1 AN INTRODUCTION TO LEARNING THEORIES

This chapter aims to:

- familiarize the reader with the organization and structure of the book
- provide a brief synopsis of each chapter.

More than thirty years ago, seminal studies conducted by DeCasper and Fifer (1980) and Hepper (1996) offered the first tangible proof that learning precedes birth. From the third tremester, DeCasper and Fifer had mothers read aloud the Dr Seuss story *The Cat in the Hat* at regular intervals before birth. Immediately after birth, they exposed babies to a nonneutritive nipple. Sucking on the nipple activated a recording of the story read by the baby's mother or another female. In all instances, babies suckled harder and faster to hear their mother's voice. Hepper's (1996) relaxation study revealed that babies could make associations prior to birth (see Gray and MacBlain, 2012). More recently, Moon et al. (2012) identified 30 weeks (a time when the sensory and brain mechanisms for hearing are intact) as a critical period for learning. Their research suggests that exposure to complex sounds 10 weeks prior to birth can be learned and remembered up to six months after birth.

These findings and evidence from non-invasive brain imaging studies provide important insights into the course of cognitive development. For example, synaptic formation, necessary for the development of complex neural connections, occurs in the first years of life, whereas the central cortex, which plays a key role in memory, attention, perceptual awareness, thought and language, continues to develop throughout adolescence and early adulthood (Stiles and Jernigan, 2010). Experience and the environment are also central to brain development (Robson, 2012). Greenough et al. (1987) coined the terms '*experience-expectant*' and '*experience-dependent*'. The former refers to the critical role of experience in brain development during the

early post-natal stage of life. The latter captures the essential role of learning in neural development. It is argued that an enriched learning environment can have a dramatic effect on the complexity and functioning of the developing brain (Stiles and Jernigan, 2010).

Some learning is incidental, effortless and undirected, whilst other learning is effortful, purposeful, directed, creative and reflective. For example, you might settle down to show a toddler how Lego Duplo® bricks fit together (directed learning) but find their attention drawn to an activity at the writing table (incidental learning). By the end of the session, the child might report the sounding out words used in the writing activity, 'S is a snake, a slithering snake', but have no clue about putting Lego Duplo bricks together. This situation reflects the sheer complexity of human learning. It also highlights how distraction can degrade learning. Indeed, the negative effect of situational factors such as visual displays, noise and lighting have on young children's learning is the theme of a provocation provided by *Teachers TV – A positive learning environment* (see Chapter 2).

Evidence suggests that early experiences are generally forgotten (for a discussion of childhood amnesia, see Hamilton, 2014; Bauer, 2013). This is attributed to the overwhelming amount of information young children encounter in their early life. Whilst seminal events may be remembered, holidays, visits to theme parks and so on may be forgotten. In contrast, skills acquired in early childhood such as walking, talking, riding a bike, reading and writing are typically retained. Simply stated, learning acquired through experience involves the acquisition of knowledge and skills (David et al., 2011).

For more than 2,000 years, philosophers, academics and educators have attempted to explain and define human learning. The Greek philosopher Aristotle (384–322 BC) believed that learning develops through repetitive exercises. According to Aristotle, the State must be charged with responsibility for instilling virtue, habits, nature and reason into children and for ensuring that they became citizens of benefit to society. Almost a hundred years later, Socrates (470–399 BC) described learning as a process of remembering. He believed that all knowledge exists within the human soul before birth but, perhaps due to the trauma of birth, the soul forgets all it previously knew. Through a process of questioning and inquiry, termed '*Socratic dialogue*', the soul recovers some aspects of knowledge.

Definition

Learning: the acquisition of knowledge or skill.

In contrast, Locke (1632–1704) argued against the existence of innate ideas (formed before birth), describing the child's mind as a *tabula rasa* or blank slate. Consistent with Aristotelian philosophy, Locke believed that knowledge is acquired through experience, repetition, training and virtue. He emphasized the importance of enjoyable learning and insisted that teaching should begin in early childhood. Locke's assertions were radical for their time but were shared by a number of influential thinkers including, among many others, Pestalozzi (1746–1827), Froebel (1782–1852), Dewey (1859–1952) and Montessori (1870–1952). Whilst each offers a unique insight into children's learning, importantly for our discussion these philosophers and educators have a shared belief in the importance of educating the young child.

Rousseau (1712–78), for example, argued that education should follow the child's natural growth rather than the demands of society. His emphasis on the innate development of human nature became the primary philosophical basis for many alternative movements in education. In the early 1800s, the Swiss humanitarian Pestalozzi opened schools for orphans, based on Rousseau's principles. His work inspired educators in Europe and America. Froebel, a teacher at Pestalozzi's school, later became famous as the founder of the kindergarten concept. Montessori shared Froebel's belief that children should be taught social skills and empathy. While Froebel used creative and imaginative play to achieve his goals, Montessori employed real-world experiences such as cleaning a room, caring for animals, building a toy house or making a garden to develop these skills.

Dewey shared with Montessori and Froebel the notion that education should be child-centred, active and interactive, and that education must involve the child's social world and community. Influenced by the teaching philosophies of the early pioneers in the field of early childhood education, Dewey emphasized the importance of experiential learning and the process of teachers and children learning together. The teachings of the founding fathers and mothers of early childhood education are explored in greater detail in Chapter 3 where their unique contributions are highlighted. Similarly, the topic of experiential learning is given a more thorough analysis in Chapters 5 and 6 where we explore the theories of Piaget (1896–1980) and Vygotsky (1896–1934).

It is, however, theories of learning that form the central foci of this book. The last century witnessed a significant shift away from philosophical propositions to the development of a range of empirical theories of learning; each claims to explain the origins of some aspect of learning. Before considering influential educational theories of learning, in Chapter 2 we believe it is important to define the term *'theory'* and to explore the differences between a theory and a philosophy.

Chapter 4 introduces the theories of Pavlov (1849–1936), Thorndike (1874–1949), Watson (1878–1958) and Skinner (1904–1990). Each explored an aspect of learning underpinned by the principles of stimulus–response. For that reason, they are typically referred to as 'behaviourists'. A branch of psychology, *behaviourism* remained a dominant force in education for more than fifty years. Although it lost prominence in the 1970s, behaviourism continues to have an influence on pedagogical practice in 21st-century classrooms. Behaviourists believe that all behaviour, no matter how complex, can be reduced to a simple *'stimulus–response' association*. They focus on measurable outcomes rather than on introspective processes (imagination, feelings and thoughts etc.).

In the course of his experimental research with dogs, the physiologist Ivan Pavlov noted that dogs salivated when laboratory technicians entered the room. Further research revealed the dogs had made an association between the technicians (neutral stimulus) and food (stimulus) and this caused their drooling response. Termed *classical* or *Pavlovian conditioning*, the theory was developed further by Watson who demonstrated classical conditioning in humans using young boys known as Little Albert and Little Peter.

Skinner extended Watson's stimulus–response theory to explain more complex forms of learning. He believed it was possible to use the principles underpinning animal experimentation with infants and children. He coined the term *operant* or *instrumental conditioning* to explain the influence positive and negative reinforcers have on shaping and maintaining the child's behaviour. Skinner's theory continues to exert a direct and profound influence on education and is particularly evident in the reward and *punishment* systems teachers use to shape and maintain pupil behaviour. Star charts, praise, positive feedback and circle time are examples of popularly used *positive reinforcers* whilst time out is a *negative reinforcer*. The work of the social learning theorist Bandura (b. 1925) is included by some theorists in discussions on behaviourism (Woollard, 2010). Although he employed the experimental methods favoured by behaviourism, Bandura's inclusion of imagery, mental representations and reciprocal determinism (the child influences and is influenced by their environment) marked a radical departure from traditional behaviourist approaches. For that reason, his work is discussed in Chapter 7 alongside Bronfenbrenner's (1917–2005) social learning theory.

Chapter 5 considers the constructivist theory of learning. Though they continue to co-exist, this theory offers a considerable departure from that of behaviourism. Constructivism views learning as an active, constructive process with the child engaged at every stage. Rather than focus on measurement, cognitive theorists use observations and discourse analysis (interviews) to explain the development of internal cognitive processes. The term *cognition* refers to

internal mental processes and *cognitive development* to the acquisition of 'knowledge in childhood'. Cognitive constructivism is based on the work of the Swiss biologist and naturalist Jean Piaget. Whilst working with the French psychologist Alfred Binet (the inventor of the first intelligence test), Piaget became curious about the structure of the child's mind. From an analysis of interviews with children of differing ages as they solved problems and his observations of the process, Piaget concluded that older children think in a very different way from younger children. It wasn't simply that older children knew more but that their thought processes had undergone some form of maturational (age-related) change. Piaget continued to study child development for several decades before positing the theory that intellectual development occurs in four distinct stages. Each of these stages is described in detail in this chapter with the strengths and shortcomings of a staged-approach to learning discussed.

Chapter 6 extends the concepts introduced in Chapter 5. Vygotsky, a Russian developmental psychologist, expanded many of the concepts outlined by Piaget to incorporate the child's social environment. He stressed the fundamental role of social interaction in the development of cognition. Vygotsky believed that each child is born with a basic set of unlearned cognitive functions such as memory and attention that facilitate high-level learning. As young children can absorb the rules and *mores* of their culture, Vygotsky believed that learning can precede understanding, whereas Piaget believed that development precedes learning. According to Vygotsky,

> [e]very function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological) (1978, p. 57).

Both Piaget and Vygotsky believed that young children are curious and actively involved in their own learning and in the discovery and development of new understandings/schemas. Whereas Vygotsky placed more emphasis on social contributions to the process of development, Piaget emphasized self-initiated discovery. These points will be considered in greater detail in Chapter 7 where the zone of proximal development, role of *culture*, social factors, language, *peers* and educators are explored in detail.

Chapter 7 examines the social learning theories of Bandura and Bronfenbrenner. As previously discussed (see Chapter 4 above), Bandura's social learning theory has its roots in behaviourism. Whilst sharing the experimental approaches of his contemporaries, Bandura argued that to exclude thinking from any theory of learning would be like reducing 'Shakespeare's literary masterpieces to his prior instruction in the mechanics of writing' (1978, p. 350). Social learning theory advocates that

individuals, especially children, imitate or copy modelled behaviour from personally observing others, the environment and the mass media. Reflecting the central tenets of traditional behaviourism, Bandura believed that behaviour can be shaped and maintained by reinforcement. He extended this theory to include two aspects of indirect reinforcement termed *vicarious and self reinforcement*. Vicarious reinforcement or observational learning occurs when a child witnesses the effects of an event and stores it in memory. By way of example, pre-school children refused to wear their seatbelts after watching the children's cartoon character Peppa Pig and her brother George sitting in the back seat of a car without seatbelts. Following complaints from parents, the producers rectified the problem (BBC News, 2010). This example serves to indicate that, consistent with Bandura's theory, the relationship between viewers and television is reciprocal, with each reacting and shaping the other.

Similar themes inform Bronfenbrenner's ecological model of child development. Bronfenbrenner acknowledged the role of media, technology, culture and society on childhood development. Like Bandura, Bronfenbrenner believed that technology has the potential to change and even damage society (Henderson, 1995), and that the child influences and is influenced by their environment. Bronfenbrenner was one of the first psychologists to adopt a holistic perspective of human development. His ecological model of development comprises five interrelated systems each containing the roles, norms and rules that powerfully shape development. Bronfenbrenner recognized that not only is it necessary to understand how the family or school influences human development, but broader influences as well.

Chapter 8 considers Bruner's (b. 1915) discovery learning theory of constructivism. Bruner was influenced by Piaget's ideas about cognitive development in children. During the 1940s, his early work focused on the impact of needs, motivations, expectations (mental sets) and their influence on perception. Like Piaget, he emphasizes action and problem solving in children's learning, but like Vygotsky he underlines the role of social interaction, language and instruction in the development of thinking. To achieve this goal, he devised the concept of *scaffolding*. Whilst the term 'scaffolding' is most closely associated with Bruner, it was coined by Wood et al. (1976) to describe the type of support children need to achieve the zone of development. Though a psychologist by training, Bruner became a prominent figure in education and wrote several influential and highly regarded texts for teachers including *The Process of Education* (1960), *Toward a Theory of Instruction* (1966), *The Relevance of Education* (1971) and *The Culture of Education* (1996). The final section of this chapter includes a detailed review of constructivist and social constructivist theories drawing out similar and disparate threads.

Chapter 9 examines children's learning through the lens of a newly evolving paradigm variously referred to as the 'new social studies of childhood' and the 'new sociology of childhood'. The origins of this theory can be traced to the United Nations Convention on the Rights of the Child (UNCRC, 1989), which was ratified in the UK in 1991. The UNCRC established children's rights to provision, protection and participation and changed the way children were viewed by many social and developmental researchers (Corosa, 2004). In challenging the objectification of children, the UNCRC heralded a well-documented shift away from research being conducted 'on' to research being conducted 'with' children (Porter and Lacey, 2005). Critical of traditional approaches to research on children's learning, proponents of the social studies of childhood reject the empirical methods favoured by behaviourists and critique Piaget's explanation of universal age-related competencies. Advocates of this newly evolving paradigm share the natural methods of enquiry favoured by Piaget and embrace key concepts of the socio-constructivist and ecological theories. This chapter seeks to explore this contemporary theory with reference to more traditional approaches to children's development and learning.

The final chapter of this book offers a departure from theory (Chapter 10). It is written especially for people who work with or care for young children and who would like to enhance children's learning. Consideration is given to the challenges inherent in creating a learning–teaching environment where children play together in creative, investigative and problem-solving ways, where they take ownership of and responsibility for their own learning, and where emotional and imaginative needs are met (Broadbent, 2006, p. 192). In addition, the role of the adult as a facilitator of learning is explored with reference to the theories of Vygotsky, Bronfenbrenner and Bruner. The role of sustained shared thinking in developing children's understanding and critical awareness is also explored. Practical examples from practice pepper and inform this chapter, which seeks to demonstrate the dynamic relationship between theory and practice.

At the end of the book is a Glossary of terms used in the book, which are also italicized on first appearance. The Appendix contains tables in answer to two of the exercises.

Exercise

Before reading further, consider which theorist best explains how children's learning develops.

As you read each of the following chapters, we would ask you to continually review your decision and to consider whether the information provided has changed or strengthened your initial view.

Weblink

'The forgotten childhood: why early memories fade' (Hamilton, 2014) available at: www.npr.org/player/v2/mediaPlayer.html?action=1&t=1&islist=false&id=299189442&m=300617934 (accessed 27.9.14).

RECOMMENDED READING

Fabian, H. and Mould, C. (2009). *Development and Learning for Very Young Children*. London: Sage.

A useful resource, this book concentrates on children in the 0–3 age range. Fabian and Mould cover a breadth of material, including the stages of child development, development and learning, and policy and practice.

Robson, S. (2012). *Developing, Thinking and Understanding in Young Children*, 2nd edn. London: Routledge.

This interesting and challenging text offers an in-depth study of children's thinking and learning. The developing brain and language and communication are discussed through the lens of thinking and learning. Limited to cognitive theory, it offers students an insight into the creative and critical thinking in the developing child.

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