

# Chapter 4

## The Intuitive Mind



**Abstract** This chapter argues that recent insights into the intuitive mind can help us understand the deeper processes of language and culture learning. It gives an overview of dual-processing models of cognition, which describe the contrasting processes of the conscious and unconscious mind. It examines the role that the intuitive mind plays in navigating our everyday lives, and distinguishes between contrasting forms of knowing and learning: *surface* (explicit, conscious, conceptual) and *deep* (implicit, tacit, intuitive). Gaining intuitive knowledge is said to be a key goal of both language and culture learning. Gaining intuitive knowledge is said to be *deep*, *complex*, and *intense*. It requires the embodiment of complex patterns, a process that is experienced in intense, often challenging, ways. This chapter reviews ideas related to intuitive knowledge in intercultural education, and lays the groundwork for exploring the notion of deep learning in the next chapter.

### 4.1 Two Forms of Knowing

Mastering a foreign language requires more than intellectual understanding. More purely academic subjects, such as science or history, are more primarily concerned with facts and conceptual understanding. Foreign language fluency, on the other hand, requires a deeply involving learning process. What may start as a purely intellectual exercise—the memorization of words and the study of grammatical rules—is transformed and internalized into something more personal. Ideally, the new language becomes second nature to us—a creative medium through which we express our thoughts, feelings, and identity. When internalized in this way, language learning is no longer an academic subject—it becomes a part of the self. This is psychologically demanding. To master a new language, we must live through an extended period of ignorance and awkwardness, until hopefully, we can simply be ourselves in the new language.

Similarly, deeper forms of cultural learning require more than intellectual knowledge. There's a big difference between factual knowledge *about culture* and the understanding we gain through lived intercultural experiences. A magazine article about Senegal does not provide a deep understanding of Senegalese culture, the ability

to speak Wolof, or the ability to adapt to life in Dakar. Deeper cultural understanding involves making sense of cultural difference, understanding our own cultural programming, overcoming critical and ethnocentric judgments, learning to look at situations in a new way, and a willingness to question one's own values and cultural assumptions. At very deep levels of adaptation, people report that they learn to switch between different cultural worldviews, and may even become cultural chameleons (Shaules 2007). This sort of development and inner change can be stressful—we may experience culture shock abroad, or feel frustrated with the “unreasonable” behavior of cultural others. We may develop a sense of shifting between different cultural perspectives as we become increasingly multicultural. Such deep learning does not come from a book.

Educators are familiar with these contrasting forms of knowing. They recognize that intellectual knowledge can be quite separate from deeper forms of understanding that we apply in the real world. This is true for both language and culture. Correct answers on a vocabulary quiz often don't equate to the ability to use words or expressions in real life. Learners may have extensive knowledge of grammatical forms yet lack fluency. Conversely, they may have picked up the ability to communicate with fluency, without knowing much grammatical terminology. And so it is with cultural knowledge as well. Someone may have extensive intellectual knowledge about a country or region, and yet still be biased, narrow-minded, and culturally insensitive. Some expatriates may be experts on the hot spots in New Delhi or Lagos, yet still, look down on “the locals”. Conversely, some may have a highly intercultural outlook and be deeply insightful about cultural difference, all without ever having studied intercultural theory.

This chapter will argue that language and culture educators should distinguish between two contrasting forms of knowing and learning: *surface* (explicit, conscious, conceptual) and *deep* (implicit, tacit, intuitive). Surface learning relates to *explicit knowledge*—that which is semantic and verbal; we can manipulate it consciously in our mind, while deep learning is related to *implicit knowledge* that is tacit and intuitive (Poppel and Bao 2011). These differing forms of knowledge are a product of two contrasting constellations of cognitive function: (1) the more conscious, analytic processes of the *attentive mind*, and (2) the less conscious functioning of the *intuitive mind*. While we all have a commonsense understanding of this difference, an understanding of the cognitive processes involved is argued to be important for language and culture educators. Despite its importance, we often take intuitive abilities for granted, and think about learning primarily in terms of intellectual knowledge and skill practice.

A major theme of this work is that at deeper, more intuitive levels of cognition, language, and culture are closely related. This implies that an integrated approach to language and culture learning should emphasize deep learning—the process by which we gain these more intuitive forms of knowing and mastery. The DMLL provides a roadmap for understanding this process. This sort of learning is *deep*, *complex*, and *intense*. It involves the integration of *complex* patterns of knowledge, not just individual facts. That process occurs *deep* in the intuitive part of our mind, which allows for the development of a new set of linguistic and cultural intuitions.

When we attempt to modify these deeper processes, we discover the highly psychological—*intense*—nature of both language and culture learning. To gain insight into this process, let's take a closer look at the attentive and intuitive mind.

## 4.2 The Intuitive Mind

Different forms of knowing are associated with contrasting types of cognitive processing (Han and Poppel 2011). We know this because of recent advances in our understanding of the neurocognitive processes of the mind (Hassin et al. 2007; Sporns 2013). Research in cognitive neuroscience has led to a “dual process” understanding of cognition (Evans and Frankish 2009; Evans 2010; Sherman et al. 2014). This refers to the distinction between: (1) more conscious mental processes involved with focused *attention*, explicit *knowledge*, critical *analysis*, and conscious *imagining*, and (2) unconscious processes that are more *pattern based* and *intuitive*. There is, to be sure, no clear line between the two. For the most part, in fact, these two forms of processing work seamlessly together, such that we don't even notice any distinctions. They are also interrelated—we do, after all, have intuitions about intellectual knowledge, and some ability to conceptualize and explain our intuitions. Despite these caveats, there are important distinctions to be made between these contrasting forms of cognition.

More conscious processes are engaged when we hold a thought in our head, “think through” a problem, imagine alternative outcomes, or analyze something conceptually (Kahneman 2011). In everyday life, we generally refer to this simply as “thinking”, “conscious thought”, “concentrating on something”. More specifically, we may describe it as analyzing, imagining, focusing on, paying attention to, or working things out in our heads. These functions are also sometimes referred to collectively as the conscious mind, which has traditionally been contrasted with the unconscious, or subconscious, mind (Brill 1995). Shaules refers to this set of more conscious capacities as the *attentive mind* (2014). This terminology emphasizes intentionality and focused attention—the sense that we can choose to think about or learn particular things.

Our capacity for more conscious forms of cognition is limited. We can only pay attention for so long, and these capacities are diminished by mental exertion or physical fatigue (Kahneman 2011). This is why taking a test can be exhausting and why it's hard to study when we are tired. The attentive mind is also associated with executive function, the willful self-control we exercise consciously. It also includes the sense that we are an observer of our own mental processes—we can “see” images or ideas on a mental canvas, or experience a thought (Chocolate!) popping into our mind. By and large, the more conscious processes of the attentive mind are what we typically think of when referring to mind, thought, cogitation, and cognition. The evolutionary commonality to such cognition is its usefulness in focusing our attention on novel situations. We have survived as a species because of our capacity to attentively think through new problems, and plan solutions.

Deeper, less conscious forms of cognition are responsible for abilities that are complex, yet feel simple to us, such as vision, recognizing faces, processing language, habitual behaviors, or reading social cues (Hassin et al. 2007; Kihlstrom 1987; Lieberman 2007; Mlodinow 2012; Wilson 2002). This constellation of cognitive function is referred to variously as: the *adaptive unconscious* (Wilson 2002), the *cognitive unconscious* (Kihlstrom 1987), the *intuitive mind* (Evans and Frankish 2009; Evans 2010; Shaules 2014), the *new unconscious* (Hassin et al. 2007), the *X-system* (Lieberman 2007), or *fast thinking* (Kahneman 2011). The plethora of terminology reflects the newness of this field of study, as well as the complexity of the phenomena being studied. Specialists come from different backgrounds, and may focus on different elements of cognition or experience. It would be an overstatement to say that unconscious cognition is clearly understood, even by specialists.

Regardless of these limitations, there is a wide agreement among researchers about key elements of unconscious cognition. It is more powerful, more complex, and less under our control, than previously imagined. Wilson (2002) compares the intuitive mind to the autopilot of a modern jetliner, one that is able to fly without the input of the conscious pilot. Evans (2010) remarks that our attentive mind thinks it's in control, while in fact it's more accurate to say that "we (conscious beings) make up stories to maintain the illusion that we are the chief executive that is really in control" (p. 6). Similarly, Haidt (2012) refers to the limits of conscious control with a metaphor of an elephant as the intuitive mind, with conscious reasoning as the rider whose job is to serve the elephant. This work borrows terminology from Evans, who refers to this deeper processing as the *intuitive mind*. This term captures the way that we often experience these deeper cognitive processes—as a form of knowing that is experienced vaguely yet powerfully.

When everything is running smoothly, we have no need to pay attention to the many functions the intuitive mind is responsible for. We don't calculate consciously how to walk, nor think about grammar when speaking our L1, nor notice the cognitive processes that allow us to recognize the faces of our friends. The importance of unconscious cognition is reflected, ironically, in our obliviousness to it. To be clear, the intuitive mind is not just a mental autopilot that serves the whims of our conscious mind. It is powerful in its own right, and influences us in many ways—it provides us with our sense of what we want, what things mean, what feels right, how things work, or what is normal (Vedantam 2010). Unconscious cognition has its own independent mandate—to keep us safe, to socialize successfully, to reproduce, to avoid danger, to seek out reward, to learn useful new skills, and so on. The intuitive mind is also of crucial importance in motivation—we feel driven to do certain things and to avoid others (Campese et al. 2016; Elliot and Covington 2001; Simpson and Balsam 2016).

A basic understanding of the intuitive mind is increasingly seen as critical for educators. This can be seen in the emerging field of educational neuroscience, which is linking our emerging understanding of brain and cognition to questions of pedagogy and learning, with particular attention paid to areas such as reading, attention, numerical cognition, and memory (Ansari 2014; Brookman 2016). This is encouraging a more "brain-friendly" approach to education (Medina 2008), and a better understanding of the psychology of learning. It also reminds us that learning doesn't happen

solely in some independent mental space. It is a complex experience that is grounded in the physical and emotional processes of the whole body. For its part, this work will argue that cultural understanding is primarily a form of intuitive knowledge—something gained through a process of experiential learning, pattern recognition, and intuitive insights. The idea that intercultural understanding is primarily intuitive contrasts with the notion that it relates primarily to higher order forms of cognition and reflective understanding.

### 4.3 Intuitive Knowledge

An understanding of the intuitive mind provides insight into the difference between explicit knowledge and intuitive (implicit) knowledge (Poppel and Bao 2011). In everyday life, we recognize that we know certain things that can be recalled or explained at will, or that we have understood through some mental process of analysis or reflection. We also, however, have nonrational knowledge—we “just know” how something is without conscious cogitation. Sometimes, we call this knowledge intuition, as when we say: *To be a good parent you need to follow your intuitions*, or *After years of experience, she had learned to trust her intuition*. Such knowledge is experienced as vague sensations, which we may describe with words such as *gut feeling*, or having a *sense* for something. Intuitive knowledge can be powerful yet hard to explain, such as the feeling of rightness we experience when we fall in love at first sight; it can be very subtle, as when we pick up on our boss’s bad mood; it can relate to skills, as when we have a feeling for working with wood; it can be abstract, as when we describe an idea or solution as elegant. We typically think of explicit knowledge in terms of formal learning, and implicit knowledge in terms of doing, feeling or sensing.

Traditionally, inquiry into forms of knowledge (epistemology) has been primarily the domain of philosophers. Benedict de Spinoza, for example, believed that humans had three sources of knowledge, (1) imagination, (2) rational knowledge, and (3) intuitive knowledge (Dockstader 2018). He considered intuitive knowledge—which involved direct knowing of eternal truths—to be superior to the others. In this view, intuitive knowledge is experienced directly, without a need for rational thought and analysis. Such nonrational knowledge has long been associated with divinity and higher truths. In the Buddhist tradition, enlightenment is considered a direct form of knowledge that is impossible to articulate or explain rationally. In the Christian tradition, believers experience God’s grace directly, or may receive divine inspiration. Intuitive understanding has also been emphasized in the arts, with importance placed on forms of knowing—such as inspiration, or one’s muse—that is fundamentally intuitive and not rational. On a more mundane level, we may refer to intuitive knowledge as common sense, or noticing. Often, we take intuitive knowledge so much for granted that we may not be aware of it at all.

In recent years, cognitive neuroscience has been shedding light on the processes involved with our intuitive experience of the world. This field of inquiry is expanding

at a breathtaking pace. It is touching upon a wide range of cognitive abilities in areas as diverse as mental health (Brandao 2006), religious experience (Boyer 2001), decision-making (Iyengar 2010; Klein 1998; Vedantam 2010), psychological change (Wilson 2011), moral intuitions (Boehm 2012), the nature of rationality (Damasio 1994; Lakoff and Johnson 1999; Stanovich 2011), emotion (Barrett 2017), empathy (Keysers 2011; Zaki 2014), consciousness (Damasio 1999, 2010), unconscious bias (Ariely 2009; Banaji and Greenwald 2013), the power of intuitive understanding (Gigerenzer 2007; Gladwell 2005), learning and education (Medina 2008; Sousa 2010; Torff 2001), linguistic meaning (Bergen 2012), cultural difference in cognition (Chiao 2009; Nisbett 2003), and intercultural understanding (Shaules 2014). It is grounded in a more detailed understanding of conscious and unconscious cognition (Hassin et al. 2007; Kahneman 2011; Sherman et al. 2014), the structures of the brain, and the neural networks that underpin cognition (Sporns 2013). Taken as a whole, such work teaches us that our everyday intuitive sense of the world is a result of highly complex cognitive processes that operate largely out of reach of conscious cognition. We are so unaware of these hidden elements of self—our motivations, actions, impressions, decision-making—that we are truly “strangers to ourselves” (Wilson 2002).

This body of work is allowing us to go beyond the idea that intuitive knowledge comes from some nebulous creative or other-worldly realm. Hodgkinson et al. (2008) argues that the notion of intuition forms an important bridging concept for the social sciences:

Intuiting is a complex set of inter-related cognitive, affective and somatic processes, in which there is no apparent intrusion of deliberate, rational thought. Moreover, the outcome of this process (an intuition) can be difficult to articulate. The outcomes of intuition can be experienced as a holistic ‘hunch’ or ‘gut feel’, a sense of calling or overpowering certainty, and an awareness of a knowledge that is on the threshold of conscious perception. (p. 4)

This definition emphasizes the unconscious processes that produce intuitions, together with the sense of certainty the intuitions provide. Intuitive knowledge occupies a vague between-state on the threshold of what we perceive consciously—we are vaguely aware of our knowledge, but don’t know where it comes from.

This work defines intuitive knowledge as *our largely unarticulated sense for how to do things, how things work, and what things mean*. This definition is broad because we rely on intuitive knowledge in at least three different realms: (1) our intuitive sense of the physical world, (2) our intuitive understanding of people and mind, and (3) the learned intuitive knowledge related to skills or internalized bodies of knowledge. These first two categories are relatively “built in” to our perceptual processes, while the third is related to complex knowledge and skills we learn as we interact with our environment. This distinction, however, is very fuzzy. Linguistic intuitions, for example, are built in (as speakers of our L1 we possess “native intuition”), but linguistic patterns are internalized from our environment as we grow up. Similarly, while the ability to read the intentions of others is a universal element of human cognition, doing so successfully requires a process of socialization. That is to say, we can read behavior best in familiar social environments, and have more trouble

intuiting the inner states, predicting behavior, or anticipating the reasoning of, people in foreign lands. Similarly, the intuitions we develop from complex skills, such as playing a sport, are developed from universal abilities such as using our bodies and manipulating physical objects.

In everyday life, the intuitive mind works in the background, guiding us through our day, managing routine tasks, and helping us navigate our interactions with the world. Our knowledge that we are hungry, thirsty, or cold is intuitive, as is the fear we experience when under threat. Our intuitive knowledge is sometimes experienced in terms of urges, desire, motivations, nervousness, disgust, and trepidation. We feel an urge to get up and go to the cupboard for a snack; a desire for the latest tech gadget; motivation to get good grades; nervousness when being approached by a group of rowdy youth; and trepidation when we walk into a room full of strangers. We simply “know” when a sentence in our native language is grammatical. We somehow “read” the faces of friends and intuit their state of mind; we have a “feel” for how much salt to add to our scrambled eggs; we have a “sense” for how to be polite when disagreeing with our father-in-law. Despite its importance, we experience intuitive knowledge quite vaguely as a feeling of rightness, mastery of a task, or simply a bland assurance that objects and people will behave as we expect.

We should take care not to oversimplify. Intuitive knowledge isn’t a single thing—there are many cognitive systems that help us navigate our everyday lives. One source of intuitive knowledge is what psychologists refer to as *intuitive physics* or *naïve physics*—our sense for how the physical world works, such as an understanding that a thrown object will not continue on forever, or that water flows downhill, not up. Research has shown that these intuitions about the world start early in life, and are a relatively “built in” part of our perceptual systems (Smith and Vul 2012). Another relatively hard-wired form of intuitive knowledge is our sense for people and mind such as our understanding that people are driven by internal drives and desires. Unlike very young children, we simply *know* that each individual has a point of view unique to them. Some research suggests that this *intuitive psychology* is managed by different cognitive processes than our sense for the physical world (Kamps et al. 2017).

These largely endogenous (inner-driven) forms of intuition can be contrasted with more exogenously (externally specified) forms of intuition. Exogenous intuitions provide us with a sense of the world that we learn through socialization and experience. We have an intuitive sense for expectations about social behavior, and the worldview of communities we participate in. We know whether an idea or behavior will be considered radical, immoral, or typical—whether, for example, our clothes will be considered conservative or risqué. These social intuitions have their roots in *deep culture*—the unconscious background knowledge we acquire from community and society. When we are in routine situations in familiar environments, we may be largely oblivious to these social or cultural intuitions. In a new environment, our intuitive knowledge may fail us. In intercultural contexts, we may find people’s behavior inexplicable or unreasonable because it doesn’t match our intuitive sense for how things should be done.



## 4.4 Intuitive Knowledge and Complex Skills

In addition to socially based exogenous intuitions, we also gain intuitive knowledge through learning. Klein (1998) refers to our intuitive sense for highly complex behaviors and bodies of knowledge as *expert intuitions*. Klein studied the intuitive knowledge of surgeons and firefighters, and found that they experience their expertise in terms of instinct, sense, or a feeling about a task or situation. One firefighter, for example, ordered his team to leave a burning building just before the floor they had been standing on collapsed. He somehow knew that things didn't feel right. The firefighter himself could not explain or describe the decision-making process, but spoke of a "sixth sense" that he had learned to rely on. While such sensations may seem mysterious, they reflect a basic feature of our cognitive architecture. The intuitive mind learns through an ongoing process of experience, recognizing patterns, predicting likely outcomes, and modifying internal models to match patterns found in the environment. Once we have internalized these patterns, we can act with quick assurance, without resorting to the cumbersome process of consciously analyzing potential outcomes.

Such intuitions are not limited to experts such as heart surgeons or firefighters. Throughout our lifetime, we acquire an intuitive understanding of many complex domains. A jazz musician internalizes musical structures so thoroughly that they can improvise intuitively, without being conscious of particular notes or theories about harmony. We also develop expert intuitions about more mundane skills: cooking, playing a sport, practicing a profession, using a piece of software, playing a video game, working with wood, fixing electronics. A skilled cook "whips up" something to eat or experiments with new dishes based on their "feel" for cooking and ingredients, just as a carpenter develops a "feel" for different woods and building techniques. This sort of expertise involves *internalized knowledge that we act on through a feeling of expertise and creative engagement*. This is sometimes experienced as *flow*, the subjective sense of being fully absorbed and engaged with an activity, to the point of losing track of time (Csikszentmihalyi 1997). Complex intuitive knowledge is related to activities that are pattern based yet not fixed—art, music, language, sports, crafts—they provide us with stable structure that, when mastered, becomes a medium for creativity.

Developing intuitive knowledge of a complex domain requires integrating disparate elements of knowledge into a larger whole—for example, playing soccer requires a range of individual skills, such as ball handling and kicking, together with an internalized understanding of the rules of the game, an ability to read the patterns of play on the pitch, an ability to anticipate the actions and reactions of our teammates, and a larger sense of the significance of a particular game. All of these capacities are integrated into a single intuitive sense that we describe simply as *playing soccer* or *being a good soccer player*. This is true of more abstract domains too. A lawyer learns many facts and procedures when studying law, but with experience develops a "feel" for the law, and may learn to practice law in creative ways. The same is true in any number of domains: a banker can develop a feel for finance; a real estate agent



can have a sense for what's happening in housing markets; an economist may have gut reactions to changes in the state of the economy. Such intuitions are multidimensional, and draw on any number of experiences, all integrated into a unified sense of knowing. Such expertise goes beyond detailed knowledge, or an accumulation of facts—it involves a subjective sense of mastery and creativity within that domain.

Intuitive knowledge builds upon itself at ever-higher levels of complexity. Before we can become a carpenter, we need to learn to use a hammer to drive nails. Even this simple task entails intuitive knowledge. With practice, we learn how to tap gently to get the nail started, then strike it harder as we drive it deeper into the wood, only to ease up toward the end so that we don't bang the surrounding wood. In the beginning, we may often misstrike the nail head, but later gain the mastery to drive nails confidently and quickly. The ability to use a hammer, however, is only one of many skills a carpenter draws on. We need to gain an intuitive feel for saws, planers, screwdrivers, levels, marking tools; we must learn the qualities of different woods; understand design and construction techniques, and so on. Each of these different domains can be learned separately, but as we combine knowledge from these different areas, our sophistication as a woodworker increases exponentially. It takes years to gain a high level of intuitive mastery in a domain as broad as woodworking because it's always possible to incorporate deeper knowledge from any number of related domains.

This more detailed understanding of intuitive knowledge provides us with a new blueprint for understanding language and culture learning. Our ability to read a social situation, or use language, depends largely on intuitive mastery of social and linguistic patterns. This leads to a rather bold premise: *language and culture learners face the same challenge as anyone learning a complex skill*, such as, say, soccer. As with language and culture learning, learning to play soccer involves internalizing knowledge and skills such that we can use it intuitively. It requires combining many discrete elements until we achieve a sense of intuitive mastery. It also requires that we practice with others, play games, and fit into the team. It requires the motivation to show up to practice on time, and the willingness to learn from coaches and teammates. From this perspective, language and culture learning are not separate cognitive functions, they are part of our general ability to master complex skills and develop intuitive knowledge of new domains.

## 4.5 The Intuitive Mind and Deep Learning

Broadly speaking, our intuitive mind learns through experience, pattern recognition and trial and error (Lund 2001). This means it requires time and effort to modify its functioning, and we often can't consciously control this process. Obviously, language learning would be much simpler if we could read an explanation of grammatical structures, and then have that knowledge immediately available for use in real life. But that's not how our mind works. The intuitive mind requires a process of making sense of new patterns and experimenting with them. Typically, we focus our conscious attention on individual elements that we would like to learn, then gradually

experiment with this knowledge as we make mental connections and start to get a feel for how things work. This process doesn't happen in a predictable linear fashion, and thus can't be controlled or predicted by our analytic thought processes. This can be frustrating, as when we can't get the hang of a new skill, or feel awkward as we practice. Experiential learning is a blessing and a curse—it is laborious and time-consuming, but once we have internalized it, our new skill becomes increasingly effortless.

To complicate matters more, the intuitive mind has its own motivational imperatives. It functions independently of our conscious goals and aspirations, and thus drives or resists behavior independently of our conscious mind. We may tell ourselves we should study, but resistant actually doing so. We may consciously know that the third piece of chocolate cake is not good for us, yet feel a powerful urge to reach for it anyway. The attentive mind must work in tandem with the intuitive mind, so that it doesn't turn against us and resist learning and change. It may resist tasks which make us feel uncomfortable, or which don't seem worth the effort (Elliot and Covington 2001).

An understanding of the intuitive mind sheds light on the psychology of language learning motivation, cultural bias, and more. It helps explain why we may rationally believe that learning a foreign language will benefit us, yet find we have no motivation to study (Shaules 2017). It's one reason we should be sympathetic towards unmotivated students—it's not something that they can necessarily control at will. This also helps us understand why ethnocentrism or unconscious bias are so hard to overcome. An intellectual commitment to respecting cultural diversity may go out the window when faced with obnoxious-seeming behavior in a foreign country. Our intuitions are experienced in our guts—as an integral part of who we are. They are not, therefore, easy to change or control. A deep learning perspective reminds us that we must take these deeper, hard-to-control elements of self into account.

## 4.6 Intuitive Knowledge in Intercultural Education

In intercultural education, there is a disparate body of work that touches upon culture and unconscious cognition. As we have seen, Edward Hall wrote about the importance of unconscious cultural programming. Since Hall, the notion that culture affects us in subtle and powerful ways has been widely accepted. Culture is commonly conceptualized as having more conscious and unconscious components, referred to as objective and subjective culture (Triandis 1972), or explicit and implicit culture (Trompenaars and Hampden-Turner 1998). A common metaphor for expressing this distinction is the image of culture as an iceberg, largely hidden beneath the surface of awareness. Culture is also sometimes referred to as a sort of programming, or software for the mind—a computer metaphor which draws attention to the importance of unconscious cultural conditioning (Hofstede 1997). Broadly speaking, then, intercultural educators recognize that culture affects us at deep levels of the self, including the unconscious mind.

In more recent years, researchers have started to go beyond such metaphorical understanding and explore issues of culture and mind more empirically. Markus and Kitayama (1991), for example, have examined the role that culture plays in cognition, emotion, and motivation. This work corresponded with an increased interest in and understanding of unconscious cognition (Hassin et al. 2007). Richard Nisbett, an early researcher in this area, wanted to test the premise, found in cross-cultural studies, that Westerners tend more toward discrete, subject-object thinking, while East Asians have more holistic, context-specific thought processes (Nisbett 2003). He carried out and reviewed a wide range of studies that compared cognitive tasks by people from different countries and regions. He found differences in a wide range of areas that largely supports this basic premise. Such research finds cultural difference in our intuitive understanding of the world—it shows that our feelings of how things work, and our sense of self, and what we pay attention to, can all be shaped by cultural influences that are powerful yet subtle.

While the power of cultural conditioning is increasingly recognized, there has been little focus on how such conditioning can be modified. Hall, for one, felt that gaining awareness of our own unconscious conditioning was a supreme challenge for all of humankind (Hall 1976). Despite progress, however, we are still at an early stage of our understanding of how such deep learning and change happens. Research in cultural neuroscience and cultural psychology often focuses on more foundational issues, such as how culture and the environment shapes and is shaped by the biological processes of the brain (Ansari 2012; Chiao 2009; Dominguez et al. 2009; Han and Northoff 2008; Kim and Sasaki 2014), disentangling universal processes from those that are heavily culturally influenced (Chiao and Ambady 2007; Jack et al. 2012; Matsumoto and Willingham 2009), investigating particular domains, such as numbers (Herculano-Houzel 2009; Tang and Liu 2009), language (Kemmerer 2015; Pulvermuller 2002; Willems 2015), sociality (Han et al. 2011; Kitayama et al. 2013), and, importantly, exploring cultural differences in cognition, emotion, and identity (Han and Northoff 2008; Kitayama and Uskul 2011).

**Deep learning** If unconscious cognition is responsible for many of the intuitions that guide us through our daily lives, then how can we provide ourselves with new intuitive navigation tools? The next chapter attempts to answer this question. It focuses on the notion of *deep learning*—the process of embodying new domains of complex knowledge. Even in the best of circumstances, it is a challenge to learn a foreign language, and to adjust our intuitive autopilot to foreign ways of communicating and interacting. Human interaction is highly complex and culturally mediated. A smile can express shyness or anger; the timing of an invitation can indicate friendliness or distance; we cultivate allies at work among colleagues; we negotiate chores and lifestyle choices at home. Furthermore, we use humor, idiomatic expressions and wordplay to express not only our ideas, but also our individual style and personality. Using a foreign language at this high level of intuitive mastery is not easy. Linguistic and cultural programming is part of our mental operating system, and is not easily changed. With that in mind, the next chapter will explore the notion of *deep learning*, the process by which we can attempt to do so.

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