# Chapter 5
# Deep Learning


**Abstract** This chapter explores the notion of deep learning. It argues against the idea that language learning consists primarily of the ability to process a new symbolic code. Deep learning is challenging because it involves the embodiment of complex patterns. This is discussed in terms of the transfer paradox, the idea that breaking up complex knowledge into discrete pieces makes it easy to teach, but difficult to integrate, embody, and apply. It provides a conceptualization of deep learning, which is contrasted with similar notions found in SLA, such as implicit learning. The view of implicit learning in SLA is argued to be heavily influenced by the idea that language use is primarily a form of information processing. Deep learning is also contrasted with informal learning. Understanding levels of complexity is said to be critical for a deep learning approach to language and culture pedagogy. This chapter then reviews the four levels of learning as described by the Developmental Model of Linguaculture Learning.

## 5.1 A Deep Learning Perspective

More than a century ago, John Dewey decried forms of education that emphasized "the mere absorbing of facts and truths", and whose "only measure of success is a competitive one" that seeks to assess "which child has succeeded in getting ahead of others in storing up, in accumulating, the maximum of information" (Dewey 1900, p. 13). Dewey called for an experiential form of education that shaped mind and character at deep levels of self. His work was a call to arms—for reform of how we think about learning, and for recognition of the potential for creative learning and inner development. This, he believed, would help learners to play a productive role in building a better society, i.e., the inner development of the individual contributes to the greater good of all. This work shares this mission. It focuses on deeper forms of learning and development in language and culture education, with the goal of contributing to the greater good in an increasingly intercultural and globalized world.

This chapter argues that we should put less emphasis on *how much* is learned, and more on *how deep* learning is. Learning that is deep is personally meaningful, enriching, and well integrated into multiple aspects of a learner's life and self.



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When we experience deep learning, new knowledge and skills become a natural part of self as they are integrated into existing mental structures. The experience of deep learning is one of a flow state—fully immersed in an activity, in an energized and absorbed mental state (Csikszentmihalyi 1997). Deep learning results in abilities that become a natural, creative part of our behavioral repertoire. Over time, deep learning changes us by transforming how we experience the world.

Dewey complained about education that treats learning as a form of competition to accumulate information. This is a common problem in language and culture education. Many foreign language syllabi are organized in terms of the number of vocabulary words learned, and a list of grammatical structures covered. Tests are designed to quantify that knowledge for the purpose of evaluating learner progress. Cultural learning, too, is sometimes treated as a form of abstract knowledge. Learners may study the history or traditions of a country or a region, for example, or intercultural concepts, such as definitions of the word *culture* or terms such as *intercultural communicative competence*. That's not to say that vocabulary items, grammatical structures, and cultural information is not important. It is a problem, however, if learners face a competitive onslaught of information without the time to integrate it and put it to creative use. This sort of pedagogy is one reason that we hear people say *I studied French for four years in school, but I don't remember a thing.*

There are two ways to think about deep learning—in terms of: (1) the learner experience, and (2) the mental processes involved. The former emphasizes the depth of learning in terms of meaningfulness, emotional engagement, lasting impact, and concern for the whole learner, not simply test scores or performance metrics. The latter relates to the role that conscious, analytic thought processes play in learning, as opposed to the more intuitive, experiential learning processes of the intuitive mind. In effect, learning involves two minds—the attentive mind and the intuitive mind. Surface learning engages the attentive mind relatively more, and results in more conscious knowledge, whereas deep learning results when the attentive and intuitive mind work in tandem. Deep learning fully engages our attention in the experience at hand. It results in abilities that are more fully integrated into the intuitive mind.

This chapter will touch on both of these areas, and compare the notion of deep learning as it is used in this book, and how deep learning relates to similar terms.

## 5.2 Two Learning Selves

A deep learning approach to language and culture pedagogy implies taking into account both attentive and intuitive mental processes—in effect, two learning selves. The attentive mind experiences the world as a form of focused attention and mental manipulation—we focus on things we want to remember, hold ideas in our mind, or do a step-by-step analysis of a problem. The intuitive mind, on the other hand, learns more holistically through experience and experimentation. As we practice something, we get a "feeling" for it, and develop mastery. But we often can't easily break down intuitive knowledge, or explain it in piece-by-piece fashion. That's one reason great

athletes aren't necessarily the best coaches. Coaching requires a conscious, analytic understanding that is distinct from the intuitive abilities that a player needs. A coach may even tell a player not to "overthink" what they are doing because it will impair their performance. Similarly, the ability to explain language (which teachers need), is not the same as the ability to use language (which learners need).

The attentive and intuitive mind don't always play nice with each other. The attentive mind is our cognitive problem solver, capable of conscious observation, analysis, planning, and critical judgment. Unfortunately, these critical processes can short-circuit our intuitive abilities by monitoring what we are doing, and trying to consciously modify it. Gallwey (1974) refers to this as the *critical self*, the inner monologue of self-criticism that we subject ourselves to when we are dissatisfied with our own performance. Using examples from his experience as a tennis coach, Gallwey describes players who berate themselves as they practice, muttering to themselves things such as *Keep your backswing low, you idiot! You're gonna hit the net again!* Unfortunately, such monitoring can be counterproductive. It can impair our ability to experiment and do the trial-and-error kind of learning needed to get a *feel* for what we are doing, and to apply the lessons we've been given.

Language learners often suffer from a highly active critical self. They may carefully construct sentences in their heads as they speak, for example, because they fear making mistakes. When we are nervous or stressed, our problem-solving attentive mind revs up, in order to monitor our progress and try to think our way through our difficult situation. Trying to make a sentence when called upon, or give a presentation in a foreign language, can put our attentive mind in overdrive—interfering with the ability to use what we know smoothly. Our attentive mind can also be overloaded simply because it is bombarded with new information that the intuitive mind doesn't have the opportunity to fully absorb. It needs time and experimentation to process and integrate it. Such pedagogy is top heavy—it has too much information and explanation, and not enough application and experimentation. You can't ignore the attentive mind, but you shouldn't overload it either. Figuring out how to get these two selves working together, such that more integrated intuitive knowledge results, is a key challenge of deep learning.

## 5.3 The Transfer Paradox

This difference between these two cognitive domains—the holistic nature of intuitive knowledge versus the discrete nature of conscious knowledge—creates particular pedagogical challenges. Language and culture educators suffer greatly from the *transfer paradox*. This refers to the idea that the "methods that work the best for teaching isolated, specific objectives are often not the methods that work best for reaching integrated objectives and transfer of learning" (Van Merrienboer and Kirschner 2018). In other words, the most efficient way to teach complex knowledge is to break it up into small pieces and learn them separately. But this pedagogical "efficiency" leads to fragmented knowledge that is hard to use holistically and apply

in real life. While the attentive mind processes information in discrete form, the intuitive mind requires experimentation and experience to integrate new knowledge.

Language teachers constantly face the transfer paradox. They know that students may get correct answers on a vocabulary quiz, yet be incapable of using those words on their own. Learners may successfully mimic L2 pronunciation when practicing isolated words or sounds, but revert back to a more "foreign" pronunciation when speaking freely. They may answer questions about complex grammatical features on a test, yet make very "simple" mistakes when producing language on their own. Diverse knowledge must be integrated at higher levels of complexity. Making a sentence draws on different areas of knowledge—sounds (pronunciation), knowledge of words (lexicon), a grammatical understanding (syntax). These must come together as a single holistic ability. When you break down skills into individual parts and teach them separately (atomizing), however, you lose sight of the whole. Focusing separately on vocabulary, pronunciation, and grammatical patterns, for example, can make it harder to apply these skills together. Herein lies the paradox: for complex skills, what's efficient for teaching (atomization) is inefficient for learning (integration).

There's a similar challenge with cultural learning pedagogy. Cultural understanding requires much more than an accumulation of facts. It requires more than a set of rules of etiquette, or cultural does and don'ts. Cultural understanding and insight is holistic and intuitive. That's why when we try to make generalized statements about cultural difference, we run the risk of stereotyping. Doing so attempts to describe dynamic cultural patterns in simple, static terms. In terms of pedagogy, then, we need to learn how to guide learners from simpler, to more complex forms of cultural understanding and insight. We need to see how discrete elements of cultural knowledge can be built up at higher levels of complexity, such that this more holistic, intuitive understanding emerges. This implies an experiential, holistic approach to pedagogy that progresses overall from simple to complex—from conceptual and analytic to holistic and intuitive.

Overcoming the transfer paradox requires an approach to learning that is both cumulative (involving addition bits of information or discrete skills) but also developmental (it goes from simple to complex). The DMLL describes such a developmental progression. It allows us to look at learning in a step-by-step way that keeps the big picture in mind. This provides us with a pedagogical roadmap that is focused clearly on the process needed to gain intuitive understanding. Before looking at deep learning as described by the DMLL, however, it's worth reflecting on the notion of deep learning more generally, and contrasting it with similar conceptualizations.

## 5.4 Conceptualizing Deep Learning

In this work, the term *deep learning* refers *to the integration of complex skills into the intuitive mind in a process that is meaningful and engaging for learners*. This is a broad definition that overlaps with competing conceptualizations. In everyday

speech, for example, referring to an experience as *deep* can mean different things. It can refer to something that engages our feelings (deeply felt) or is highly meaningful or elaborated (deep thoughts). Similarly, an idea or experience that is deep influences us in fundamental ways. An idea may be *deeply meaningful* and meeting someone can leave a *deep impression* on us. By contrast, experiences that are described as shallow or superficial are more obvious, routine, and superfluous. A superficial conversation leaves little trace on us, and is soon forgotten. In general terms, then, the notion of learning which is deep implies a more fully engaging experience that involves us at a more foundational level of the self.

In educational psychology, the term *deep processing* has been used to refer to memory recall related to more elaborate analytic processes, as opposed to surface processing, which is related to a word's appearance or sound (Craik and Lockhart 1972; Craik and Tulving 1975). More recently, *deep learning* has been used to refer to the processing of implicit patterns of knowledge. Computer scientists use this term to refer to pattern-recognition algorithms that allow computers to learn on their own (Jones 2014), which has led to advances in speech and image recognition, and translation software (Lewis-Kraus 2016). In educational psychology, the term *deep learning* can refer to a more contextualized, reflective and abstract understanding, as opposed to a more superficial focus on information and facts (Halbert and Kaser 2006; Rhem 1995; Sawyer 2014). Both in artificial intelligence and in education, then, deep learning focuses on meaningful patterns—such as the recognition of an object, or a writer's point of view—that are not explicitly stated or defined, and thus must be inferred indirectly.

This work uses this distinction between explicit (more concrete and directly perceivable) versus implicit (more abstract and indirectly perceivable) meaning as a starting point for articulating a view of surface and deep language and culture learning. Largely in line with both educational psychology and artificial intelligence, the term *surface* refers to explicit phenomena that are more directly observable by the senses—as objects we can see or sounds we hear—and conceptual knowledge that we manage through the intentional processes of the attentive mind. (Using the word *surface* as an adjective is awkward, but the term *superficial* is avoided because of its negative connotations). The term *deep* refers to elements of experience that are perceived indirectly as patterns, and experienced through sensations and intuitions. Explicit elements of experience are more associated with conscious thought and analysis, and concrete experiences that are easier to conceptualize and put into words. More indirectly perceived phenomena are more difficult to articulate, and are experienced more intuitively (Kahneman 2011). It follows, then, that surface learning involves more explicit forms of (primarily conscious) knowledge, while deep learning involves integrating complex (abstract) patterns of (primarily unconscious) knowledge into the intuitive mind. These ideas are summarized in Table 5.1.

Unconscious processing and intuitive knowledge are touched upon in a variety of fields, including foreign language education. The term "native intuition" typically refers to an L1 speakers' intuitive understanding of grammaticality and language use (Abrahamsson 2012). In addition to grammatical intuitions about language use, intuitive knowledge in social interaction is recognized by social psychologists, who refer

**Table 5.1** Deep and surface learning

| Attentive processing/Surface learning | Intuitive processing/Deep learning |
|---|---|
| Explicit knowledge | Implicit understanding and abilities |
| Discrete skills | Complex skills |
| Conceptual | Experiential and pattern based |
| Conscious thought processes | Intuitive thought processes |
| Analytic problem solving | Experimental problem solving |
| Linear thinking | Holistic thinking |
| Experienced "in your head" | Experienced as doing and being |
| Focused on performance | Focused on development |
| Discrete chunks of knowledge | Complex forms of knowledge |
| Intentional | Automatic |

to it broadly as *social cognition* (Moskowitz 2005), and *schema* (shared frameworks, associations, and background knowledge) and *scripts* (interactive routines of daily life). Language use is also recognized to involve an intuitive understanding of cultural nuance, social expectations, and worldview (Byram et al. 2001; Kramsch 2015). From the perspective of the intuitive mind, linguistic knowledge and socio-cultural knowledge are closely related, since our intuitive sense for linguistic meaning is rooted in our cultural worldview (Fantini 1991; Luna et al. 2008).

## 5.5 Explicit and Implicit Learning in SLA

The field of Second-Language Acquisition (SLA), commonly distinguishes between *explicit learning*—which involves focused attention and conscious effort and analysis—and *implicit learning* that happens out of conscious awareness (Budzowski 2009; Ellis et al. 2009; Rebuschat 2015). In a review of the paradigm of implicit and explicit learning, Dornyei (2009) points out the concepts of explicit and implicit learning overlap and compete with a number of conceptualizations, such as: explicit/implicit knowledge, explicit/implicit memory, incidental versus intentional learning, as well as declarative and procedural knowledge. These terms are related, in turn, to concepts such as consciousness, the noticing hypothesis, automatization, and skill learning theory.

Research in this area has often focused on the relationship between explicit instruction and implicit learning—our ability to simply pick up a language informally, versus our need for structured language instruction (Budzowski 2009; Ellis et al. 2009; Suzuki and DeKeyser 2017). Research involving artificial grammars has shown that

through trial and error it's possible to learn grammatical patterns intuitively without receiving any explicit instruction (Rebuschat and Williams 2012; Reber 1967). Research has also shown, however, that instruction that focuses learner attention explicitly on elements to be learned is more effective than instruction in which learning is incidental and implicit (Norris and Ortega 2000). Other research has focused on how to measure implicit and explicit knowledge (Ellis 2009) and how implicit and explicit knowledge contribute to language proficiency (Budzowski 2009). While these processes are talked about as separate, and studied separately, Nick Ellis argues that language learning typically involves a dynamic and complex engagement of both implicit and explicit processes (Ellis 2015).

Conscious and unconscious learning is also discussed in terms of declarative and procedural knowledge. Declarative knowledge has been called "knowledge that takes the form of a factual or declarative statement" (Winne and Azevedo 2014), as when someone says "Adjectives are words that modify nouns." Procedural knowledge is "knowledge of processes and actions for addressing a task, often called know-how" (p. 65). More broadly, Krashen (1982) has argued for a distinction between language *learning* (a conscious process of focused attention and analysis) and *acquisition* (implicit learning). In addition, the learning of vocabulary can be talked about in terms of breadth (the number of words) and depth (knowledge of many aspects of a word) (Hatami and Tavakoli 2012). At the level of classroom practice, language teachers commonly distinguish between accuracy practice—focusing on a conscious understanding of linguistic patterns—and fluency practice, which focuses on using language spontaneously. Within the field of SLA, then, the distinction between surface and deep elements of knowledge and learning is widely recognized. That distinction has not, however, been used to bridge the language–culture gap. It has tended to be seen as something specific to language learning, rather than related to intuitive knowledge more generally.

## 5.6 Implicit Learning Versus Deep Learning

There are important distinctions between implicit learning as it's discussed in SLA, and the conceptualization of deep learning as it presented in this work. Research into explicit and implicit learning in SLA is heavily influenced by a cognitive perspective—one that sees language learning in terms of the acquisition of grammatical forms (Skehan 1998). Such an approach attempts to isolate the learning processes that are particular to using language, and makes an implicit assumption that those processes exist separately from other abilities. Such thinking has its roots in the Chomskian idea of the language acquisition device, or universal grammar (Chomsky 1965). Understandably, SLA focuses on the elements of learning particular to language, with less emphasis on more universal aspects of learning and cognition. No doubt, learning a foreign language is different in important ways from acquiring other complex skills.

An understanding of embodied cognition reminds us, however, that language learning involves much more than the unconscious inputting of grammatical patterns. It draws on cognitive systems that engage us at multiple levels of self, and are used for learning in other domains as well. That is to say, there is no localized, distinct Chomskyan language acquisition device, and language learning draws on a wide variety of cognitive processes. From the perspective of the intuitive mind, language and culture learning are two strands of a much larger constellation of cognitive processes. As with other complex skills, once linguistic patterns are internalized, they are experienced intuitively not analytically. In this view, a fluent language speaker is like a jazz musician, who loses herself in the music as they improvise. This is not simply anecdotal. Research has shown that when improvising, jazz musicians show a deactivation of the neural substrates responsible for self-monitoring and volitional control (Limb and Braun 2008). This perspective allows us to see language and cultural learning in the context of our intuitive experience of the world generally, not as distinct cognitive processes.

## 5.7 Surface and Deep Culture

The distinction between explicit (surface) and implicit (deep) elements of perception and meaning is a common way to talk about culture. Triandis (1972), for example, distinguishes between *objective culture* and *subjective culture*. The former involves phenomena that are associated with more direct perception through the senses, with the latter associated with more abstraction and indirect experience. Triandis proposes a hierarchy of concrete to abstract, starting with discriminable stimuli (things we see, hear, etc., directly through our senses), to elemental categories (categorization of our perceptions), and concepts at different levels of abstraction. Thus, concepts such as *rock* and *water* are considered more concrete than *government* or *phenomenology* because they are more closely related to direct perception. We can experience water directly, even without knowing a word for it, while understanding the word *phenomenology* is less directly related to the senses, and involves complex conceptual knowledge. Subjective culture is said to involve "cognitive structures" such as attitudes, values, and value orientations.

Similarly, Trompenaars and Hampden-Turner (1998) describe culture in terms of "common ways of processing information among the people interacting" which results in a "shared definition of a situation" (p. 20). This is a constructivist view, which sees cultural commonality not in terms of whether people act in the same way, but in whether they have a similar framework with which to interpret a given situation. Similar to Triandis, culture is described as being relatively more *explicit* or *implicit,* with the former referring to the "observable reality of the language, food, buildings, monuments, agriculture, shrines, markets, fashions and art" (p. 21). Explicit culture acts as symbols of deeper layers of cultural meaning: norms, values, and basic assumptions. These more abstract elements of culture are largely unconscious, and represent ways of relating that have become automatic.

Shaules (2007) argues that intercultural adjustment and adaptation involves a process of deep learning. He distinguishes between *surface* and *deep* forms of cultural learning—the former involves explicit elements of culture (food, architecture, ceremonies) and the latter more implicit (norms, values, assumptions, communication styles). This is an open-systems view that sees humans responding to the adaptive demands placed on us by foreign surroundings or interactions. As we walk the streets of a new city, learn to use the bus system, or struggle to communicate with the locals, our cognitive systems are engaged in an unconscious learning processes of *resisting*, *accepting,* or *adapting* to the foreign patterns we experience. According to Shaules, intercultural understanding happens at different *depths* of experience—we may adapt to superficial elements of culture (food, transportation system) even as we resist deeper elements (values, communication styles).

## 5.8 Deep Learning and Complexity

As articulated in this work, deep learning relates to the process by which we integrate complex bodies of knowledge. This refers to more than simply learning by doing. In contrast to this, we sometimes use the term *formal learning* to describe the education we get in school, and *informal learning* to describe what we learn in the course of everyday life. Informal learning is associated with demonstrating and practicing, and throughout our lives we learn countless skills this way—putting on clothes, mowing a lawn, brushing our teeth, cooking, typing, changing a diaper. The idea of informal learning is typically associated with relatively simple everyday skills. There are relatively few elements that need to be mastered. Changing a diaper, for example, is not highly complex—it can be broken down into a simple set of steps. With a bit of trial and error, we pick up the ability to change a diaper without needing formal instruction.

Informal learning is often inadequate for complex bodies of knowledge. To see why this is so, it's important to understand the notion of complexity. In everyday life, saying something is complex simply means it is complicated or has an intricate structure. As a way of understanding natural systems and learning processes, however, the term complexity is used in a specific way. Complexity theory relates to the study of systems with many interacting elements (Lewin 1992). It is used to try to understand phenomena with so many interacting parts that predictions about what will happen are extremely difficult. Such complexity is common in the natural world. A school of fish, for example, creates elaborate, largely unpredictable patterns as it flows and swirls through the water. Such patterns are not programmed, however. They emerge from the interaction of the individual fish—each operating under fairly simple behavioral constraints.

Newtonian physics treats the world as something akin to a machine—with enough data, we can calculate future outcomes. Complexity deals with nonlinear phenomena that are hard to predict in this way. The term *butterfly effect* popularized one element of complex systems—it refers to how a small change in one part of the system

can have a large impact on the system overall. This term was coined by Edward Lorenz, who famously spoke of a butterfly flapping its wings in Brazil that might produce a tornado in Texas (Lorenz 1993). Running computer simulations of weather patterns, he found that tiny differences in initial input could have a cascading effect and create hugely different outcomes. Weather patterns are hard to predict precisely because different factors—temperature, humidity, wind, pressure—interact such that it's extremely difficult to know what will happen next. Complex systems can give rise to unpredictable behavior yet not be random. They are systematic yet dynamic.

Complexity theory provides ways to make sense of systems that can't easily be explained in cause-and-effect terms. These include the idea of *chaos*, which refers to systems that are highly sensitive to initial conditions; a *phase shift*, when a dynamic system suddenly changes from one state to another; *attractor states*, a stable equilibrium that a system tends to revert to; and *strange attractors*, which refers to regularities that are interrupted by sudden short-term change; and *path dependence*, the idea that past choices or developments have an impact on into the future. These ideas are starting to be applied to second-language acquisition theory (Larsen-Freeman 2011). Larsen-Freeman points out that language and culture learning does not proceed in a simple linear fashion. It is marked by sudden flashes of insight, plateaus in learning, or things seeming to somehow come together in a process of *emergence*. This refers to simpler phenomena combining such that a system operates at a higher order of complexity. By way of example, to learn to play poker you must learn rules—the purpose of the game, the values of different card combinations, together with the procedures of the game—dealing, placing bets, discarding, and drawing cards. The ability to play poker *emerges* when all of the necessary elements have been internalized such that we can play the game. The notion of emergence reminds us that complex abilities involve more than a sum total of its parts—they must come together in dynamic yet systematic ways.

At both the macro-(societal) and micro-(individual) level, both language and culture function as complex systems. They are dynamic, yet stable, and emerge from the interaction of many individuals that form linguaculture communities. They are both group-level phenomena, and no individual can contain the totality of a community's linguistic or cultural knowledge. Because linguaculture communities are complex, they don't have clear boundaries. Within the individual as well, linguistic and cultural knowledge is complex. By internalizing complex patterns, we use language in ways that are both systematic, yet uniquely individual. Gaining this ability requires more than building up bits of information piece-by-piece. It involves gaining an intuitive understanding of the system as a whole, even if we have imperfect or limited knowledge. And finally, at an even more micro-scale, the cognitive systems we use to process and learn language are complex. They need to be understood in holistic terms, even as we seek to understand discrete elements and processes.

## 5.9 An Integrated Model of Language and Culture Learning

The deep learning approach is grounded in the idea that language and culture learning involve the integration of complex knowledge into our intuitive mind. As has been touched upon, this doesn't happen in a straightforward, step-by-step way. Instead, learning shifts to higher levels of complexity, as described by dynamic skill theory and the DMLL. As seen elsewhere in this work, these four levels can be illustrated visually as in Fig. 5.1. This diagram illustrates the process of deep learning. It represents both the increasing complexity of learning (data, mapping, and networks within the circle) as well as the subjective experience of learners—with the external element which first feels foreign, and then is integrated more fully. These four levels are discussed more fully in Chaps. 10 and 11.

The four levels of the DMLL represent a roadmap to deep learning. They are intended to help educators organize learning so that the attentive mind doesn't get overloaded, that new knowledge has a chance to be integrated, and so that what is being learned builds upon itself, and results in more deeply integrated abilities. Deep learning requires more than regulating the flow of information to students. We need to be aware of the developmental processes that take place within them as well. We need to adjust activities to fit their level of development, and provide support so that they can reach higher levels of cognitive complexity. And we need to help learners understand these things too, so that they can better manage their own learning.

**Implications of the deep learning perspective** This chapter has given an overview of the notion of deep learning. This forms an important building block for a more detailed description of the Developmental Model of Linguaculture Learning in Part II of this book. Before we get to that, however, Chap. 6 looks in more detail at the psychological implications of deep learning. A deep learning approach focuses not only on understanding socio-cognitive processes, but also on the subjective experience of learners, the psychological challenges of adapting oneself to patterns of

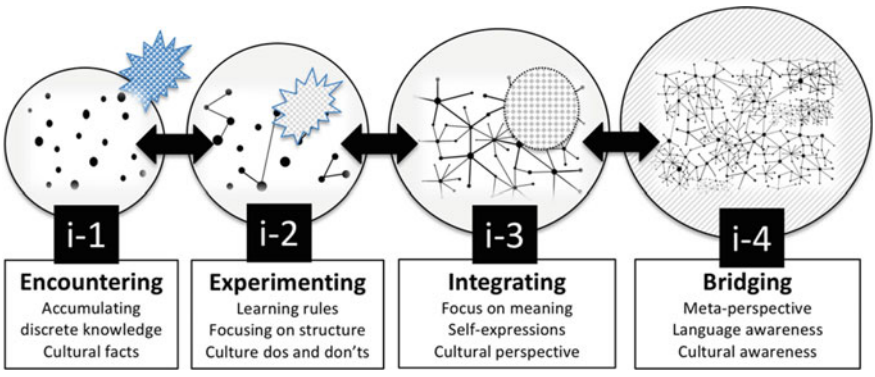


**Fig. 5.1** Levels of linguaculture learning

foreign thought, behavior, and self, and the potential for personally meaningful and transformational learning experiences. Just as a good coach goes beyond athletic performance, nurtures players as whole human beings, and uses sport to teach larger lessons about life, language, and intercultural educators need to recognize that their job touches upon deep elements of self. As learners integrate foreign linguistic and cultural patterns into the intuitive mind, they are restructuring foundational elements of the self—they are growing as human beings.

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