1

WHAT IS LEARNING?

> There are more than 50 different theories of learning in the field of educational research. The presence of so many theories of learning may be interpreted as a kind of diversity that we may, or perhaps should, celebrate. But this fact can also be interpreted in a very different manner: as both demonstrating and hiding the complexities of learning. These are the complexities of a reality that are mostly taken for granted, leaving them unavailable for reflection.
>
> (Jorg, Davis & Nickmans, 2007, p. 147)

LEARNING OUTCOMES

As you read through this chapter and undertake the exercises at the end, you will gain the ability to complete these tasks successfully:

- describe the differences between learning as a 'product' and learning as a 'process'
- describe traditional models of teaching and 'schooling' in Western countries and articulate how such models are often denoted as a factory-line method of education
- describe and discuss the term 'learning' in conjunction with theoretical perspectives of learning, while identifying key aspects of prominent theoretical orientations to learning.

KEY TERMS

- behaviourism
- positive reinforcement
- negative reinforcement
- humanism
- social learning theory
- constructivism

SETTING THE SCENE

It's Friday and, like on all Fridays, the students of Mr Kahan's Year 5 class are getting ready for their weekly spelling and number facts quiz. Chloe takes out her notebook, writes the date and the numbers one to twenty. Chloe likes the first part of the quiz where she has to spell ten words randomly selected from the weekly word list each student receives on Monday. Chloe likes spelling and rarely makes a mistake but, when the next ten questions are random number facts recited by Mr Kahan, she does not usually do as well. Chloe is a good student and works hard but for some reason she seems to struggle with multiplication facts and routinely makes a number of errors during the maths part of the quiz. She studies hard during the week but it seems that multiplication is something she cannot master, not in school anyway.

After school, Chloe heads home and helps Mum and Dad in the convenience store they own, as her parents' first language is not English and sometimes Chloe needs to become a translator. Chloe really enjoys working in the store and often is behind the counter where she unknowingly uses some of the very same maths skills she struggles with in school. Often her friends will come in and their love of lollies is evident in the volume of sweets they choose and through the money spent when Chloe calculates the cost of many of the items in her head before using the very old cash register they currently have in the store. It is clear in her interactions with her friends and others who shop in her family store that Chloe's math skills are superior to those she demonstrates most Fridays.

1. Can you recall a time in your life as a student when you may have experienced something similar to Chloe's experience above? Were there times when what you were 'learning' in school did not seem to sink in, or when you found it difficult to demonstrate what you had learnt?
2. In your opinion, why is it that some students may struggle with learning particular things in an educational context? What is learning and how do we measure it? As a future teacher how will you determine what students have learnt?
3. The word 'learning' is often taken for granted and not always easily defined. Before working through this chapter write a definition of learning and be prepared to review that definition when the information in the chapter has been covered.

INTRODUCTION

This chapter aims to develop your understanding of the broad, and often taken-for-granted, concept of *learning*. Defining learning is not always easy and at times seems ambiguous with a myriad of intricacies and idiosyncrasies, making one single definition very difficult to attain. Indeed, the word 'learning' itself has a number of meanings depending on the context in which it is used, but it is the core business of educational institutions and, as such, warrants some detailed exploration. Those embarking on a career as an educator or those already in charge of learning and teaching in any educational environment would do well to draw together their own learning about learning in order to ensure that the art and science of their craft are up to date and serving the interests of their students. And while we agree that the complexities of learning are often taken for granted—as noted in the opening quote—we do not share the overall sentiment of the authors. Theories surrounding human development and learning are available for reflection and should be the core of any educator's philosophical meanderings and practical applications in an education environment. This chapter is the beginning of such reflection and understandings.

Before exploring learning in greater detail, we need to note a few important provisos. First, learning is not confined to schools and indeed starts long before a child enters a classroom. Some might argue that learning begins about seventeen days after conception and this will be discussed later. Second, learning is an integral component of being human. Human beings do two things very well: survive and learn. Our capacity for learning has offered the human race a degree of flexibility and adaptability far surpassing any other species on the planet (Ormrod, 2008). Every day we learn and continue to learn, although we may not be fully conscious of when learning is occurring. We are designed to learn and, under the right conditions, we do so very well through complex interactions with others via various environmental stimuli and activities, and through serendipitous moments when we take in a great deal of information through all of our senses.

Finally, it is important to remember that learning is not always easily measured or something attributable to a select group of individuals. In many educational contexts, and arguably too often, learning is associated with test or achievement scores, some demonstrable outcome or some measure of cognitive ability or scholastic aptitude. This, in turn, suggests that the role of a teacher is to deliver curriculum and then design mechanisms to see how much 'learning' has occurred, where any errors are, and make adjustments to ensure that students acquire the requisite content or skill set to be measured. But not all learning is necessarily measurable or quantifiable and, while we are all capable of learning, there are also many things that can affect our learning. Significantly, many generations of teachers were provided guides or texts related to the psychology of learning that paid little, if any, attention to the role of emotions, feelings, personalities, relationships or environments on learning (Claxton, 1999). We now know that learning is not simply something that occurs via the transmission of knowledge from one person to another. Learning is often a complex enterprise involving more than just the cognitive attributes of the mind or isolated as test scores or grades. We learn very well and contemporary research also tells us that we can learn to learn more effectively and that teachers can be an integral part of the learning process. Therefore, this chapter has been set out as the beginning of the journey of understanding development and learning and as the starting point for expanding your own learning on the road to enhancing, and positively engaging with, the learning of your own students or what is more commonly referred to as *teaching*.

DEFINING TEACHING

Understanding Development and Learning's focus is on learning, and in particular, learning that takes place in schools. It is therefore important to also unpack notions of teaching given the dynamic nature between learning and teaching in educational settings. In a similar way to unpacking definitions of learning, attempting to define teaching is equally as arduous. We have all experienced teaching and not all of the teaching we received occurred in schools. Parents and family members, friends, coaches, celebrities, religious leaders and many others including the family pet can teach us a thing or two. In terms of educational settings, the modern profession of teaching was created at about the same time as the first school systems and before this time anyone who had something to offer in the way of learning could open a school or apply to the local community to teach in its school (Vick, 2013). Such individuals were not required to have formal teaching qualifications but this changed markedly with the introduction of schooling for the masses. The evolution of modern 'schooling' is discussed later in this chapter but it is noteworthy here to reiterate that defining teaching, or indeed a theory of teaching, is not only difficult to do but highly contestable.

Perhaps one of the reasons surrounding the difficulty in defining teaching is evident in the reality that most people in Western societies have been to school and have experienced some form of teaching or another. Having grown up in schools, many adults believe they know how to teach because they watched teachers for many years (Darling-Hammond et al., 2005). Many individuals will eagerly form opinions on what constitutes 'good' or 'bad' teaching and, by association, good or bad 'schooling'. These opinions, in turn, shape and are shaped by the prescribed social purposes of education as constituted by political, social and cultural agendas. In Western societies this has seen theories of teaching taking on particular practices—or *pedagogies*—and much of that practice emerged from the industrial era. Generations of students have been the recipients of this particular form of teaching whereby a substantive amount of pedagogy has focused on the transmission of information or knowledge, understanding or wisdom to students in an oral or written framework; teaching is set out to inform, instruct, explain or enlighten (Ackoff & Greenberg, 2008).

The traditional knowledge transmission model of teaching born out of the industrial era is still evident in many contemporary educational settings. The implications of such an approach are wide-ranging and noted throughout this chapter where appropriate. In terms of teaching, such a model reinforces a rather simplistic and intuitive notion of teaching; someone knows something and then teaches it to others (Darling-Hammond, 2006). The measure of the success of that model is usually some form of assessment and, while it has succeeded for some students, it has also left many more behind. Indeed, mountains of research have demonstrated that the notion of transmission teaching doesn't actually work most of the time (Darling-Hammond, 2006). This model of teaching is still very prominent in many contemporary schools and is symptomatic of debates surrounding what constitutes good teaching and, by association, good learning. Worryingly, such debates have been around for many decades as eloquently encapsulated in the work of American curriculum theorist, B. O. Smith who, in 1963, stated: 'We are a long way from a comprehensive theory of teaching, grounded in a clear cut system of concepts and backed up by empirical evidence. To develop a general theory ... will require bold explorations which take into account of what has been done, but which are in no means bound by past failures and successes' (p. 10).

TEACHING IN THE TWENTY-FIRST CENTURY

While it may be that we are still 'a long way from a comprehensive theory of teaching', there does seem to be an increasing consensus that a knowledge transmission model of teaching is ill suited for learning and learners in the twenty-first century. Teaching that focuses on transferring knowledge rarely takes into account the experiences and needs of students. Instead such a mindset tends to place curriculum, predetermined content and assessment as the standard approach of educational endeavour and as such is likely to be unsuccessful for a majority of learners given the diverse nature of student populations in Western

schools (Darling-Hammond, 2006). Indeed, research evidence indicates that overall student achievement improves through a more contemporary theory of teaching whereby teaching has these aims:

- draws out and works with the pre-existing understandings that students bring with them
- explores subject matter in depth in an effort to provide a firm foundation of factual knowledge
- integrates the teaching of metacognitive skills (Donovan, Bransford & Pellegrino, 2000).

In addition to the significant considerations of teaching made by all the theorists above, a final important aspect of any contemporary theory of teaching must recognise that learning and teaching are intimately linked. Teaching is a complex activity that exists in a reciprocal relationship with learning and as such theories and knowledge of teaching must begin with deep understandings of human development and learning (Darling-Hammond, 2006). For developmental psychologists such a claim goes without saying, while new theories and approaches to teaching in educational contexts not only recognise the important links between human development and learning, but also the importance of understanding neurological development as it pertains to learning (see, for example, Donovan et al., 2000; Kalantzis & Cope, 2008; Ormrod, 2008; Tokuhama-Espinosa, 2011). The next section and the remaining chapters of *Understanding Development and Learning* adopt this framework in that it is our belief that, while defining teaching is important, understanding learning and learners is central to any successful contemporary educational endeavour.

DEFINING LEARNING

As the previous section demonstrated, defining the word 'learning' is not an easy proposition. Is learning the product of some type of endeavour, is it a process or is it both? How do we know if something has been learnt? Must all learning be set in a context of performance or assessment or is it possible to learn something without even realising it? These questions are central to this chapter and a long history of research and debate. Perhaps one of the reasons that learning is often difficult to define, or narrowly understood, can be situated in many people's experiences of schooling. After all, in Western countries the vast majority of people have been to school and they have a view of learning that is well established and linked to teaching. Indeed, it is likely that when most people hear the word 'learning' they often think of schools, yet this is problematic for a number of reasons.

First, and as noted in the previous section, not all learning occurs in schools. Most children arrive for their first day of formal education with a great deal of knowledge along

with a vast array of skills and attributes they learnt long before walking into a classroom. Some would argue that most learning is done at home, at work or outdoors and as such schools are but one domain where learning can occur (Ackoff & Greenberg, 2008).

Second, the type of learning that has occurred in most Western schools, including those in Australia, Canada, the United Kingdom and the United States, has been premised on a factory-line model of production (Ackoff & Greenberg, 2008; Darling-Hammond, 2006; Robinson, 2011). Within this model students were typically viewed as empty vessels and a teacher's role was to progressively fill up students' minds with the information necessary for a successful future and productive citizenship (Nagel, 2013a). Today, this form of educating has its own inherent difficulties and issues, not least of which is that it was designed during the industrial era and is still the standard approach for many educational institutions trying to engage learners who are arguably remarkably different from any other generation of students. This is discussed in some detail later in this chapter.

Finally, at a time when information continues to grow exponentially and where students can access a seemingly infinite array of sources of information, our understanding of learning has also changed. Not long ago, schools were the primary source of information and knowledge for students. Today, young people can access information 24/7 within the palm of their hands and this strengthens the point made earlier: not all learning occurs in schools. Because learning is not isolated to schools, and in an effort to gain greater insights into broad notions of learning, it is important for us to look at learning through various lenses. This is achieved in the following sections by looking at how learning has been approached in educational contexts, contemporary understandings of learning and various theoretical perspectives of learning, past and present.

SOMETHING TO THINK ABOUT 1.1

LEARNING STYLES

Are you a visual, auditory or kinaesthetic learner? You are probably none of the above and all of the above but none of that matters in terms of educational contexts and learning in general. There is no credible evidence that learning styles exist and yet many teachers and schools spend time, energy and resources trying to determine their students' learning styles and adjust their pedagogy and curriculum accordingly. A number of current educational psychology textbooks also still embrace 'learning styles' concepts and advocate the practice of determining preferred learning styles to enhance educational outcomes (Pashler, McDaniel, Rohrer & Bjork, 2008).

The concept of 'learning styles' or 'learning modalities' is not a new educational phenomenon and likely arose from psychological taxonomies related to theorising about individual personalities. From such taxonomies a number of theories related to learning styles have emerged over the past decades. In Australia the most popular models are those derived from Neil Fleming's VARK theory, which is now typically promoted through inventories used ▶

- to determine if a student is a visual, auditory or kinaesthetic learner (Scott, 2010). But, as noted earlier, any attempts to modify one's teaching to cater to such notions of learning modalities is time wasted, given the lack of any evidence to support such activities. Two key questions are why such misguided notions continue to permeate many school corridors and professional development sessions and what might be a better alternative to such endeavours.

  The answer to the first question is multifarious but it could be that, in an attempt to provide an egalitarian educational context for all, it is commonly proposed that teachers need to know how their students learn. The truth is that most students learn in very similar ways and we should not confuse 'styles' with abilities, interests and background knowledge: three factors important for learning and supported by an abundance of research. Focusing on individual abilities, interests and background therefore provides insights into the answer to the second question and a foundation for improving learning and educational outcomes. Rather than trying to discover the illusionary learning style of each student, teachers would do much better to consider content modalities and craft their pedagogy, as much as possible, around their students' levels of prior knowledge, abilities and interests (Willingham, 2009).

Ask yourself...

1. Have you ever participated in some inventory to uncover your learning style? If so, what actions did you take to support your style of learning? What were the outcomes of such endeavours?
2. Given that student abilities, interests and background knowledge appear repeatedly in educational and psychological research as important factors for improving educational outcomes, what does this mean for you as a future teacher? Consider the age of the students you wish to teach and provide a list of strategies for engaging with such important considerations.

A BRIEF HISTORY OF 'LEARNING' AND 'TEACHING' IN WESTERN SCHOOLS

In order to garner some insights into the history of learning and teaching in schools it is also important to briefly look at the history of schools themselves for the two are intimately linked. In the context of human undertakings, the concept of universal education has a relatively short history. Born out of the seventeenth century, and influenced by various religious movements, basic schooling for all children only became a national aspiration in most Western countries in the nineteenth century (Resnick, 2010). Before the nineteenth century, schools were very different from what they are today and accommodated in multipurpose buildings with only a handful of children, no set curriculum and where learning could be characterised as being achieved through rote memory work (Vick, 2013).

THE RISE OF THE FACTORY MODEL

The introduction of mass schooling to the general public was influenced by a number of contextual factors and delivered in very specific formats. In its earliest incarnations, teaching within schools reinforced rote learning and was generally catechismal in nature; individuals were asked a series of questions culled from religious texts and expected to provide standardised answers (Resnick, 2010). The advent of the industrial era also played a role in shaping education and with the growth of industry support for public education grew, transforming schooling from limited provision to widespread and hierarchical education systems (Carl, 2009). Interestingly, while the content of school curricula changed during this time to include basic arithmetic, geography, history, some science and a broader range of texts for reading and writing, the methods of teaching and learning in the classroom remained remarkably unchanged (Resnick, 2010). Some might argue that the function of schools during this time was to mirror the productivity of factories and, as such, schools were to teach social and citizenship skills; students arrived as blank slates, requiring the teacher to fill them in with knowledge in a system set up to ensure efficient and standardised functioning of all parts of the system (Ackoff & Greenberg, 2008).

The precise relationships between industrialisation and the rise of public education are difficult to pin down but there does appear to be a correlation between the spread of industry and the rise of mass public schooling (Carl, 2009). What is clear is that the factory model of education has strongly influenced notions of learning and teaching and is still evident in many schools today (Robinson, 2011). Within this model, learning and teaching are similar to production lines in a factory: start with a raw product (student), add information via the expert (teacher) and learning and knowledge is the end product. There is also an assumption in this model that for every bit of teaching there should be an equal amount of learning and that this can be accurately measured (Nagel, 2013a).

There are a number of issues associated with such a view of learning and teaching, not least of which is that such a model does not take into account the diverse needs and attributes of individuals, nor does it recognise the myriad factors that influence all aspects of learning. These will be covered throughout *Understanding Learning and Development* but it is also significant to note here that the current climate of raising educational 'standards' is predominantly underpinned by a factory model whereby all children can learn if the standards are correct and delivered through 'quality' teaching. Standardised tests, rankings of students and/or schools and rhetoric surrounding a 'back to basics' foundation of education elicit romanticised notions of 'traditional' schooling and a tacit endorsement of industrial-line education but rarely take into account theories of learning or the nature of human learning. In the twenty-first century, where students are active consumers of information and creators of knowledge, contemporary understandings of learning deserve to

be centre stage of any educational endeavour and curriculum aspirations. This begins with looking at various theories of learning, past and present.

THEORIES OF 'LEARNING', PAST AND PRESENT

> There's nothing so practical as a good theory.
>
> (Lewin, 1951, p.169)

Kurt Lewin, considered by many as the father of modern social psychology, was concerned throughout his work to integrate theory and practice (Kolb, 1984). But the linking of theory to practice is not always easily achieved. Anecdotally speaking, our collective experience in the field of education has often witnessed many debates linking theory to practice. It is not uncommon to hear teacher mentors tell their prac students to forget what they are doing at university because now they are in the real world! It is also not uncommon for students to question the purpose of studying theory when the everyday realities of the classroom often seem far removed from the philosophical or scientific meanderings of a textbook. These may seem to be broad generalisations but experience suggests otherwise. Therefore, it is important to note the significance of examining theories before engaging in such activity.

One of the major goals of educational psychology is to understand learning and teaching; research becomes an important tool in achieving this objective. Research, on the other hand, allows for the collection of data and from such data various theories can be derived and further research conducted to validate a theory or create a new theory. Of itself, a theory is a framework that can be used to identify and explain relations among natural, observable phenomena (Fiske, 2004). Research and theory development are part of a cyclical process and new theories are used to fill gaps in any existing explanations of a particular phenomenon. Educational psychologists and educators have a long history of developing theories around child development and the phenomenon of education. We have a number of theories related to cognitive development, for example, that have affected many aspects of educational endeavour. Importantly, good theories can posit causal relations, attempt to find coherence, form good narratives, aim for simplicity in explanation, are testable, solve problems and inform practice (Fiske, 2004).

WHAT IS LEARNING?

Given the importance of linking theory to practice, it should be apparent that, in an educational context, many theories related to learning have been developed over time. Some of

these theories continue to influence education today, while others are new and exciting to the field. To explore some of these important theories we begin by asking a very significant question: what is learning? In many educational psychology textbooks, learning is often defined as a relatively permanent change in behaviour, knowledge and thinking skills as a result of experience (see, for example, Krause, Bochner, Duchesne & McMaugh, 2010; Santrock, 2011). This definition appears very straightforward and concise but, as noted earlier, learning is far more complicated than what can be found in singular definitions. In educational contexts, learning is generally considered as an outcome or an objective suggesting some change in a student and as such embodies the types of definition presented above. It is noteworthy that an approach that benchmarks learning in terms of some measure of *change* or an *outcome* will, by necessity, emphasise learning as a 'product'. Too often this product is quantified by a grade or mark that, in turn, presumes that the higher the mark, the greater the learning that has taken place. This can be problematic, especially if we consider whether a person needs to perform or produce something in order for learning to have happened (Merriam, Caffarella & Baumgartner, 2007). Fortunately, in the last couple of decades we have witnessed some significant changes in how learning is conceptualised and subsequently seen expanded notions of learning emerge that go beyond simply being the product of some form of scholastic endeavour.

The work of Saljo

Changing conceptions of learning beyond that of it being a product is most evident in the work of Professor Roger Saljo, who is considered by many as a pioneer in contemporary research into learning. Professor Saljo is professor of education and educational psychology at the University of Gothenburg, Sweden, and in the late 1970s he published a seminal piece of work that has influenced learning theorists since. In this study, Saljo (1979) found that students conceptualised learning within five categories:

1. *Learning as a quantitative increase in knowledge*: Learning is the acquisition of information and 'knowing a lot'.
2. *Learning as memorising*: Learning is storing information that can be reproduced.
3. *Learning as acquiring*: Learning is acquiring facts, skills and methods that can be retained and used as necessary.
4. *Learning as making sense or abstracting meaning*: Learning involves relating parts of the subject matter to each other and to the real world.
5. *Learning as interpreting and understanding reality in a different way*: Learning involves comprehending the world by reinterpreting knowledge.

The significance of Saljo's (1979) work lies in the fact that the conceptions of learning demarcate learning as both a product and a *process*. As a process, learning includes changes in the way people understand, experience or conceptualise the world around them.

Consequently, learning can be experienced as something external (something that happens as a result of an experience) and something internal (something a person does in order to understand the world) (Nagel, 2013a). Saljo's (1979) work has since been reinforced through a plethora of studies involving people of varying ages in a number of different learning contexts (Purdie & Hattie, 2002).

The earlier work of Marton and Saljo (1976) also found that if students viewed learning as simply reproductive (i.e. rote memorising and replication of information) rather than as a process of making meaning and reflection then they were less likely to construct well-organised concepts regarding their learning. In other words, an individual's conceptions of learning will actually affect their own learning. Guy Claxton, a renowned author and Professor of the Learning Sciences at the University of Bristol Graduate School of Education, has noted that 'how well people learn is shown to be a function not only of the learning tools they possess, but the implicit beliefs they have picked up' (1999, p. 33).

IMPLICATIONS FOR TEACHING

A further important aspect of Saljo's work is that it is not meant to imply that there now exists a universality of meaning with reference to learning, demarcated as categories and described by Saljo (1979) and others. In educational contexts, learning is often defined according to different socially and culturally established conventions and, as such, teachers and students may exhibit a variety of approaches to learning in different situations depending on content, context and the demands of a particular task (Richardson, 2005). Concurrently, an individual's personal and cultural beliefs are often used to support various assumptions about learning and we all make assumptions about learning whether we realise it or not (Nagel, 2013a). Assumptions are made about what is important for students to learn; who can learn and why; and what strategies can be used to enhance learning (Bransford, Derry, Berliner, Hammerness & Beckett, 2005). To that end there are also a number of assumptions about learning and theories of learning that are worthy of scrutiny and elaboration.

First, and in an educational context, it is significant to remember that what is taught is not always the same as what is learnt. Students are not empty vessels waiting to be filled but rather are individuals who arrive in school with a diverse set of experiences and skills that are always part of any learning experience (Nagel, 2013a). Second, because learning is both a product and a process, traditional views of teaching along with Western societal assumptions about learning are often too narrowly defined and focus too heavily on tangible outcomes such as assignments and exams (Claxton, 1999; Robinson, 2011). Finally, and as noted throughout this chapter, learning is often taken for granted but it is too ambiguous a concept to articulate in a single sentence. As the quote from Jorg et al. (2007) at the start

of this chapter shows, there are more than fifty theories of learning, which are ultimately unable to be covered in a single volume of work such as this textbook. Instead, a number of prominent perspectives of learning important to our understanding of formal education are presented and, as a learner, it is up to you to take what you know, pull it apart, add to it and ultimately form new ideas, understanding and conceptions of learning. This will be a significant component of your own understanding about development and learning and to help facilitate this process you will need to undertake several tasks:

- examine some key theories of learning
- think about your own beliefs of learning and question your own experiences of learning as you explore new theories of learning
- reflect on ideas underpinning your understanding of learning
- develop your understanding of learners and their developmental needs.

These points are intended to guide your learning and it is likely that you have already begun to engage in some of these ideas as this chapter has progressed. At this point, it is timely to look at some perspectives and theories of learning that have shaped educational practice and are still influential today.

THEORETICAL ORIENTATIONS TO LEARNING

As we have seen, learning is best understood as both a process and a product. But looking at learning as a process (rather than an end product) requires us to focus on what happens when learning takes place and such explanations help to frame various theoretical orientations of learning (Merriam et al., 2007). Five of the most commonly referred to orientations to learning that can be found in psychology and educational psychology include these:

- behaviourist orientations to learning
- cognitive orientations to learning
- humanistic orientations to learning
- social cognitive orientations to learning
- constructivist orientations to learning.

Each of these orientations to learning, along with the key individuals who have helped shape or influence them, is explored below. It is important to note that there often is a degree of overlap between and among the orientations. As you read and develop your own understanding of learning, you will see commonalities and points of convergence emerging out of the details of each specific orientation. Another important consideration related to the theoretical orientations you are about to explore is that learning and human development are intimately intertwined and each orientation should be considered as an overview.

Other chapters in this text will give greater attention to aspects of human development and in particular neurodevelopment and the importance of human development to learning and education.

Behaviourist orientations to learning

Behaviourism
A field of psychology concerned with individual behaviour.

The term **behaviourism** stems from the early works of John Watson (1913, 1914, 1925), who believed that the key to understanding learning could be found through the analysis of behaviour. Watson was an American psychologist whose initial research work focused on animal studies but then controversially was applied in a human study involving an infant who would become famously known in psychology circles as 'Little Albert'. Watson and a graduate student by the name of Rosalie Rayner set out to prove that they could condition a fear response in a child or, in other words, have a child *learn* to be afraid (Watson & Rayner, 1920). In order to achieve this task they started exposing nine-month-old Little Albert to a series of stimuli, including a white rat, and found that the young boy showed no fear towards any of the items presented to him. The next part of the experiment saw the rat presented to Albert again but this time it was accompanied by the hitting of a metal pipe with a hammer behind, and out of view, of the child. Understandably, Little Albert was so startled by the loud bang he began to cry. Watson and Rayner repeated this over and over again to the point where Albert began to cry as soon as he saw the rat, even when the banging had been stopped. In essence Little Albert learnt to be afraid of the rat. The ethics of such an experiment are very problematic, not least of which because it is believed that Albert's fear was never deconditioned.

Behaviourists believe that observable stimuli produce observable behaviours, as in the study done by Watson and Rayner (1920), and as such *learning* can be conditioned through changes to the stimuli. One of the foremost behavioural theorists to expand on the work of John Watson was Burrhus Frederic (B. F.) Skinner. Skinner too was a prominent American psychologist and was the Edgar Pierce Professor of Psychology at Harvard University from 1958 until his retirement in 1974. Skinner (1953, 1963) described learning as an enduring change of behaviour resulting from external events, be they conscious or unconscious. For Skinner, learning occurred when some event or condition (stimulus) triggered an action (response) and those actions, which were rewarded in some manner, were likely to be repeated (learnt) (Nagel, 2013a). Both Skinner and Watson have contributed a great deal to our collective understanding of learning and two of the standout behaviourist terms associated with their work and often observable in schools are *classical* and *operant conditioning*.

CLASSICAL CONDITIONING

Classical conditioning focuses on the learning of involuntary emotional or physiological responses such as fear, sweating or increased muscle tension vis-à-vis some form of stimuli

(Santrock, 2011). The example of Little Albert could be considered classical conditioning, albeit with rather negative consequences. In an educational context, classical conditioning can be involved in both negative and positive experiences in a classroom or school. For example, a child may associate pleasurable feelings with a particular classroom due to its visual appeal, while another classroom may elicit fear or anxiety because the teacher in the room is overly critical. In this sense teachers can play both an implicit and explicit role in classical conditioning and must always reflect on their practice to ensure that any conditioning that is occurring is positive.

OPERANT (INSTRUMENTAL) CONDITIONING

For behaviourists, *operant conditioning*, which is also sometimes called *instrumental conditioning*, is a form of learning in which the consequences of a behaviour produce changes that will increase or decrease the probability that the behaviour will reoccur (Santrock, 2011). The consequences of the behaviour usually take the form of reinforcement or punishment whereby reinforcement increases the probability that a behaviour will reoccur, while punishment decreases the probability of repeated behaviours. The word 'reinforcement' actually means to strengthen the behaviour and reinforcement can be both positive and negative (Domjan, 2014). **Positive reinforcement** is easily explained and readily observable in schools and homes alike. In school, common positive reinforcers include praise, special privileges, high marks, scholarships, tokens, prizes, trophies, awards, certificates and public recognition. Even something as simple as a smile from a teacher can act as a positive, and powerful, reinforcement. **Negative reinforcement**, on the other hand, refers to the removal of unpleasant events or experiences after a desired behaviour is performed. A teacher may create a sense of surveillance by staring at a student until the student performs the desired behaviour, thereby eliminating the uncomfortable sense of someone watching over them.

Positive reinforcement
The addition of a pleasurable or desirable stimulus after a desired behaviour is exhibited.

Negative reinforcement
The removal of an undesirable stimulus or object after a desired behaviour is exhibited.

Positive and negative reinforcement are commonplace strategies in schools, where the standard mindset is changing behaviour. Perhaps one way to remember the difference between the two is that in positive reinforcement something is added, while in negative reinforcement something is subtracted or removed. Both strategies are regularly used in educational contexts and behaviourists believe that, for learning to occur, the role of the teacher is to create an environment of optimal conditioning: to provide the appropriate stimulus via the curriculum and follow this with some measure of positive or negative reinforcement (reward or punishment) (Nagel, 2013a).

The use of rewards and punishment is still quite prevalent in schools, particularly in terms of behaviour management strategies. There are a number of issues associated with such approaches to learning and behaviour, especially in terms of motivation and ethical considerations related to punishment. This is covered in greater detail later (in Chapter 7), but it is important to note here that an over-reliance on operant conditioning can actually

hinder learning by focusing on extrinsic, rather than intrinsic, forms of reinforcement. Equally significant is that both rewards and punishment operate on an 'if you do this, you get that' strategy and are dictated by someone other than the learner (Kohn, 1999). Behaviourism also tends to neglect the contribution of cognition and cognitive skills to any learning process, especially in terms of more complex forms of behaviour such as problem solving. The important links between cognition and learning are very significant considerations for any teacher and educational context and as such are noted in the next section.

See Chapter 7 for a detailed examination of motivation.

Cognitive orientations to learning

Cognition is a term that essentially means 'thought' and refers to the mental processes involved in comprehension and acquiring knowledge through experiences and the senses (Santrock, 2011). Such mental processes are often described as higher order functions of the brain encompassing language, imagination, perception, planning, thinking, remembering, judging and problem solving. Cognition is an important area of study across a number of disciplines but its meaning can vary slightly from one field to another. For example, in psychology and cognitive science, cognition is often depicted as an information-processing model within the mind, while a branch of social psychology known as *social cognition* focuses on attitudes, attribution and group dynamics (Blomberg, 2011; Sternberg, 2012). The dynamic nature of educational environments encompasses aspects of all disciplinary fields associated with 'cognition' but in terms of learning there are a number of significant aspects surrounding a cognitive orientation to this process.

One of the most important aspects of cognitive orientations to learning is that of human development. For cognitive theorists, learning is intimately linked with developmental changes and a gradual increase in the sophistication of mental processes. For example, researchers know that the mind of a two-year-old child is vastly different from that of an adolescent. This will obviously affect all aspects of learning and cognitivists focus on internal mental processes such as insight, executive control, attention, memory and perception as they apply to development and learning. Cognitive orientations to learning also focus on how learners manipulate information and make meaning out of information and experience. Deriving from this orientation is an underlying framework where learning is often delineated as the acquisition of new knowledge.

THE INFORMATION-PROCESSING MODEL

One of the foremost models of knowledge acquisition in a cognitive orientation to learning is the *information-processing model*. In this model, a great deal of emphasis is placed on how children process information through attention, memory, thinking and many other complex cognitive processes. The information-processing model emphasises that children manipulate information, monitor it and strategise about it while actively making sense of

their experiences and modifying their own thinking in response to environmental demands (Nagel, 2013a; Santrock, 2011). The model itself often portrays cognitive endeavour as being similar to how computers process information, while cognitive psychologists often use analogies to computers to help explain the relation between cognition and the brain (Martinez, 2010). This view of cognition is often criticised for being overly simplistic in that human thinking, cognitive activity and learning cannot be easily described in the same manner as binary equations and the rigid algorithmic framework associated with computers (Ormrod, 2008). But, in an educational context, there are a number of important strengths in this model, particularly with its focus on understanding how memory operates and in developing pedagogy to assist in advanced problem-solving skills. This model is also an appropriate framework for much of the information and discussion in *Understanding Development and Learning*, given our emphasis on understanding processes and functions of the brain and mind in connection with child development. Indeed, many of the features of this model are evident throughout this book and in particular in exploring contemporary understandings of attention and memory as they pertain to human development and learning.

Human development is an important aspect of cognitive orientations to learning. The field of psychology has seen a number of theorists working in the area of human development and learning and many of these individuals and their work are examined in later chapters. But the important nexus between development and cognition is being heavily influenced by newer understandings of the human brain that are also presented throughout *Understanding Learning and Development* and form the underpinning framework of this entire volume of work.

Humanist orientations to learning

Humanist orientations to learning tend to pay less attention to aspects of cognition and give greater attention to student needs, emotions, values and self-perceptions. Born out of *humanist psychology* in the 1950s, this orientation to understanding psychology and learning emerged as an alternative to behaviourism's overly 'scientific' methods and psychiatry's focus on mental illness and disturbance (Nagel, 2013a). It is noteworthy that, before the 1950s, the early twentieth century had a number of individuals who could be noted as pioneers in humanist education. Inspired by the work of Jean-Jacques Rousseau, Friedrich Froebel and others, Maria Montessori, John Dewey and Rudolf Steiner embodied humanist philosophies in their writing and educational endeavours (Snowman et al., 2009). Today, Montessori and Steiner schools can be found in many Western countries, while the work of Dewey has been instrumental in shaping education and social reform since his earliest writings in the late 1800s.

Humanism
A philosophical and/or ethical position that emphasises and values the agency of human beings.

Humanism is a system of thought that is predominantly concerned with the human experience, recognising the uniqueness of human beings and the qualities of life that

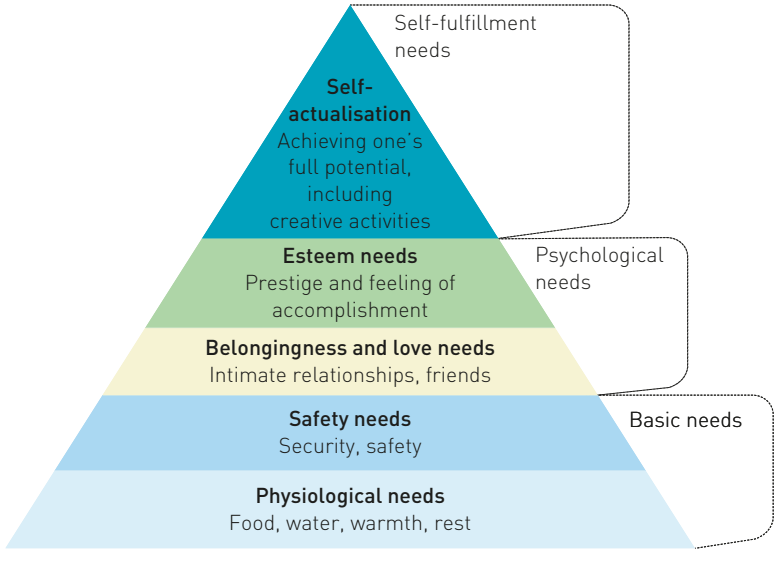
contribute to our humanity (Nagel, 2013a). A central tenet in humanism is the value of human worth and dignity. In an educational context, this is translated into the practice of shaping the whole child with a view to improving his or her character. Academic performance, motivation and behaviour are linked specifically to the learning environment, whereby supportive classroom cultures promote enhanced self-esteem, intrinsic motivation and overall well-being and success (Snowman et al., 2009). And while humanist educators such as Dewey and Montessori continue to influence educational endeavour, the work of two key twentieth-century psychologists has also added a great deal to humanist orientations to learning.

Maslow's hierarchy of needs

Abraham Maslow was an American psychologist who is best known for creating a 'hierarchy of needs', which is a theory of psychological health predicated on fulfilling innate human needs. For Maslow, people have an innate drive to satisfy various needs that he organised into a hierarchy of five levels presented as a pyramid (see Figure 1.1).

As evident in Figure 1.1, Maslow believed that basic needs must be met before any higher levels can be achieved. If a learner's physiological, safety and belongingness needs are not met, then factors like self-esteem—which are integral to academic success—cannot be attained. This alone says much about the probable impact of poverty and socio-economic disadvantage on learning (Martinez, 2010). Contemporary neuroscientific studies support

FIGURE 1.1 MASLOW'S HIERARCHY OF NEEDS



Maslow's work in that children raised in environments where basic needs are not met and where positive relationships are unavailable are subjected to high levels of stress which in turn negatively affect most aspects of their development and learning (McEwen, 2002; Nagel 2012a; National Scientific Council on the Developing Child, 2004, 2005, 2007; Shonkoff, 2010; Shonkoff & Levitt, 2010; Shore, 1997).

Notwithstanding the importance of meeting basic needs as depicted in Maslow's hierarchy, self-actualisation is the centrepiece of Maslow's theory and something he himself was deeply interested in. Maslow's research interests focused on studying psychologically healthy people in order to understand them and apply his findings so that others could more fully realise their potential for psychological health, growth and overall fulfilment (Martinez, 2010). In terms of learning in an educational context, Maslow's work asks educators to put student needs at the forefront of any learning situation, rather than those of the teacher or curriculum (Nagel, 2013a). Another humanist psychologist who complements Maslow in terms of meeting the needs of students and influencing education is Carl Rogers.

Rogers: nurturing students

Carl Rogers was a psychotherapist who pioneered a new approach to helping people cope more effectively with their problems and is widely regarded as one of the most influential psychologists in American history (Snowman et al., 2009). Rogers initially worked with delinquent children, becoming increasingly interested in child guidance and therapy. He formed the view that the key aspect for positive therapies could be found in setting up supportive environments and relationships rather than psychoanalytic techniques. Rogers's work transcended clinical practice and he became interested in education, where he argued that a teacher's goal should be to nurture students rather than direct their learning (Krause et al., 2010). For Rogers, learning was about personal change and growth and he believed that human beings had an inner drive towards self-fulfilment and a natural potentiality for learning. He believed that, within a nurturing environment, learners should be free to learn, explore and reach their full potential and that the best learning came from 'doing' (Nagel, 2013a). In one of his works, which embodies his philosophy in its title, *Freedom to Learn*, Rogers sets out a number of principles for learning and most notably acknowledges that a teacher's role is not just to deliver a curriculum but to give equal measure and attention to the intellect and emotions of each and every individual learner (Rogers, 1969).

The influence of the work of Carl Rogers and Abraham Maslow on learning and education cannot be understated. This is evident in contemporary educational rhetoric, which positions teachers as 'facilitators' and stresses the importance of meeting the 'needs' of each individual learner. Their work embodies humanist orientations to learning and emphasises that, for learning to occur, the heart of any educational endeavour must focus on personal and emotional development within a caring and supportive environment where

student needs, desires, personal values, self-perceptions and motivations are considered. The importance of the learning environment also plays a central role in social cognitive orientations to learning.

SOMETHING TO THINK ABOUT 1.2

GENIE: A CASE STUDY IN THE DEPRIVATION OF STIMULATION

In terms of learning, experiences or the lack thereof matter. Chapter 2 presents neuroscientific evidence of how experiences shape the neural architecture of the mind but, long before researchers could look at the inner workings of the brain, examples of what happens when children are deprived of certain experiences provided a great deal of support for the work of Maslow and others. One tragic story is particularly compelling.

On 4 November 1970, a social worker discovered a thirteen-year-old girl who, by all accounts, had been forced to flounder helplessly within an environment Maslow might have noted as the bottom of his hierarchy. This young girl, who was later named 'Genie' by social workers, lived most of her childhood from the age of eighteen months in an environment of extreme deprivation. It appears that sometime before her second birthday, Genie's father confined her to a small room, often tied to a 'potty' chair. It was also discovered that some nights Genie was bound in a sleeping bag and forced to sleep in an enclosed crib with a cover of metal screening all around it. Genie was not allowed to speak to anyone; her mother and brother, who rarely left the family home, were forbidden from speaking to her. By the age of thirteen when she was discovered, Genie was almost entirely mute. It should come as no surprise that she had severe emotional difficulties but it may surprise some to know that she was physically underdeveloped and her stature was more typical of an eight-year-old than a teenager. Genie was promptly removed from her environment and her parents charged with child abuse but many of the secrets of the abuse remain untold as her father committed suicide before standing trial. Genie herself received extensive treatment but much of the damage was irreversible (Curtiss, 1977; Newton, 2004). Today, the case of 'Genie' is used by researchers to highlight what happens when humans are deprived of the very circumstances Maslow argues are necessary for learning and how lack of stimulation can lead to lifelong developmental problems.

Ask yourself...

Fortunately, it is unlikely any teacher will ever deal with children who experienced a life anything like Genie's. But we do know that children who grow up in impoverished regions or neighbourhoods or whose basic needs are not being met outside school do end up in classrooms. What does Maslow's hierarchy suggest would be the most important considerations to attend to when encountering disadvantaged children?

Social cognitive orientations to learning

As is tacitly suggested in the title, *social cognitive orientations* to learning imply a link between relationships, cognition and learning. In itself a social cognitive orientation to learning incorporates elements of both behaviourist (operant conditioning) and cognitive (information-processing) theories. Social cognitive orientations to learning emphasise how behavioural and personal factors interact with the social and physical environment; the roots of this orientation are derived from a framework known as **social learning theory** (Bandura, 1976).

Social learning theory
A theory of learning that posits that learning is a cognitive process that occurs in a social context.

SOCIAL LEARNING THEORY

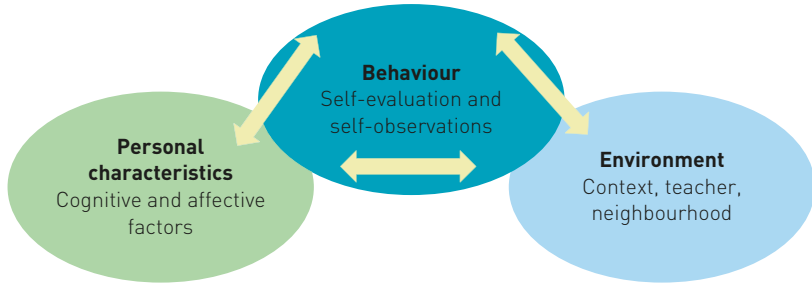
The principal architect behind social learning theory is Stanford University Emeritus Professor of Psychology Albert Bandura. In the 1960s, Bandura conducted a series of famous experiments that have become collectively known as the 'Bobo doll study'. In different variations of these experiments, children were able to observe a woman beating up a Bobo doll and using aggressive language. (A Bobo doll is a large inflated doll with a sand base that rocks easily to and fro and when struck always returns to an upright position unless unexpectedly deflated.) When provided opportunities to engage with the Bobo doll, those children who witnessed violent and aggressive behaviour modelled the same behaviour, with or without any encouragement, rewards or punishment. Bandura's work is significant because it departs from behaviourism's insistence that all aspects of behaviour and learning are directed by some form of reinforcement or reward. Unlike the behaviourist Skinner, Bandura believes that human beings think about the relationship between their behaviour and consequences; social learning theory is arguably a transition between behaviourist and cognitive orientations to learning.

Over time Bandura's explanations for learning gave more attention to cognitive factors such as attention, memory, rehearsal and motivation and he relabelled his earlier work on social learning theory to social cognitive theory (Woolfolk & Margetts, 2013; see also Bandura, 1986, 1997, 2001). But the key principles underpinning both social learning theory and social cognitive orientations to learning suggest that people can learn by observing the behaviours of others and the outcomes of those behaviours (Nagel, 2013a).

TRIADIC RECIPROCALITY AND LEARNING VERSUS BEHAVIOUR

Another significant difference between behaviourism and social cognitive orientations to learning is that, unlike the central tenets of behaviourism, a social cognitive orientation recognises that learning can occur without a demonstrable change in behaviour. In other words, people can learn through observation alone and their learning may not necessarily be shown in their behaviour; observation and learning do not necessarily require imitation or mimicry (Nagel, 2013a). Social cognitive orientations to learning also recognise the role of the physical and social environments on behaviour and learning. For example,

FIGURE 1.2 TRIADIC RECIPROCAL CAUSATION MODEL



school resources, the consequences of actions, the nature of a task, the use of reinforcement or punishment or both, other people, group dynamics and the actual physical size of a classroom can all affect learning according to social cognitive theorists (Nagel, 2013a; Snowman et al., 2010; Woolfolk & Margetts, 2013). Consequently, the environment, behaviour and individual characteristics such as cognitive and emotional factors influence and are influenced by one another and form a model that Bandura (1986) refers to as triadic reciprocality or what others call the triadic reciprocal causation model (Snowman et al., 2010; Woolfolk & Margetts, 2013).

The work of Bandura and other social cognitive theorists has had, and continues to have, an impact on our understanding of behaviour and learning in an educational context. One of the most important considerations derived from this work and highlighted by Bandura is an assumption that people, and not environmental forces, are the predominant cause of their own behaviour (Snowman et al., 2010). According to Bandura (2006), 'people are self-organising, proactive, self-regulating and self-reflecting. They are not simply onlookers in their behaviour. They are contributors to their life circumstances, not just products of them' (p. 164). This places a great deal of emphasis on many aspects of development and highlights the importance of the learner in any educational context. The final orientation to be explored in this chapter complements this view.

SOMETHING TO THINK ABOUT 1.3

THE NEEDS OF TEACHERS

The social environment of a classroom and school is not only important in terms of student development and learning but also is an important consideration in terms of teacher performance and well-being. Schools are places where human interaction is central to teaching and learning and the work of Bandura (2006) and others is not only important for considering pedagogy, student outcomes and student welfare but also significant when considering teacher welfare. For example, teachers are among the highest white-collar ▶

professionals in self-reported work-related stress; such stress is often a major contributing factor to teacher burn-out (Johnson et al., 2005). There has been a great deal of research into stressors present in the teaching environment, highlighting a number of contributing factors, including class size, high-stakes testing, challenging student behaviours and school management structures to name a few (see, for example, Ballet & Kelchtermans 2009; Montgomery & Rupp, 2005). Aside from the potential health issues associated with burn-out, it is also evident that as teachers burn out, their tolerance, relationships with others and concern and care for their students decline along with associated lowering of outcomes in terms of student achievement (Black, 2001; Cozolino, 2013). Interestingly, just about every correlate of teacher burn-out links directly or indirectly to the negative effects of social and emotional disconnection, suggesting that future teachers would benefit greatly from training that includes a strong emphasis on the social and emotional skills required to succeed personally and as a teacher (Cozolino, 2013). It is important for future and current teachers to constantly ensure they take care of their own well-being and hierarchy of needs within the social milieu that exists when working with young minds in an educational context.

Ask yourself...

1. In your experiences as a student, have you encountered any teachers who may have appeared to be burnt out? Conversely, did you engage with teachers who seemed to have an endless supply of energy and enthusiasm? What do you think might have been contributing factors to each and within particular contexts?
2. A number of studies have shown that teachers who experience more positive emotions related to their work are more resilient, intrinsically motivated and better able to cope with the demands of their job. What strategies, if any, do you have to deal with stress and foster your own resilience? What might you be able to do with students to build positive emotions in your classroom?

Constructivist orientations to learning

Not too dissimilar to some of the other orientations presented above, constructivist orientations to learning (**constructivism**) share a number of related perspectives and theorists. Dewey, Montessori, Steiner, Piaget and Vygotsky are historical influences within aspects of this orientation to learning (Martinez, 2010; Merriam et al., 2007; Snowman et al., 2009). One leading theorist has gone so far as to describe constructivism as 'a vast and woolly area in contemporary psychology, epistemology and education' (von Glaserfeld 1997, p. 203). Perhaps the woolliness in this area stems from a variety of perspectives that have been labelled constructivist and, while there does not appear to be one easily defined constructivist theory, the simple underlying premise for constructivists is that learning is a process of constructing meaning; it is how people make sense of their experience (Merriam et al., 2007). Beyond that premise there are significant differences among constructivist

Constructivism
A theory of learning whereby individuals construct knowledge and meaning from their experiences.

theorists as to the role of experience, the nature of reality, what knowledge is of interest and whether the process of making meaning is primarily an individual or social one (Steffe & Gale, 1995). The distinction between whether a person constructs their learning and understanding through a social process or as an individual is an important one. This dichotomy has seen the emergence of the two most prominent versions of this orientation: *cognitive constructivism* and *social constructivism*.

COGNITIVE CONSTRUCTIVISM

Cognitive constructivism focuses on the individual and the role of cognition in accommodating new information in existing conceptual frameworks or schemes. The overlap with a cognitive orientation to learning is fairly self-evident and may be considered an extension of Jean Piaget's work. Indeed, some view Piaget as a constructivist and perhaps the most important originator of cognitive constructivism (Martinez, 2010). Within this branch of constructivism, making meaning relies on an individual's cognitive capacities and abilities, whereby meaning is constructed via the individual's previous and current knowledge structure; learning is the product of an internal cognitive activity; and learners actively construct knowledge and understanding (Merriam et al., 2007; Nagel, 2013a). In an educational context, this orientation suggests that learning is accommodated through providing experiences that 'induce cognitive conflict and hence encourage learners to develop new knowledge schemes that are better adapted to experience. Practical activities supported by group discussions form the core of such pedagogical practices' (Driver, Asoko, Leach, Mortimer & Scott, 1994, p. 6). It is significant to note that, while cognitive constructivism focuses on the individual, classrooms that embody such practices are recognised as places where individuals are actively engaged with others as they attempt to understand and interpret phenomena for themselves and where the 'teacher's role is to provide the physical experiences and to encourage reflection' (Driver et al., p. 7). This stands in contrast to the theoretical foundations of social constructivists.

SOCIAL CONSTRUCTIVISM

Social constructivism also focuses on the construction of meaning but emphasises the use of *cultural tools* (for example, language, mathematics, diagrams, approaches to problem solving) as a fundamental influence on making meaning. Social constructivists often refer to the learning process as a form of negotiating meaning, given the links between one's cultural tools and the necessity of engaging socially in talk and activities about shared problems or tasks (Merriam et al., 2007; Snowman et al., 2009). For social constructivists, making meaning is a dialogic process and, while a learner's cognitive capacities are important, it is the cultural tools at learners' disposal that shape learning through authentic, real-life activities to create common or shared understanding of some phenomenon (Nagel, 2013a; Snowman et al., 2009). The works of the Lev Vygotsky and Jerome Bruner are often associated with this orientation. Briefly, Vygotsky viewed learning as an activity socially mediated through

the symbols and language of a culture, while Bruner advocated a discovery approach to learning via the use of problem solving (Krause et al., 2010).

See Chapter 9 for a detailed look at the work of Vygotsky and Bruner.

Although cognitive and social constructivists emphasise different aspects of learning, they are not completely incompatible. In his description of constructivist epistemology, Windschitl notes that 'learning is an act of both individual interpretation and negotiation with other individuals' (2002, p. 142). Each approach does not deny the value of the other and all forms of constructivism understand learning to be an active, rather than a passive, endeavour (Merriam et al., 2007). In an educational context, learners are viewed as self-regulated and active participants in their learning and active 'constructors' of meaning through individual and group endeavour. For constructivists a fundamental consideration is the student, and so too is the fostering of positive student–teacher relationships.

CONCLUSION

It should be apparent that the orientations to learning noted in this chapter maintain important considerations in terms of all aspects of educational endeavour. It should also be apparent that the divergence of ideas found within each orientation posits a degree of legitimacy in views of learning as being complex and multifarious (Claxton, 1999). Generations of teachers have drawn their insights from the theories and theorists noted throughout this chapter and many continue to do so. Importantly, we should never assume learning to be a simple, taken-for-granted notion of the daily interactions between teachers and students in schools. Nor should teachers or those training to be teachers assume that they have learnt all they need to learn about learning once they take charge of a classroom. As noted in the Introduction of *Understanding Learning and Development*, neuroscience has made great strides into the discipline of education and our understanding of human development while also providing teachers with new understandings of learning. Chapter 2 continues this journey into understanding learning by exploring the important links between human development and learning.

CHAPTER SUMMARY

This chapter opened with the question 'what is learning?' This approach provided you with an opportunity to look at learning as both a product and process and draw an understanding of the differences between each. This led to an exploration of the subtle differences between teaching and learning and a brief history of each in Western school settings, underpinned

by the claim that some current practices of 'education' do not align well with a number of theories of learning, particularly as they relate to contemporary students. In order to support such a claim a number of prominent orientations, or theoretical perspectives, of learning were presented. It is important to reiterate that there is a vast number of theories of learning; those that have been explored represent a select group that, to date, have and continue to have prominence in educational practice. Various aspects of behaviourist, cognitive, humanistic, social cognitive and constructivist orientations to learning are likely to play a part in your career as a teacher and a broad overview of each was offered to assist in your development as a teacher.

Implications for Teaching

As noted early in the chapter, many generations of students experienced a factory-line approach to being educated. For many years students were viewed as *tabula rasa*, a Latin term meaning 'blank slate', and the role of a teacher was to fill that empty void with the knowledge that was deemed important at the time. From the 1970s onward, researchers began to articulate aspects of learning as a process as much as a product. Concurrently, the advent of technology which has given rise to an age of seemingly endless information calls into question the need or actual possibility of pouring a continuing exponential growth of information and/or knowledge into the heads of students. For some researchers and theorists there is still a worrying trend, at a systemic level, to perpetuate a factory model through the continued use of standardised testing and many other artefacts of twentieth-century schooling. The issues with standardised tests are covered in Chapter 10 but foreshadowed here as an example of something you may have personally experienced and might now question as a valid mechanism for determining any degree of learning. Indeed, one important question for you to continually reflect on in your personal practice is 'am I teaching the way I was taught?'

This question is an important one; like standardised tests, it is explored in more detail in Chapter 10 under the term 'apprenticeship of observation' (Lortie, 1975). At this stage, after working through this chapter, it is important to keep this phrase in mind as you explore the following questions.

Ask yourself...

1 After working through the chapter, has the definition of learning that you were asked to write at the beginning of the chapter changed? If so, how?

2 Given your experiences as a student, have there been times when you felt your learning was enhanced or optimised? If so, under what conditions did this occur?

PRACTICAL ACTIVITIES

1 *While on practicum*, document the methods used to determine when or how learning has occurred. List all of these in one of two columns in a table under the headings 'Product' and 'Process'. Is one column larger than the other and, if so, what does that indicate to you? Could you design different ways to determine what, if any, learning has occurred?

2 *While on practicum*, jot down any examples of particular theoretical approaches to learning that you observe during the course of your practicum. Are some theories more apparent than others? Do some approaches resonate better with your own beliefs about learning and, if so, how might you engage with such approaches as a teacher?

STUDY QUESTIONS

1 What are the five broad theoretical orientations presented in the chapter? Note the main focus of each.

2 What is the difference between positive and negative reinforcement? List some examples of each in a classroom context.

3 What are the five levels of the Maslow's hierarchy of needs? List some ways in which you might be able to help students meet basic and psychological needs at school.

4 Social learning theory is important in terms of behaviour and learning. What does this theory mean for you as a future teacher and potential role model for your students?

5 What are the primary differences between cognitive constructivism and social constructivism? Provide examples of each in relation to educational and pedagogical contexts.

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VIDEO LINKS

Crash Course: *The Bobo Beatdown—Crash Course Psychology #12*
https://www.youtube.com/watch?v=128Ts5r9NRE

A succinct clip highlighting the impact of Albert Bandura's work on our understanding of behaviour and learning with a look at interesting learning concepts associated with his work.

Study.com: *Constructivism: Overview and Practical Teaching Examples*
http://study.com/academy/lesson/constructivism-overview-practical-teaching-examples.html

A concise look at constructivism and its application within classrooms.

WEBLINKS

Center for Innovation in Teaching and Learning http://cte.illinois.edu/resources/topics.html

A useful website with a number of links to theoretical and practical resources and ideas for the classroom.

Framework for 21st Century Learning http://www.p21.org/our-work/p21-framework

Although it is based in the United States with a view to enhancing educational structures and practices there, this site offers resources and ideas for engaging learners through contemporary understandings of learning, society and culture.