On Modularity of L1 Acquisition and L2 Learning: Reviewing Three Different Approaches*

Hyu-Yong Park
(Sungshin Women’s University)


This paper discusses the issues of modularity, Universal Grammar (UG), and transferability in children's mother tongue (L1) acquisition and second language (L2) learning. In doing so, this paper discusses nativisms' modularity hypothesis and its three major characteristics; further, this paper introduces controversies on modularity from sociocultural perspectives and connectionism. By comparing and critically analyzing the different approaches to modularity, UG, and transferability of L1 knowledge to L2 acquisition, this paper emphasizes overcoming the modular account of human language and expanding understanding on L1/L2 acquisition or learning. Finally, this paper discusses the pedagogic implications of language modularity, especially the role of L1 on L2 learning in classroom settings.

Keywords: modularity, transferability, Universal Grammar, nativism, UG access, connectionism

1. Introduction

This paper discusses the issues of modularity, Universal Grammar (UG), and transferability in children's mother tongue (L1) acquisition and second language (L2) learning and introduces three different approaches to three issues: modularity (the genetic evolution model, sociocultural adaptation model, and genetic assimilation model), UG access (nativism, socio-cultural theories, and connectionism), and transferability (Contrastive Analysis or Contrastive Rhetoric, Constructive Underlying Proficiency, and Creative Construction). Given the close relationship between the hypotheses of modularity and UG in human language capacity and the transferability of L1 knowledge to L2 learning, a review of the different approaches to these hypotheses will expand our understanding of L1 acquisition and L2 learning.

In doing so, this paper discusses the notion of modularity in the nativists'
theory and examines three characteristics of modularity. Based on the dis-
cussion, this paper examines the controversies surrounding modularity from
the perspectives of sociocultural theories and connectionism. Based on this
discussion, this paper argues that the development of human’s language fac-
ulty results, not from independently working modules, but through the inter-
actions among modules deeply situated in the cultural context. Next, this
paper looks at several different approaches toward modularity or UG access
and L1 transfer to L2 learning. These approaches include Chomskyan na-
tivism, strong and weak nativism, sociocultural theories, and hard and soft connec-
tionism. Finally, this paper discusses the transferability of L1 knowledge to
L1 learning and compares four different hypotheses: Contrastive Analysis (CA),
Contrastive Rhetoric (CR), Constructive Underlying Proficiency (CUP), and Cre-
tive Construction (CC) (Hui 2010). Generally, the major factors of positive or
negative transfer include language distance, cultural commonalities or differ-
ences, and the conceptual and linguistic knowledge of learners.

2. Body

2.1. Modularity of Language

Scholars use the notion of Theory of Mind (henceforth, ToM) to under-
stand certain domains of mental phenomena, including children’s mother
tongue (L1) acquisition or adults’ second language (L2) learning (Wellman
1990). Within ToM, two approaches to understand the work of the mind
have emerged: one approach views the mind as a uniform system, while the
other sees the human mind as a set of genetically specified, autonomous,
and domain-specific systems (i.e., modules) that function independently with
other modules (Fodor 1983). For example, Chomsky’s (1986) “language fac-
ulty” suggests a separate module handling the process of language acquisi-
tion (Gregg 1996a). Others consider modularity a condition of evolvability,
allowing a little environmental or sociocultural influence (Wagner & Alten-
berg 1996); while still others consider it a result of evolution, affected by ge-
netic or biological programming (Pinker 1997). Nonetheless, defining the
typical characteristics of modularity proves difficult since modules can differ
from one another functionally, structurally, ontogenetically, and phylogeneti-
cally (Sperber 1996). Generally speaking, we can consider a module an in-
nate, encapsulated, and domain-specific part of the cognitive architecture

On the one hand, many theorists have argued against the modularity view,
claiming that understanding a language module must go hand-in-hand with
considering the developmental aspects of language (Bartsch & Wellman
On Modularity of L1 Acquisition and L2 Learning


The argument, language as modular versus developmental, relates theoretically to the two different aspects of modularity—synchronic and diachronic (Segal 1996). Segal suggested that a diachronic module signifies the modular conception of development; the diachronic module represents not a static capacity but rather a device that develops through experiential interactions (e.g., communicative experience using language). In this sense, Chomsky's (1957) LAD might represent a paradigmatic diachronic module provided that LAD is not a fixed structure but open to further development (Scholl & Leslie 1999). Meanwhile, a synchronic module handles syntax faculty, for instance, that distinguishes the grammars of different languages. Thus, the concept of diachronic module can extend the scope of the modular account of language development since diachronic modules can combine innate structure (e.g., LAD) with language experiences during development. That said, language competence seems to undergo a process of development during childhood, and such development presumably explains how children incrementally arrive at more sophisticated and complex linguistic structures.

In short, language modules develop and become distinguished in many different ways as they evolve. Some innate modules, such as syntactic knowledge, develop according to a genetic schedule (Pinker 1997), while other modules, such as the lexicon, are entirely acquired (Karmiloff-Smith 1995). Furthermore, despite the developmental aspect of modularity, linguists dispute the necessary quantity or relevance of environmental input needed to trigger and tune the work of a language module on language development. Hence, we have the highly debatable issue of language modularity—an issue which invites many controversies on its major characteristics.

2.2. Controversies on the Modularity of Language

Three major characteristics—innateness, domain specificity, and encapsulation (Fodor 1985)—unify the three aspects of language modularity. Regarding innateness, modularity theorists who follow Chomsky (1975) argue that children, born with neurological equipment such as language instinct, have the ability to appreciate and analyze the structure of speech (Pinker 1989, Pinker & Bloom 1990). In terms of domain specificity, Petitto (1992) asserted that the knowledge of language does not wholly derive from a gen-
eral cognitive capacity but has a fundamental distinction from other cognitive and kinetic knowledge. On encapsulation, Hornstein (1987) argued that semantic interpretation in the surface-structure level and in the logical-form level are informationally encapsulated and do not share information with each other. He considered this a mark of modularity.

However, one argument holds that the three modular characteristics of language—innateness, domain specificity, and encapsulation—are not present at the same time (Bates 1994); in other words, it is too difficult to apply those three characteristics universally into all subcategories of language.

Others have argued that although domain specificity or localization may represent the endpoints of learning or development, it does not necessarily signify the starting point of language development (Karmiloff-Smith 1993), which concerns us here. For instance, some theorists have contended that children with deficit language development cannot catch up with the normal level of language because the brain has localized and the environmental inputs are effortless (Hyter et al. 2001, Van der Lely 1997); however, others have claimed that deficit studies do not provide enough explanation for the major effect of language input because brain localization itself seems to be the result of language learning, not its precondition (Farah 1994, Karmiloff-Smith 1995, Shaywitz 2003).

Other arguments pertain to the difference in syntactic or phonological and lexical, semantic, or pragmatic aspects. While many supporters of language modularity base their arguments on examples from syntactic aspects, others hesitate to favor language modularity depending on semantic or pragmatic findings (Garfield 1987). In this sense, for example, Wood (1998) criticized research that stresses a biological instinct to learn language (e.g., Pinker 1991), without fully attending to interpersonal experiences and environmental factors.

To resolve these arguments, others have suggested that language faculty resembles a sort of complex learning module that, given proper linguistic and contextual input, can yield many different mental grammars (K Kim et al. 1997, Dehaene et al. 1997). Each of these grammars, as the final result of language modularity, can be learned, developed, and might be selectively decayed or impaired during its development. This implies that the notion of modularity of language does not necessarily mean an unchanging, hard-wired, or encapsulated mechanism.

2.3. Widening Our Understanding on Modularity

More flexible understandings of modularity will settle controversies regarding the following three issues: local level vs. global level, encapsulation vs. redescriptive process, and domain specificity vs. cooperation between modules.
2.3.1. Local Level Versus Global Level Modularity
Fodor (2000) revised his previous position on modularity (Fodor 1983), arguing that the design of most of the cognitive mind is not modularized; that is, though the local mental processes may be modular, the global mental processes, like thinking, reasoning, inferencing, or problem solving, are not modular. Since language faculty works beyond the local level, we must consider the presumptive modular structure of language at the local level while regarding the nonmodular process of thinking at the global level. In this sense, the concepts that define many aspects of linguistic phenomena are not modular (Fodor 2000); instead, interface capacities make language possible (Sterelny 2003). That said, we can integrate the linguistic process (or module) within our overall mental processes and extend the processes to the scope of the social or cultural level. Therefore, we cannot encapsulate the semantic and pragmatic usage of language at the local level but, rather, conceptualize it at the global level.

2.3.2. Encapsulative Module Versus Redescriptive Process
Karmiloff-Smith (1995) criticized the nativists’ account of “native competence plus language input” as not providing a clear understanding of how children actively construct their linguistic knowledge. Instead, she suggested the representational redescription model (RR)\(^1\) to account for how children’s representations become progressively more malleable and flexible for the emergence of conscious access to linguistic knowledge. In RR theory, she argues that redescription takes place from very early infancy as children are “actively engaged in analyzing phonological or morphological inputs” and redescribe them “into the more accessible format of linguistic schemas” (Karmiloff-Smith 1995: 42). Even humans presumably have innate mechanisms or capacities that underpin language acquisition and Karmiloff-Smith emphasized the developmental process over the matter of modularity.

2.3.3. Domain Specificity Versus Cooperation Between Modules
The critical issue in building a mind is not the modules from which the mind is composed, but the process by which the modules are integrated. In this sense, Spelke (2003) argues that human’s unique mental capabilities arise from cooperation between modules. For example, our faculty of language might be composed of a few dozen specialized modules—not only phonetic, phonological, or lexical modules but also auditory, visual, or kinetic modules bidirectionally connected to each other. Given this complex connection, we cannot judge which modules predominantly regulate our language faculty

---

\(^1\) According to the RR theory, for instance, trial-and-error of the irregular forms in English may serve as indicators of conceptual change and reorganization, which is the process of representation (Wood 1998: 137).
In short, scholars have disputed the suggested characteristics of modularity, and the assumptive concept of modularity also calls for further examination. Consequently, discussions about modularity have been a diversification that goes beyond the hypothesis of modularity.

2.4. Overcoming Modularity: Socio-cultural Theories and Connectionism

2.4.1. Language in Context Versus Language in Modules

Contrary to modular perspectives, sociocultural theory views language learning in its connection and coherence to the social context. Vygotsky (1978) considered social interaction as both an external source and integral part of individual development and social experience as the motive for children's developmental changes and higher mental functions (Gauvain 2001). In such social experiences, language signifies a medium while it can also facilitate cognitive development (Bloom 2002, Rogoff 1990). For instance, Bloom (2002) found that children solve name-object mapping problems by inferring from the referential intentions of others and argued that a distinct module does not produce this "mind reading" ability.

In comparing modularity and social context, Cole (1999) suggested that the two sources of structure—context as a cultural factor and modularity as a phylogenetic factor for development—interweave over time. On the one hand, context, cultural source in the structuration of language, provides both constraints on the formation of language and tools used in the process of constructing linguistic knowledge (Cole 1999: 84). On the other hand, cultural context plays a significant role in choosing among different kinds of modular inputs, depending on culturally accumulated knowledge acting as constraints. For example, phylogenetic modules (e.g., phonemic awareness in the early infancy) provide a primary level of constraint on building linguistic knowledge, and historically accumulated modes of action (e.g., Korean infants intuitively distinguish /b/, /p/, and /pp/ by experience) further constrain those. As such, Cole argued that phylogenetic input and cultural modifications coevolve in the macrotime (e.g., tens of thousands years) of phylogenetic influence and the microtime (e.g., hundreds of years) of cultural influence (Cole 1999: 87-88).

To summarize, as Geertz (1973) viewed this relation as the intertwining coevolution of culture and human phylogeny, language acquisition not only signifies a matter of individual microgenesis but also the effect of intermingled interactions of language modules deeply situated in the cultural context.

2.4.2. Is Culture Everything?: Coevolution Models

Although this paper highlights the sociocultural understanding of lan-
guage modules, the sociocultural perspective alone cannot provide an account for all facets of language development (Fodor 1999). Deacon (1997) argued that language arises slowly through cognitive and cultural inventiveness, and cognitive effort and genetic assimilation interact as language and brain coevolve. In other words, language has not evolved by itself; the coevolution of language and the brain has occurred through genetic assimilation, which involves neurobiological changes that assist attention, memory, and association to ease the laborious work of language.

In the same vein, Dual Inheritance Theory argues that normal human development, including language development, depends crucially on both biological and cultural inheritance (Durham 1991, Tomasello 1999). For instance, Tomasello (1999: 41) emphasized that the process of cumulative cultural evolution represents “a powerful form of collaborative inventiveness or sociogenesis”. We have this “cumulative cultural evolution” to thank for humans’ ability to develop language capacities within a relatively short period in evolution.

2.4.3. Connectionist View of Language

Some researchers reject language modularity due to its abstractness; instead, they propose a more scientific and positivistic approach—connectionism (Gasser 1990). According to the connectionist view, the human mind signifies the “global result of many interactions taking place in a network of neurons modeled with an artificial neural network and consists entirely of quantitative processes in which physicochemical causes produce physicochemical effects” (Alemi & Daftarifard 2010: 3). Contrary to Chomsky (1957), who believed in a specific mental module specialized for language, and Fodor (1983), who argued that such capacity has emerged under some specific evolutionary pressure, connectionism considers the entire mind, including language capacity, as the result of learning and experience during life (Dilworht 2005).

Connectionism posits that modules, if any, while not present in the phenotype from birth, may develop later in life. Thus, according to connectionism, modules, only very partially encoded in the genotype, result only from complex interactions between genetically encoded information and learning by experience (Calabretta & Parisi 2001). Some evolutionary connectionists admit the existence of modules if the modules result from development and learning rather than appearing innately. Currently, both neuroscientists and computer scientists interested in the computational power of networks of simple processing units laboriously examine connectionist models (Calabretta & Parisi 2001).

In short, many different approaches have challenged the language module hypothesis and the idea of innateness is getting questioned these days.
Rather, we should sincerely consider the development of language capacity under the context of sociocultural influences. According to dual inheritance theory, language development depends crucially on both biological and cultural inheritance; and connectionism investigates the nature of modules in terms not of domain specificity or encapsulation but as the result of complex interactions between genetic encoding and everyday experience.

2.5. Modularity and L2 Learning

Having discussed the controversies over the modularity of L1, we turn to questions on how L2 learning differs from L1 acquisition in terms of modularity and whether L1 knowledge can be transferred to L2.²

2.5.1. Modularity of L1 and L2

Scholars have offered many idiosyncratic theoretical positions regarding modularity, UG access, or L1–L2 transfer. Some, like Chomskyan nativism (1980, 1986), accept modularity, while others, such as sociocultural theories and connectionism, reject modularity. Strong nativism (Dehaene 1997, Fodor 2001, Matthews 2001, Selinker 1984) professes that L1 and L2 learning can access UG, while weaker nativism (Clahsen & Muysken 1986, Cowie 1999, Schachter 1990) remains skeptic about UG access of both L1 and L2. The following provides a detailed analysis of the different theoretical positions regarding UG access (Table 1).

Table 1. Comparing Theoretical Positions on Modularity, UG Access, and L1–L2 Transfer.

<table>
<thead>
<tr>
<th>Theoretical position</th>
<th>Modularity</th>
<th>UG Access</th>
<th>L1 → L2 Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Domain specificity &amp; Innateness</td>
<td>L1</td>
<td>L2</td>
</tr>
<tr>
<td>Chomskyan nativism</td>
<td>Not sure</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>Fundamental Difference Hypo.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong nativism</td>
<td>Modular</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Weak nativism</td>
<td>Modular</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>Sociocultural</td>
<td>Non-modular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hard Connectionist</td>
<td>Non-modular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft Connectionist</td>
<td>Non-modular</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

² For other categories of the relations between L1 and L2, see White (1996) and Flynn (1996).
When Chomsky (1957)\textsuperscript{3} tried to explain UG in terms of a modular component, the issue of whether the concept of UG can be applied in L2 learning did not come up. In this sense, Gregg (1996a, 1996b) distinguished two different positions regarding the contribution of UG in L2 learning: one argues that UG, though it works for L1, plays no direct role in L2 acquisition (Chomskyan nativism). The other, \textit{Fundamental Difference Hypothesis} (henceforth, FDH), differentiates between child L1 acquisition with adult L2 learning (Clahsen & Muysken 1989, Schachter 1989). FDH argues that adult L2 learning relies on general cognitive ability and problem solving ability; in this sense, child L1 acquisition differs from adult L2 learning in that child L1 acquisition needs direct access to UG (i.e., setting principles and parameters), while L2 learning relies on the L1 principles and parameters. In brief, FDH posits that humans acquire L1 through L1 input under the mechanism of principles and parameters of bioprogrammed UG, while we learn L2 from experiences with L2 input guided by the parameters set by L1 (Galasso 2002).

\textit{Strong nativism} affirms that UG also works as a causal factor in L2 learning; it implies that no difference exists between L1 and L2 learning and that UG operates in L2 acquisition as well. As for strong nativism, Dehaene (1997) argues that, in the case of bilingual individuals, two distinct mental grammars of both languages are submodules of a more general mental UG and, thus, share some resources. For example, when a Korean native speaker learns English vocabulary, s/he might select and adapt the new English lexical knowledge to a pre-existing neural region of the Korean lexical system rather than by constructing an English lexical system anew. Dehaene argued that, say, in the case of the Korean second-language learner, the gained lexical knowledge of English resulted from a process of ad hoc modularisation of a lexical knowledge of Korean. Therefore, we can say that L1 lexical knowledge (i.e., Korean) transfers to L2 (i.e., English). Additionally, strong nativism posits another minor viewpoint (Selinker 1984) arguing that UG, as L1, drives L2 acquisition by young children; however, strong nativists do not consider this influence of L1 but adopt the \textit{L2 Direct UG Access Hypotheses} (Krashen 1985, Thomas 1991).

While strong nativism accepts domain specificity, innateness, and UG, weak nativism rejects UG and consequently argues against transfer of L1 knowledge to L2 acquisition. To elaborate, weak nativists affirm that humans possess an innate and domain-specific capacity for language acquisition, without necessarily having faculties such as UG and without expecting

\textsuperscript{3} Cowie (1999: 176) characterized Chomskyan nativism in terms of domain specificity, innateness, and Universal Grammar; according to Chomskyan nativism, human language is modular because: i) human language is constrained by principles specific to the linguistic domain; ii) human capacity of learning a language is not gained by experience but innately encoded, and iii) the constraints and principles are to be identified with the peculiar knowledge of Universal Grammar.
L1 transfer to L2. Hence, we have the *L2 Non-UG Access Hypothesis* (Clahsen & Muysken 1986, Schachter 1990, Cowie 1999).

Sociocultural theorists (Ellis 1998, Lantolf & Poehner 2008, Vygotsky 1986) affirm neither UG nor modular accounts of language. Rather, they believe experience, sociocultural context, and/or practice largely influence language acquisition. Transfer of L1 knowledge to L2 can occur, but it takes place through the familiarity of languages and language-learning experiences and not by the effects of modularity or UG.

Meanwhile, connectionists have two different positions regarding UG—hard and soft connectionism. The former posits no modules or UG but argues that language acquisition does not differ from other cognitive and neurobiological tasks. Naturally, it has little interest in L1 transfer to L2 learning. The effects of transfer or interference also depend on the familiarity of both languages (Nambiar 2009). The latter, represented by the *dual inheritance theory*, argues that UG may define human language capacity, but another significant factor — i.e., culture — takes precedent. Therefore, innateness does not solely determine language acquisition, rather, language acquisition occurs developmentally, and the language faculty is not entirely domain specific, but involves interactions among modules. This position presumes no difference between L1 acquisition and L2 learning; thus, shift of L1 knowledge to L2 can occur through transfer or interference, depending on the familiarity between L1 and L2 (Lindsey et al. 2003, Sparks et al. 2008).

2.5.2. L1–L2 Transferability

Debates in the literature of second language acquisition and bilingual education have long surrounded the transferability between L1 and L2. Nonetheless, researchers have not reached a consensus on whether transfer of L1 knowledge has constructive or destructive influences.

We can categorize the role of L1 on the acquisition of L2 into four different perspectives in terms of cross-linguistic analysis (Hui 2010): *Contrastive Analysis* (CA), *Contrastive Rhetoric* (CR), *Constructive Underlying Proficiency* (CUP), and *Creative Construction* (CC). Among these, CA and CR hold that L1 interferes with L2 acquisition when L1 and L2 differ linguistically; CUP maintains that L1 facilitates L2 learning when L1 and L2 differ linguistically; and CC claims that L1 has no effect on L2 acquisition. Table 2 demonstrates these distinctions.
Table 2. Four Hypotheses on L1-L2 Transfer.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>L1–L2 relationship</th>
<th>L1 influence</th>
<th>Conditions for positive transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUP</td>
<td>Similar languages</td>
<td>Positive (Facilitation)</td>
<td>Conceptual &amp; linguistic knowledge, common experience (Similar cognitive processes, shared structures, &amp; transferrable mechanism)</td>
</tr>
<tr>
<td>CA</td>
<td>Distant languages</td>
<td>Negative (Interference)</td>
<td>Psychological (Learning strategies) &amp; Linguistic aspect (Structural similarities)</td>
</tr>
<tr>
<td>CR</td>
<td>Structural similarities Cultural differences</td>
<td></td>
<td>Cultural commonalities</td>
</tr>
<tr>
<td>CC</td>
<td>No matter</td>
<td>No effect</td>
<td>Universal process for all language learning</td>
</tr>
</tbody>
</table>

First, CUP hypothesizes L1 and L2 as proficiencies separated at the surface level but suggests they might share certain abstract universal principles and constraints at the deeper level for all natural languages (Cummins 1979, 1983). This hypothesis affirms that becoming proficient in L2 requires successful transfer of the skills, knowledge, and concepts of L1. Securing CUP requires three elements: conceptual knowledge, common experience, and linguistic knowledge (Francis 2000). In other words, CUP is secured when L1 and L2 have similar cognitive processes, shared structures, and mechanisms that allow the processes and structures for successful L1 transfer to L2 (Eisterhold 1990). In short, positive L1 transfer means that L2 learners must utilize cognitive skills at a deeper level, such as reading and writing or language-learning strategies, skills which might be shared with L1 proficiency (Hall 1990, Liu 2002, Scott 1997, Upton & Li-Chun 2001).

In this sense, some view L2 learning as highly parasitic on the structures of L1 in lexicons (Kroll & Sholl 1992) or phonology (Flege & Davidian 1984, Hancin-Bhatt 1994), relative to L1 knowledge transfer to L2. However, studies supporting such transferability mostly have explored cognate languages (Skehan & Ducroquet 1988). In addition, many occasions arise when the transfer of syntactic patterns is only structurally correct but pragmatically inaccurate (MacWhinney 2001). Moreover, even in the case of transfer between cognate languages, more cases of negative transfer occur, for instance, in phonology where L1 articulatory patterns influence production of foreign accents in L2 (MacWhinney 2001).

Second, CA hypothesizes that L1 knowledge might interfere with L2 learning in terms of both psychological (e.g., interfering elements of learning) and linguistic (e.g., language difference) aspects (James 1980). Meanwhile, CR focuses on cases in which the similarities in structure and the dif-
ferences in cultural conventions and knowledge in L1 and L2 cause negative influence of L1 (Grabe & Kaplan 1989). This negative transfer happens at various levels of language, such as phonological, syntactic, and discourse levels (Liu 2002).

Therefore, we have difficulty in expecting positive transfer between distant languages (Ellis 2003). Negative transfer between distant languages may necessitate more time required in learning L2 than when learning cognate languages. For example, the Foreign Service Institute (FSI) has created a list showing the approximate time people need to learn a specific language as an English speaker, up to the level “Speaking 3 (General Professional Proficiency in Speaking)” and “Reading 3 (General Professional Proficiency in Reading).” Table 3 displays this information (FSI 2011).

**Table 3. Language-learning Timeframes for Native English Speakers.**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Necessary time</th>
<th>Examples of languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Languages closely related to English</td>
<td>23-24 weeks (575-600 hours)</td>
<td>- Romance (Dutch, French, Italian, Portuguese, Romanian, Spanish) - Scandinavian (Danish, Norwegian Swedish, etc.)</td>
</tr>
<tr>
<td>I-1</td>
<td>Languages linguistically related</td>
<td>30 weeks (750 hours) 36 weeks (900 hours)</td>
<td>- German - Indonesian, Malaysian, Swahili</td>
</tr>
<tr>
<td>II</td>
<td>Languages with significant linguistic and/or cultural differences</td>
<td>44 weeks (1100 hours)</td>
<td>- Slavic (Russian, Polish, Hungarian, Albanian, Finnish, Bulgarian, etc.) - Greek (Croatian, Hebrew) - Hindi (Urdu, Burmese, etc.)</td>
</tr>
<tr>
<td>III</td>
<td>Languages exceptionally difficult for native English speakers</td>
<td>88 weeks (2200 hours) (2nd year of study in-country)</td>
<td>- Asian (Cantonese, Mandarin, Japanese, Korean) - Arabic</td>
</tr>
</tbody>
</table>

A great volume of research provides evidence supporting the bidirectional difficulty of L2 learning between distance languages in both linguistic and cultural aspects.

Lastly, CC hypothesizes that L1 plays no role in L2 acquisition and claims there is no difference between L1 and L2 acquisition (Dulay & Burt 1972, Ellis 2003, Faerch & Kasper 1987). Many cases wherein L2 learners did not get help from their L1 knowledge support this position, contrary to Cummins (1979, 1983) but supported by Cao (2001) and Dulay and Burt (1972). To examine this issue, we have to specify more precisely which aspects of language competence and language use are interdependent or separate; otherwise, we cannot be sure how and why L1 and L2 proficiencies are interdependent and how L1 proficiency is transferred to L2 (Francis 2000).
gual learning offers a good example to explore how the degree of L1 and L2 proficiency works. Normally, bilinguals who acquire their languages simultaneously during childhood construct separate lexicons and grammars and experience no need to go through a process of transfer (De Houwer 1995, Grosjean 1982); however, L1 knowledge greatly affects sequential bilinguals or adults during L2 learning. Generally speaking, a higher degree of L1 proficiency yields more transfer to a lower degree of L2 proficiency (Ringbom 1987). A positive transfer, such as cognate vocabulary use, will more likely occur at high levels of L1 and L2 proficiency (Odlin 1989).

In short, empirical findings from studies on L1 influences on L2 learning are generally in contrast. This is because additional variables other than linguistic aspects exist, such as typological distance and markedness, in the matter of L1-L2 transfer: e.g., age of a learner, level of learner’s knowledge, stage of language acquisition, and choice of learning strategies (White 1989). This makes the relationship between L1 and L2 proficiency extremely complex (Zhang 2006). This being said, in the following section this paper discusses some pedagogic implications to handle the complex issues for implementing successful 1st and 2nd language teaching and learning.

2.5.3. Pedagogic Implications

The issue of modularity of language yields many significant pedagogic implications regarding L2 learning. That said, several suggestions deserve noting regarding the role of L1 on L2 learning, especially for native Korean speakers learning English as L2.

First, language teachers must perceive the dynamic and multifaceted role of L1 on L2 learning and employ more retrospective measures in L2 language classrooms. To date, many teachers have proposed instructional techniques and strategies in isolation from students’ L1 proficiency and knowledge. This paper would strongly suggest, given the discussion herein, that successful L2 learning demands consideration of a learner’s L1 and sociocultural background. Therefore, the foreign language instructor must invite the learners’ knowledge, culture, and L1 skills into the classroom along with the student.

Second, as Cummins (1976, 1979, 1983) argued in his Threshold Hypothesis, acceleration of L2 learning requires a certain level of L1 skills and

---

4 For instance, Zhang (2006) classified the related variables for L1–L2 transfer into three groups: learner-related variables (such as age or motivation), language-based variables (such as markedness, language or cultural distance, language proficiency) and sociolinguistic variables (language learning context or the relationship between the addressee and the addressee).

5 Cummins’s (1979) Threshold Hypothesis claimed that the level of linguistic competence of a bilingual child may affect his or her cognitive growth. Earlier, he (1976) argued that there are two-level thresholds and children with low levels of proficiency in both L1 and L2 may suffer “negative cognitive effects”; however, by mastering one language, the child could move be-
knowledge. Such a process should see the gradual decline of L1 use, for instance, in a bilingual classroom with consideration of the learners’ developing L2 levels. This argues against the full-immersion class for learning L2 distant from L1 without providing considerable backup in the duration of immersion, quality of experience, and sociocultural backgrounds.

Third, in L2 classrooms, instructors should combine various instructional techniques to instigate learners’ cognitive operations. While the modularity hypothesis posits distinctive roles or functions of language modules in their own development, other approaches stress the cooperative and situated process between linguistic units and other mental functions. Especially, teachers should be more tolerant with low-level L2 learners who tend to rely on their L1 skills when they have difficulty in thinking in and practicing L2. Of course, instructors can encourage high-level L2 learners to think in L2 as much as possible to pursue the ultimate goal of expert L2 proficiency.

Fourth, we should consider the role of extralinguistic factors on language learning. Sociocultural theories emphasize the role of context in both L1 acquisition and L2 learning. In Vygotskian theory, for example, three main themes—process (development), interpersonal activity, and inter/intramental activity mediated by language — signify the basis for an investigation into how human mental functioning is located within cultural, historical, and institutional contexts (Wertsch 1991). This implies that we cannot learn a language by itself. Language represents both a source and byproduct of cultural construction and a medium of thought and a tool for higher-level thinking (Vygotsky 1978, 1986). Therefore, for L2 instruction, we must consider cultural background and artifacts, cultural understanding, and interpersonal relationships with native speakers of the target language.

In short, this paper recommends providing L2 learners a choice of settings among separate, immersion, or bilingual classrooms or their use of L1 or L2 in L2 lessons. Teachers consider if learners receive encouragement to use their L1, if necessary, to prepare assignments, to confirm their comprehension, and to ask any questions. L1 knowledge and skills cannot be regarded as obstacles but as assets and scaffolding (Upton & Li-Chun 2001).

3. Conclusion

This paper has discussed the modular account of human language in terms of three major characteristics—i.e., innateness, domain specificity, and encapsulation—by highlighting some controversies on language modularity.
To expand our understanding on modularity, this paper proposed, arguably, three main approaches to the development of human language capacity: genetic evolution (pro-modular), sociocultural adaptation (cultural), and genetic assimilation (dual inheritance). Theories from the perspectives of genetic evolution presuppose a genetic event that gave modern languages their structures and “innate module,” unrelated to others, encapsulated, and domain specific. Sociocultural adaptation posits the process of language development as social transmission of knowledge from interaction and takes a nonmodular approach by saying that language is acquired and sophisticated and stored in individual or social memory with a form of culture. Genetic assimilation proposes that human cognitive (and language) development relies equally on biological and cultural inheritance. This approach tries reconciliation of modular and nonmodular principles for human language development. This paper especially emphasized that many researchers believe language does not work in isolation and confined to modular aspects, rather, it works in cooperating with thought and in interpersonal or sociocultural contexts. Therefore, practitioners should seriously consider the development of language capacity under the context of sociocultural influence.

Finally, this paper reviewed several theoretical positions regarding UG access and transferability of L1 and L2. Empirical findings from studies of L1 influence on L2 learning generally contrast, which makes the relationship between L1 and L2 proficiency extremely complex. In brief, Chomskyan nativism accepts modularity, while others, such as sociocultural theories and connectionism, reject modularity. Even among nativists, strong nativism posits that L1 and L2 learning rely on UG, while weak nativism acknowledges only domain specificity and innateness and rejects UG access of both L1 and L2. Meanwhile, sociocultural theorists do not consider UG and L1 transfer critical to L2 learning; the same holds true for the hard connectionists. Among connectionism, however, soft connectionists accept a possible role of UG in addition to cultural influences, as in the dual inheritance hypothesis. For transferability, generally speaking, positive influence is expected among cognate languages; negative influence is anticipated among distant languages and those languages similar in structure but different in culture.

It is highly recommended for classroom teachers, especially who teach a second or foreign language which is linguistically different from the mother tongue, to consider the possible range of L1 transferability to L2 learning and the sociocultural factors affecting the effectiveness of L2 learning. After these been considered, teachers may select one of the variety of methodological approaches or instructional techniques.
References

Alemi, Minoo and Parisa Daftarifard. (2010). Modular versus unitary (non-modular) views on the brain and mind. BRAIN (Broad Research in Artificial Intelligence and Neuroscience) 1.3, 1-5.


Hyu-Yong Park
Sungshin Women's University
Sujeonggwan, #B-832
Dongseon-3ga, 249-1
136-742, Seoul, Korea
parkhy@sungshin.ac.kr

Received: March 3, 2011
Revised version received: May 19, 2011
Accepted: June 3, 2011