21

Second language acquisition and applied linguistics

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21.1 Overview

This chapter treats a broad field, that of second language acquisition, and situates it within the larger field of applied linguistics. With regard to the latter topic, I will emphasize the point that there are some areas of SLA that can more easily fit under the umbrella of Applied Linguistics and others that do not. This chapter first deals with a statement of the scope of SLA, followed by a brief synopsis of the history of the discipline. The bulk of the chapter then deals with areas of research focus, in particular, linguistics, psycholinguistics, socio-cultural, and interaction-based. In addition, we consider learner variables, in particular, aptitude, motivation and affect.

21.1.1 Second language acquisition: a definition

Second language acquisition (SLA) is a multidisciplinary field that refers to the study of how languages are learned following learning of a first language. It covers child and adult second language learning, but, as a discipline, does not deal with simultaneous (bilingual) acquisition, although clearly there are intersecting and overlapping interests.

The field itself is highly interdisciplinary with many fields contributing to an understanding of how second languages are learned, including linguistics, psychology, sociolinguistics, psycholinguistics and education. The history of SLA has witnessed a move from a discipline relying on early theories of language where the focus was on transfer of linguistic information and where the goal was to develop pedagogically-sound materials to today’s stand-alone discipline with the goal of contributing to an understanding of the nature of language and cognition. To accomplish these goals, early research emphasized the acquisition of linguistic systems. That emphasis has not diminished, but the scope has been expanded to include a suite of emphases including socio-cultural theory and psycholinguistics. In addition, it is now recognized that learning a second language is a highly complex process and to understand how individuals accomplish this incredible feat, whether in a classroom context or in a so-called natural setting, one must further understand the role of numerous individual factors, such as working memory, motivation, aptitude and affect (one’s feelings) as well as age and heritage background.
In sum, with a range of questions being addressed, many of which are dependent on one’s theoretical background, the field as a whole approaches an understanding of how second languages are learned, or to take the opposite view, why the endpoint of second language learning is so different from that of first language learning. This chapter takes a broad sweep, attempting to give the reader an understanding of how the field came to be what it is today and what the current questions are.

How, then, does this relate to the field of Applied Linguistics? Broadly speaking, Applied Linguistics is defined as a field that considers solutions to language-related real-world problems. In fact, the professional organization, American Association for Applied Linguistics, refers to the interdisciplinary field that addresses ‘a broad range of language-related issues that affect individuals and society’ and further states the mission of the organization as one that facilitates ‘the advancement and dissemination of knowledge and understanding regarding these language-related issues in order to improve the lives of individuals and conditions in society.’ With this broad definition, it will become clear that not all of SLA fits under an applied linguistics umbrella. Much of the field of SLA is purely theoretical without the goal of addressing real-world issues; other parts have direct relevance to improving ‘the lives of individuals,’ primarily that part that is aimed at bettering classroom practice. Much of SLA, however, has as its goal an understanding of language and cognition and in that sense can be more appropriately considered a branch of psychology or linguistics. Thus, SLA and Applied Linguistics are not isomorphic. SLA is in part independent and in part a branch of other disciplines. What I hope to make clear in this chapter is that however one wants to characterize SLA, it is interdisciplinary and to understand the various dimensions of learning, one must draw upon numerous disciplines.

21.2 History

There is disagreement as to the origins of the field of SLA (see Thomas 1998; Gass et al. 1998), but, in general, it is safe to say that most scholars place the beginnings of the field somewhere in the 1960s and 1970s. For many in the field (the present author included), graduate programs did not have courses in SLA because at that time, there was not a sufficient body of received knowledge for such courses to exist.

The early goal of research in the field was clearly on pedagogy with most papers, even in a journal with a focus on learning (Language Learning), being on pedagogy (see Gass and Polio 2014; Gass 2015). In other words, interest in how second/foreign languages are learned came about in order to develop language teaching programs. In fact, Fries in his Foreword to Lado’s book Linguistics Across Cultures (1957) states this clearly:

Before any of the questions of how to teach a foreign language must come the much more important preliminary work of finding the special problems arising out of any effort to develop a new set of language habits against a background of different native language habits.

Thus, the goal of SLA research was to produce pedagogically-relevant materials, and to be successful, one had to do a comparison (contrastive analysis) of the native language and the language being learned in order to determine what to teach (those areas of difference). The underlying assumption was that learners transferred habits from their first language. When this paradigm disappeared in child language acquisition resulting in a cognitive focus to language learning, the same occurred in SLA. One can date some of the earlier work in this
area to the early 1970s (see Gass et al. 2013a for historical information). This major paradigm shift can be thought of as the beginning of the modern discipline of SLA itself.

It is only in the ’50s, ’60s, and ’70s that we begin to see a flurry of intellectual activity that converges on a coherent body of scholarly work – a body of work that begins to ask the important how and why questions of second language learning to which widely accepted methods of analysis are applied.

(Gass et al. 1998: 412)

Early work in this period was decidedly linguistic in orientation with most (but not all) researchers starting from a Universal Grammar perspective and asking the question of whether principles and parameters of UG are applicable to second languages, what the ‘starting point’ is for L2 learning (with arguments on both sides of whether learning starts with the L1 or with an innate language faculty), and, more recently, whether learners can acquire features of the L2 that are not present in the L1.

21.3 Current areas of focus

Without a doubt, the linguistic focus of SLA continues in research today, but the almost exclusive reliance on linguistics as a source discipline no longer exists. Rather, numerous other disciplines have turned out to be significant influences in SLA research. Below we deal with a few of the more recent orientations: (1) psycholinguistics, (2) working memory, (3) linguistic (formal) approaches, (4) socio-cultural theory, (5) interactionist approach, (6) individual differences (e.g. aptitude, attitude, motivation), and finally we return to the pedagogical orientation of the field (7) instructed second language learning.

21.3.1 Psycholinguistics

There are numerous areas of psycholinguistics that have figured prominently in SLA research over the years. Ever since the early 1990s, attention and awareness have turned out to be dominant concepts in SLA research. Schmidt (1990, 2001) was responsible for the development of the noticing hypothesis, which came about as a result of his own language learning experiences in Brazil (Schmidt and Frota 1986). The basic idea is that learners need to focus their attention on specific parts of language, if learning is to take place. In other words, there is no such thing, in this view, as subliminal learning. Only focused attention will lead to learning. Many issues are in debate, for example, the role of awareness (Godfroid et al. 2013) as well as the developmental stage of the learner (Philp 2003). Most studies do show a connection between awareness and learning. However, some research (e.g. Williams 2004) in a study using an artificial language, argued that learning could take place without awareness.

The importance of attention is not monolithic. Gass et al. (2003) investigated the concept in relation to proficiency and different parts of language (lexicon, morphosyntax, syntax). They found that attention was most important at earlier stages of proficiency and more so for syntax and least so for lexical learning.

A question that arises is how to promote or encourage attention and noticing as part of second language learning. One way is through language production, known as output. Uggen (2012) found a positive role of output in noticing and learning vocabulary, but, as with the Gass et al. (2003) study, learning was not the same across grammatical structures
examined; complexity was an important variable with noticing having a greater effect on the more complex structure (e.g. past hypothetical conditional *If I had studied in the US, I would have improved my English* versus present hypothetical conditional *If I studied in the United States, I would improve my English*).

Noticing is somewhat of an elusive construct. In recent years, eye-tracking methodology has been used to understand when noticing takes place. With this methodology, one is able to track eye movements (which presumably reflect ongoing processing). Godfroid *et al.* (2013) and Spinner *et al.* (2013) made use of this methodology to study vocabulary acquisition in the former and gender agreement in the latter. For additional information on the role of attention in SLA, see the comprehensive review by Robinson *et al.* (2012).

### 21.3.2 Working memory

There is no question that attention and memory are closely related constructs. Working memory is a concept from psychology that has become prominent in second language research (see J.N. Williams 2012 for an overview). ‘[W]orking memory is those mechanisms or processes that are involved in the control, regulation, and active maintenance of task-relevant information in the service of complex cognition, including novel as well as familiar, skilled tasks’ (Miyake and Shah 1999: 450). What is crucial is that when processing language, learners have to both store and manipulate information.

Different models of working memory are prevalent in the literature (see J.N. Williams 2012). What we do know is that language learning involves competing information that learners have to juggle. For example, learners have to focus on various parts of language simultaneously (e.g. morphology, vocabulary form, meaning, word order). This involves storing and manipulating information, the two basic components of an individual’s working memory capacity. Some individuals are better at doing this than others and in fact this reflects the variable trait of working memory capacity. In other words, humans differ in their ability to juggle numerous language tasks; they differ in working memory capacity.

Studies investigating the relationship between language learning and working memory capacity have become common in recent years, although the results are not always straightforward, in part because there is no standard accepted way of measuring L2 working memory capacity.

Working memory capacity has been investigated in a number of areas and has been shown to be related to vocabulary and syntax learning and to oral fluency and to general language performance. It has also become prominent in the interactionist approach to second language learning discussed in §21.3.6. In general, studies support the relationship between language learning and working memory capacity primarily because those with higher working memory scores are better able to retain and analyze the stored information. Clearly, these are traits that are important in dealing with the input one receives.

There are two models of learning that stem from a psychology tradition and that have received attention in the recent literature: emergentism and dynamic systems. Emergentist approaches emphasize usage and do not take an innate system as the starting point for second language learning. Learning takes place by understanding the regularities that are present in the input. As noted in Gass *et al.* (2013a: 273),

> The representation of language, in this view, relies on the notion of variable strengths that reflect the frequency of the input and the connections between parts of language. Learning is seen as simple instance learning (rather than explicit/implicit induction of
rules), which proceeds based on input alone; the resultant knowledge is seen as a network of interconnected exemplars and patterns, rather than abstract rules.

The main point is that learning is based not on rule systems, but on the association of patterns that learners are able to abstract from the input. One of the tasks for a learner in this framework is to establish appropriate associations in the second language that may or may not be relatable to those in the native language (see reviews by Ellis 2012 and MacWhinney 2012). As Ellis puts it

learning, memory and perception are all affected by frequency of usage: the more times we experience something, the stronger our memory for it, and the more fluently it is accessed. The more recently we have experienced something, the stronger our memory for it, and the more fluently it is accessed.

(2012: 195)

This model of learning does not include an innate capacity for learning; rather, learning is based on the generalizations learners make from the input with frequency being a major determinant of one’s ability to determine regularities and construct patterns.

A recent approach to SLA research, consistent with emergentism, is what is known as a dynamic systems approach which emphasizes the fact that language is a complex system and with particular reference to SLA, it changes and develops over time. What is most important in this approach is that there is not a static approach to a linguistic system and language learning cannot be reduced to a cause–effect relationship. Rather, there are numerous factors that come into play to bring about change. As Larsen-Freeman (1997) points out, the approach is ‘interested in how disorder gives way to order’ (p. 141). According to Larsen-Freeman (2012: 75) ‘language has the shape that it does because of the way that it is used, not because of an innate bio-program or internal mental organ … there may be domain-general evolutionary prerequisites to language that support its use and acquisition.’ Humans have the ‘the ability to imitate, to detect patterns, to notice novelty, to form categories, or the social drive to interact, to establish joint attention with another, to understand the communicative intention of others’ (ibid.). This approach, like emergentism, relies on learners attempting to find regularities from what may appear to be disorder.

21.3.3 Linguistic (formal) approaches

Much research in SLA has taken a formal generative perspective, focusing on language form with the goal of describing a learner’s linguistic system. The underlying assumption is that one must understand what is acquired (i.e. a description of the language) and its mental representation as first steps in understanding how acquisition takes place. The most common framework is generative linguistic theory and most notably Universal Grammar. As with child language acquisition, research within this perspective relates to learnability with questions related to principles and parameters dominating early research and questions of feature acquisition more common in recent years. A basic issue (with both first and second language acquisition) relates to the poverty of the stimulus: How can learning take place only from the input which, as is clear (see White 2003), is not sufficiently rich to allow for the acquisition of a complete grammatical system? Thus, the question in this perspective is what else is brought into the picture. One clear answer is the L1, but that, too, is not sufficient (see Lardiere 2012); another possibility (and the subject matter of formal approaches) is that
learners still have access to Universal Grammar constraints (Principles and Parameters) that were operational in learning their first language. In other words, all universal constraints on language apply to first as well as second languages.

Within the Principles and Parameters framework, it is assumed that certain principles do not vary across languages whereas others (parameters) do vary, although the variability is not unlimited. Having limits on what a possible language can be aids the learning process, by restricting the possibilities of language. However, the evidence from L2 acquisition with regard to universal principles is unclear with evidence pointing in different directions. In sum, there is no consensus as to whether there is direct access to universal principles (through Universal Grammar), whether there is no access at all, or whether there is access through the L1.

A significant amount of L2 research has also been conducted investigating the construct of parameters. Certain language properties tend to cluster so that if a learner understands one aspect of a parameter, other aspects of that parameter are also known. For example, some languages do not use subject pronouns (e.g. Vado a casa in Italian means ‘I go home’ even though there is no overt subject pronoun). Those same languages also allow the subject to follow the noun (e.g. È venuto mio fratello ieri means ‘My brother came yesterday’ [literally has come my brother yesterday]). A common area of investigation has focused on the determination of the extent to which these properties also cluster in L2 acquisition (see Lardiere 2012). As a result of empirical research and because of developments within the field of linguistics, Lardiere (p. 119) questions the validity of this line of research for L2 acquisition, ‘[c]onsequently, the notion of parameter-setting as a useful explanatory construct for (second) language acquisition must be reconsidered in light of these developments within linguistic theory.’

The focus in more recent years has moved away from parameters to the acquisition of formal features. A burning issue is the learnability of L2 features that do not exist in the L1. For example, can an English-speaking learner (a language with no gender marking) acquire native-like gender features in a language, such as Italian or Spanish, that does mark gender through noun–adjective/determiner agreement? A second question has to do with functional categories – are they even available to L2 learners at the early stages of learning or is early learning essentially lexical? Here the jury is still out with various proposals in existence arguing that there is a representational deficit in L2 learners which cannot be overcome. An opposing view maintains that there is no representational deficit but rather it is a difficulty of mapping the L1 representation onto L2 morphology. For example, Goad et al. (2003) maintain that learners are not able to acquire the morphology of the L2 because of the inability to transfer L1 phonological representations. Still other approaches assume that the inability to acquire an L2 morphosyntax is due to processing, not representation.

All of these issues relate to a fundamental question: What is the starting point of L2 acquisition? When a second language learner begins the learning process, what do they start with? One possibility is the L1; this would be the position for those who believe that UG is not accessible. Another possibility is UG; this is the position of those who believe that universal constraints on language carry over to the L2 context. A third possibility is that it is the L2; this is the position of those who take frequency or usage-based approaches as the driving force of L2 acquisition.
21.3.4 Socio-cultural theory

Yet another approach to how second languages are learned is based on work by Vygotsky (1978, 1987). This approach relies on language use and assumes that the L2 learner is a social individual who interacts with his/her environment and it is the situation/context of learning that relates to internal processes. As Lantolf (2012: 57) states, ‘[h]uman thinking is mediated by culturally organized and transmitted symbolic meaning.’ Thus, the question for acquisition is the acquisition of a symbolic system − can a new system be learned and how does learning take place? Basic to this approach are a number of constructs: mediation and regulation, internalization, and the Zone of Proximal Development (ZPD). All human activity is mediated by cultural tools, such as language. It is through language that humans relate and connect to the world around them. Language gives humans the power to think/talk about events/objects/humans that are not in their immediate vicinity. With regard to children learning language comes the concept of regulation; children learn to use language to regulate their activities. Internalization is what allows one to move what one knows about the relationship between one’s self and the environment to later performance. As part of this process is what is known as imitation, which is not the mindless type of imitation seen in early behaviorist models of learning and behavior; rather it is a cognitive activity. As Lantolf (2012: 59) states, ‘through imitation learners build up repertoires of resources for future performances, but these need not be precise replicas of the original model.’ Thus, learners store language as a way to create a repertoire of resources to be used in creative ways in future use. Finally is the ZPD defined by Vygotsky (1978: 86) as ‘the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.’

In terms of actual learning, it is the concepts of imitation and the ZPD that are crucial. From Lantolf (2012: 60) comes the following example from an English-speaking learner of German.

(1) Learner: *Ich rufe meine Mutter jeden Tag
I call my mother every day
Teacher: jeden Tag an
every day (prefix from verb anrufen [to call])
Learner: Ich rufe meine Mutter jeden Tag an
At a later point in time:
Learner: *Ich empfehle das neus Buch an
I recommend the new book prefix

What one sees in this example is a correction from the teacher (known as a recast) followed by incorporation by the learner of the correction (known as uptake) or imitation within a socio-cultural framework. The suggestion is that there was imitation, but the new imitated form (an) was internalized and used creatively (although incorrectly). In other words, there was imitation, but not behaviorist-style imitation. The example illustrates the ability to imitate and thereby build up resources for further use is dependent on the learner’s ZPD.

To summarize, language is a tool that mediates between individuals and their environment and learning starts as a social process as a way of developing cognition. Other humans (e.g. a teacher) are significant in providing models for imitation (sensitive to one’s ZPD).
21.3.5 Interactionist approach

Another approach that is based on language use is the interactionist approach although in more recent years, it has begun to incorporate a number of psycholinguistic concepts. The basic assumption is that there exists ‘a robust connection between interaction and learning’ (Gass and Mackey 2007: 176). When learners engage in interaction with another individual (a native speaker of the language or even another learner), there is often feedback on that learner’s language as a result of a communication breakdown or even a pedagogical intervention. These interactive exchanges (negotiations of meaning) provide an opportunity for a language learner to understand where his/her language is deficient in the sense that it is not clear to fluent speakers of the L2, or in the language of this framework, learners recognize the gap between their knowledge and the second language.

Negotiation of meaning refers to those instances in conversation when participants need to interrupt the flow of the conversation in order for both parties to understand what the conversation is about. In conversations involving non-native speakers (NNSs), negotiations are frequent, at times occupying a major portion of the conversation. An example is given below (Varonis and Gass 1985: 78–9) in which the majority of the conversation is spent negotiating meaning so that both individuals understand the full thrust of the conversation (J=NS of Japanese; S=NS of Spanish).

(2) J: And your what is your mm father’s job?
S: My father now is retire.
J: Retire?
S: Yes.
J: Oh yeah.
S: But he work with uh uh institution.
J: Institution.
S: Do you know that? The name is ... some thin like eh control of the state.
J: Aaaaaaaah.
S: Do you understand more or less?
J: State is uh ... what what kind of state?
S: It is uhm.
J: Michigan State?
S: No, the all nation.
J: No, government?
S: All the nation, all the nation. Do you know for example is a the the institution mmm of the state mm of Venezuela.
J: Ah ah.
S: Had to declare declare? her ingress.
J: English?
S: No. English no (laugh) ... ingress, her ingress.
J: Ingress?
S: Ingress. Yes. I N G R E S S more or less.
J: Ingless.
S: Yes. If for example, if you, when you work you had an ingress, you know?
J: Uh huh an ingless?
S: Yes.
J: Uh huh OK.
S: Yes, if for example, your homna, husband works, when finish, when end the
month his job, his boss pay—mm—him something
J: Aaaah.
S: And your family have some ingress.
J: Yes ah, OK OK.
S: More or less OK? And in this in this institution take care of all ingress of the
company and review the accounts.
J: OK I got, I see.
S: OK my father work there, but now he is old.

Here, the individuals are expending considerable effort in resolving the problem areas of
this conversation until there is a resolution and presumably learning. Learning takes place
when a learner’s attention, through exchanges such as the one above, is drawn to an area of
difficulty or through exchanges such as (1) above where a teacher expands on a learner’s
erroneous utterance including the correct form (known as a recast). When attention is drawn
to problem areas, the learner notices a gap between his/her own system and the linguistic
system used by others, most notably native speakers.

Another central concept is output (language use). Swain (1985) initially investigated this
concept through observations of second language learners in French immersion programs in
context. She noted that input was not sufficient for learning given that one can comprehend
much more than one can produce. Production requires that learners construct utterances and
therefore production ‘may force the learner to move from semantic processing to syntactic
processing’ (p. 249). She further claimed that

output may stimulate learners to move from the semantic, open-ended, nondeterministic,
strategic processing prevalent in comprehension to the complete grammatical processing
needed for accurate production. Output, thus, would seem to have a potentially
significant role in the development of syntax and morphology.

(Swain 1995: 128)

An example of how learners are pushed to correct utterances can be seen from Example 3
from Mackey (2002).

(3) NNS: And in hand in hand have a bigger glass to see.
NS: It’s err. You mean, something in his hand?
NNS: Like spectacle. For older person.
NS: Mmm, sorry I don’t follow, it’s what?
NNS: In hand have he have has a glass for looking through for make the print
bigger to see, to see the print, for magnify.
NS: He has some glasses?
NNS: Magnify glasses he has magnifying glass.
NS: Oh aha I see a magnifying glass, right that’s a good one, ok.

Following this example, the learner made the following comments:

I know I see this word before but so I am sort of talking around around this word but he
is forcing me to think harder, think harder for the correct word to give him so he can
In other words, she was clearly pushed to modify her language by the NS’s expressions of non-understanding.

Thus, the basis of the interactionist approach resides in: (1) a learner’s participation in interactionally-modified input, (2) attention-drawing contexts, (3) opportunities to produce language (output), and (4) correction (either direct or indirect).

In current research, researchers are delving into questions of why and what. Thus, questions such as the role of types of feedback (e.g. recasts, metalinguistic feedback), aspects of the L2 (morphosyntax, lexicon, phonology), and individual differences are prominent.

The role of recasts has been controversial in the recent literature with studies comparing recasts to other forms of correction (e.g. metalinguistic, elicitation) and input (e.g. prompts). One important finding is that feedback does not affect all learners or all language forms equally. For example, studies that have investigated learner perception of corrective feedback (e.g. Mackey et al. 2000; Mackey et al. 2007) have found that different language forms (e.g. morphosyntax, lexicon) are differentially recognized as feedback by learners. These and other studies show that those parts of language that have high communicative value (e.g. lexicon) and are more transparent are most readily impacted by feedback. Feedback on other forms, such as morphosyntax, are not so readily interpreted as feedback given the lack of communicative value. Such feedback may be more readily interpreted as a question of meaning. Thus, if a learner says ‘I used the caputa yesterday,’ and an interlocutor responds with ‘You used what?’ it is pretty clear that the corrective emphasis is on the unknown word (caputa for computer). However, if a learner of Italian uses a wrong agreement marker and there is some form of correction, it is likely that the correction is a question of meaning not form given that the form is not salient. A study by Jeon (2007) exemplified this through a study of learning following corrective feedback in which there was greater learning for lexical and syntactic targets than with complex honorifics.

But what about the learner her/himself? What characteristics can be attributed to the individual? Recall that a major assumption in this paradigm is that a learner’s attention is drawn to a gap in knowledge. Learners must notice the incorrect form used and compare it to the form used by their interlocutor. This requires a certain amount of attentional control and the capacity to store and manipulate information; in other words, working memory is involved as a mediating factor. There have been a number of studies that consider working memory as a variable, but results have not led to a definitive conclusion. A study by Mackey et al. (2002) found working memory to be an important factor in determining whether or not learners noticed recasts but Trofimovich et al. (2007) did not find such a relationship (although they did not note other relationships between working memory and production). Sagarra (2007) considered data from a computer study in which recasts were provided orally and found an important role for working memory. Mackey et al. (2010) found a positive relationship between the production of modified output and working memory capacity. Gass et al. (2013b) directly investigated learners with different working memory capacity scores (in their study high and low) and found no effect on learning in these two groups. What they did find, however, was a role for the ability to inhibit certain language information.

A final area of study to mention that demonstrates current research within the interactionist paradigm considers the role of affect. A study by Sheen (2008) on the acquisition of English articles found an effect for anxiety on responses to recasts and on learning.
The interactionist approach recognizes the important role for input (as is the case with frequency-based accounts), although interaction and production are added constructs. It also utilizes concepts from psychology to understand why learning from interaction does not affect all individuals equally. It relies explicitly and importantly on the need for learners to produce language and receive feedback on that production.

21.3.6 Individual differences

Individual difference is an obvious part of any learning and second language learning is no exception. Attentional control, working memory capacity, and anxiety have already been mentioned, but there are other considerations that are also relevant. In this section, we briefly touch on some common differences among individuals, namely, aptitude, motivation and affect.

21.3.6.1 Aptitude

Aptitude refers to one’s potential for learning. Within the context of SLA research, this trait is frequently discussed in relation to working memory, and, in some views, the two are inseparable (Miyake and Friedman 1998). All models of aptitude and modes of assessing aptitude assume that second language learning requires one to deal with novelty and ambiguity, although the precise components are not the same across models. Robinson (2007) and Skehan (2002) refer to aptitude complexes (see Skehan 2012 for an overview). For example Robinson (as reported in Skehan 2012: 388) includes a complex of primary cognitive abilities which include ‘perceptual speed, pattern recognition, phonological working memory capacity, speed of phonological WM, analogies, the capacity to infer word meaning, memory and speed of memory for text, grammatical sensitivity, and rote memory perceptual speed, pattern.’ Thus, there are many ways to consider aptitude and, importantly, to measure aptitude. Skehan offers the conclusion: ‘aptitude information is relevant for predicting success both with implicit as well as explicit conditions’ (p. 387). In other words, aptitude is relevant regardless of whether language information is presented implicitly requiring learners to infer generalizations or whether it is presented explicitly as in some instances of classroom learning.

21.3.6.2 Motivation

Like aptitude, motivation can be a predictor of how well someone will do in learning a language (or any sort of learning). But many variables come into play, for example the degree of investment that someone has in the outcome, or even the extent to which success (or not) modifies motivation. Ushioda and Dörnyei (2012) discuss a model with multiple stages pointing out that motives and drive can be assessed and modified, depending, for example, on success or even on teachers’ behaviors.

Motivation is a broad topic and is a changing variable that is context-dependent and relates to individuals. Teachers and goal-related issues are all central to understanding the influence of motivation on learning.

In a recent study investigating aptitude in learning Chinese, Winke (2013) included a number of components of aptitude and she found that rote memory was the best at predicting learning, and working memory the least. Aptitude and motivation equally impacted learning although they did not equally predict particular language skills (e.g. listening, reading, speaking).
21.3.6.3 Affect
A specific dimension of affect, namely anxiety, was mentioned in the context of the interactionist approach, but like many of these individual traits, affect is multidimensional. Essentially, affect, as used in SLA research, refers to one’s emotions about something including feelings about the language, toward individual speakers of the language, toward the environment where the language is being learned (e.g. classroom) or more broadly to the second language culture.

Some of the areas of investigation, such as culture shock and anxiety, have been investigated to a considerable extent with findings showing a negative relationship with specific areas of language use. Winke (2013: 122–3) summarizes this line of research (among others) by stating,

> several varied factors must successfully converge for an adult learner to obtain advanced proficiency in a foreign language. The learner needs excellent instruction, frequent opportunities for different kinds of output, and a heavy dose of motivation. Access to cultural insights that explain the pragmatics of the language has to come the learner’s way/effective language learning strategies need to be found; and, as any learner knows, real, tangible rewards for learning efforts must materialize.

In sum, there is no single way to learn a second language; each individual must find the combination of factors that works for him or her.

21.3.7 Instructed second language learning
The field of SLA has never wandered far from its roots and even when the field has been primarily concerned with formal approaches to learning, the classroom has never been entirely removed. I mention this to make it clear that pedagogical concerns still permeate much research. Numerous books and overviews deal with this vast topic (e.g. Ellis 2003; Loewen 2015). The focus in these books is not on techniques of teaching, but on ways in which materials and syllabi can be organized to facilitate learning. Jessica Williams (2012) provides the following characteristics of instructed SLA: educational purpose, an instructor, and more than one student. Researchers ask questions related to what teachers do/say and how students respond to the teacher and to one another. How does language change in the short and long-term? As Jessica Williams (2012) notes ‘[l]anguage learning researchers are interested in classroom learning contexts for what they can reveal about language learning processes in general, but also for quite practical reasons’ (p. 541). This is an area that could be called applied linguistics because it crosses the theoretical/practical boundary.

21.4 Conclusion
This chapter has given an overview of some of the key research areas in the field of SLA. The important point is that the field is interdisciplinary and no single approach can contribute to an understanding of the complexities involved in learning a second language. In fact, many researchers incorporate multiple approaches as they attempt to unravel this mystery of acquisition.
References


