), *A Guide to Early Years and Primary Teaching*. London: Sage. (An informative chapter that focuses on what makes for good practice in children's learning at primary school and in early years settings.)

REFERENCES

Brown, G. (1977) *Child Development*. Shepton Mallet: Open Books.

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

Wood, D., Bruner, J.S. and Ross, G. (1976) 'The role of tutoring in problem solving', *Journal of Child Psychology and Psychiatry*, 17(2): 81–100.