Distinguishing Sources of L2 Development Problems in K-12: Language Deficit, Cognitive Deficit, and Cognitive Distance

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Abstract

K-12 students with limited L2 proficiency who do not progress satisfactorily are often referred to special education and/or speech pathology services. Like the teachers who refer such students, the representatives of each service have a specific expertise (e.g., cognition) with little knowledge of the other types of proficiencies (e.g., L1 development) that might be the source of a student's problem. Misdiagnoses could be greatly reduced by more comprehensive training of school professionals involved with the L2 population: L2 teachers (e.g., ESL), special education teachers, speech pathologists, and psychologists. Such training should focus on three distinctions: the difference between normal L2 development and (1) language deficit; (2) cognitive impairment; and (3) cognitive distance. Here, each of these possible sources of slow L2 development is explained briefly with the intention of providing a clear but minimal set of indicators of each problem so that school professionals can better serve the limited L2 population.

Second Language Acquisition

For many immigrant students in the K-12 system of the US and other countries, the dual tasks of learning a new language and learning new information impose a considerable strain. Many of these students experience difficulty acquiring the level of skill in the L2 necessary for normal academic progress, and a disproportionate number are referred to special education or to language services. The large number of referrals suggests that the problem may lie in flawed evaluations of L2 students rather than genuine learning or language problems. Teachers and language professionals, however, often lack training that would aid them in differentiating normal L2 stages of development from genuine language impairment or a variety of cognitive issues. With increasing recognition that limited L2 proficiency can resemble language impairment or cognitive problems, better cross-training of school professionals will eventually be provided in training programs. Until that time, teachers and speech-language professionals need some reasonably clear indicators of normal L2 development versus either language or cognitive impairments.

Like most forms of learning, second language acquisition proceeds in stages, and for this reason it can sometimes be difficult for school professionals to distinguish between a temporary state of development and a more serious problem. There is a natural hierarchy of development for each component of the language –phonological, semantic, morphological and syntactic. For example, the easier sounds are mastered before the more complex ones, and the easier grammatical structures are learned earlier and faster than the harder ones. The hierarchy of acquisition in L2 is similar to that of L1, but most older L2 learners –from age 10 on-- have to make a more conscious effort to learn the L2, and it is more difficult to acquire native-like proficiency in the L2 (Johnson & Newport, 1989). Teenaged L2 students may therefore find it harder to master embedded clauses than 7-year-old L2 students learning the same language. The "fossilization" that so frequently characterizes late L2 acquisition affects pronunciation (foreign accent) and morpho-syntax (the closed class items, including the morphological system, and the syntactic system). The following examples of morpheme differentiations in English and the acquisition stages in English question-forms are the kinds of structures that are subject to fossilization:

Morphological Differences

- I am boring *vs* I am bored
- My trip was excited *vs* My trip was exciting

Hierarchy of development, Q-form in English

- Your cat is black? > Is your cat black?
- Where your cat is? > Where is your cat?
- Why you have left home? > Why have you left home?

Fossilization tends to affect production skills (speech, writing) much more than comprehension skills (listening, reading) for the very good reason that in speech and writing one must orchestrate many more language rules than in comprehension. L2 Comprehension skills can be substantially improved in a reasonable period of time (e.g., one year) if teachers are well trained and L2 programs are well designed. When L2 students do not seem to progress in language skills it is important to provide assistance promptly and to evaluate the student's skills periodically.

In the United States (and perhaps other English-speaking countries) there is a wide-spread notion that it takes five to seven years (or more) to develop the level of proficiency in the L2 necessary for academic work. This amounts to at least half the years in the K-12 curriculum. Fortunately many L2 students are able to make the transition from language-support classes to regular classes in much less time. The notion that the process takes much longer appears to be based on observational data that may not represent a scientific sample of the general population of L2 students. Such *observations* of student performance should not be confused with facts about the length of time actually required to learn something. As an example, it is well known that US students do not perform as well in mathematics, science and reading as their contemporaries in other economically advanced nations (and even some poor nations). But no one attributes the American lag to mathematics, science and reading or, for that matter, to the mechanisms of learning. If it takes the average American student five to seven years to learn math skills that students in many other countries routinely acquire in two years the American *performance* lag is not blamed on the nature of mathematics learning, but on the American

educational system. Similarly, the fact that many L2 students seem to progress so slowly may be due to pedagogical weaknesses in L2 programs or lack of motivation on the part of the L2 students or to some combination of these and other factors, but it should not be considered a natural characteristic of second language acquisition.

The real issue in limited L2 proficiency is academic language –the level of L2 that will enable immigrant students to achieve their potential in school. Many K-12 students with limited L2 skills manage everyday oral discourse well enough to communicate in informal circumstances. But literacy and academic skills demand a more sophisticated language repertoire. The vocabulary of textbooks and other academic materials is much larger and more abstract than that of everyday casual discourse, and written text is structurally more complex than that of everyday conversation. In school non-native speakers are learning a second *language*, sometimes beginning at a rather basic level, at the same time they are learning new *information* that may be difficult to understand even in one's native language. For many L2 students comprehension of the new information will improve as L2 skills increase. But there are some L2 students who will struggle either with language in general and with new information in particular because of an underlying language or cognitive problem. School professionals therefore need some guidelines for distinguishing the several possible problems they attempt to analyze.

Indications Of Language Impairment

Given appropriate training and a supportive school and home environment most limited-L2 proficiency children will acquire the L2 skills they need for academic work in a reasonable

amount of time, and their progress will be obvious. However, when K-12 students with limited L2 evince problems in either language development or fairly basic academic skills (e.g., reading) the L2 proficiency issue complicates the task of identifying the source of the problem. Does the child have a problem with language in general (which would affect both L1 and L2), or perhaps a learning handicap? If after six months or so in the L2 situation the child is capable of the following skills, the possibility of a language problem *per se* can most likely be ruled out:

Ability to engage in simple *everyday* L2 discourse

(*greetings, requests, simple conversation*)

Ability to generate simple original sentences in L2

(e.g. *to picture prompts*)

Ability to repeat short L2 sentences with familiar words

(e.g., *the cat is on the mat*)

It should be pointed out that a number of children begin primary school without sufficient L1 skills to begin literacy training. For most such children, the problem is environmental. Although they have acquired the general repertoire of the basic language (everyday discourse), they may not have developed the range of vocabulary and sentence structures that would prepare them for beginning literacy development (Cummins, 1979, 1981). Most of these children are entirely normal insofar as their language and cognitive abilities are concerned, but because their language *skills* are inadequate for the purpose of literacy training language assessment

instruments may indicate that their language skills are undeveloped. If the language "deficiency" represents inexperience rather than a genuine problem, remedial language programs are often very effective in a relatively short period of time (e.g., Bloom, 1994). Such programs can be adapted to the needs of L2 learners as well.

Where immigrant children are concerned the evidence that L1 language skills are sometimes inadequate for normal academic development has led to an academic controversy that has not served the children well. Roughly, the assumption is made that all children acquire their first language equally well. Evidence to the contrary appears to be ignored and no evidence is presented to support the notion that all children are at the same level of language development at say, age five. The issues require much more elaboration and technical explanation than is possible here, but better information about the dynamics of language contact and a more technical understanding of language acquisition will –in the end— resolve this issue and benefit many children, especially those with limited L2 proficiency.

When children with limited L2 proficiency seem not to progress in the language, teachers and speech-language professionals often feel ill-prepared to remedy the problem. A genuine language-acquisition impairment is reasonably easy to identify, although much more challenging in the L2 situation. Children with Specific Language Impairment (SLI) exhibit problems that are similar to limited second language acquisition and although cognitive processes are generally normal, the overlap between language and cognitive processes in educational development can make it somewhat harder to differentiate a language deficit and a cognitive limitation of some sort.

Professional assessments necessarily begin with information about the child's *first* language development. It can sometimes be difficult to obtain this kind of information, and when a child with a possible language problem is from another culture it may be hard to communicate with the child's parents if they have only limited L2 proficiency and/or if a translator is unavailable. Parents may feel uncomfortable providing information about the child's development or health.

Further, cultures do not all view language development in the same way. Hence, when clinicians or teachers ask parents whether a child's first language development was "slow" the term may not have the same meaning across all cultures. Specific Language Impairment (SLI), for example, is evident fairly early in L1 development. L1 onset is slow and children with the disorder may exhibit little interest in language in general. The child has great difficulty repeating nonsense words of different lengths (a problem in the acquisition of the phonological rules of the native language), and problems acquiring the morphology of the L1. But such indications of language deficit or delay may be noticed more in some cultures than in others. In regions of the world where malnutrition and lack of health care are common features many children may exhibit slower development than would be the case in healthier communities.

In language impairment (SLI) the morphological system is particularly affected (e.g., tense and plural affixes in English) (Brown, 1994; de Jong, 2003). For L2 students it is therefore important to know something about the structure of the child's first language in order to make an accurate assessment in the L2 environment (Ravid, Levie, & Ben-Zvi, 2003). Of course for

older students the fact that the L2 morphology tends to fossilize makes it harder to distinguish a problem limited to the L2 from a deeper language acquisition problem.

Another standard part of a language assessment (testing for deficit) is the language sample, often in the form of a brief conversation and/or narrative. The child's language sample is analyzed and compared against a norm for vocabulary and grammatical development. Analysis of discourse samples, however, assumes a norm that does not necessarily obtain across all cultures. If the child's L1 culture has a different "norm" for discourse, the child's discourse may not meet the L2 expectations (Siler & Labadie-Wondergem, 1982; Westby, 2002)

In general, if there is a language impairment the child's vocabulary and sentence structure will be quite limited in the L1, and as the expressive load increases –as in school or formal discourse compared to everyday conversation routines—the language limitations are more evident and the number of morphological errors increases (Gillam & Johnston, 1992).

In cases of real language impairment, the problems that characterize the child's L1 will occur in the L2. Where a child does not seem to progress in the course of a year (assuming the L2 instruction is normal) an evaluation would be helpful. The evaluation, however, would have to include a great deal of information about the child's L1 development.

Cognitive Impairment

Proficiency in a language is a necessary but not sufficient basis for successful learning or processing of information. Speaking the language well does not guarantee successful learning in

school. Even native speakers misunderstand or only partially understand new information that they hear or read, as any student can attest. The process of learning –especially academic learning-- is quite complex and generally requires time. The following authentic examples from unimpaired high school and college students (native speakers of English) demonstrate the common phenomenon of incomplete learning. These examples represent a range of processing errors, from corrupted information to phonological distortions:

- *Copernicus's theory claimed that the sun was on the center of the earth*
- *Proteins are composed of a mean old acid (= amino acids)*
- *The pistol of a flower is its only protection against insects*
- *The wind is like the air, only pushier*

Where a real cognitive handicap exists there may well be an overlap between the particular type of learning difficulty and limitations of language. Children with serious (and general) learning impairments may have difficulty learning new vocabulary, and their sentence structure may not expand much beyond a fairly basic level. Similarly, children with certain types of L1 impairment usually experience the same kinds of problems in types of learning that depend on reading (Westby, 1999; Westby & Clauser, 1999). For school professionals, the overlap between language and cognitive processes in academic material sometimes makes it difficult to distinguish one type of disability from the other even for children who are native speakers (Lock & Layton, 2002). Non-verbal tests and a battery of language assessments are helpful in such cases. But the assessment process is more challenging where limited L2 proficiency children are concerned. In those situations, the basic indicators of potential language

impairment described above are the first step, but the assessment requires a more cautious approach and information about the L1 and the L1 culture are essential.

Cognitive Distance

Another potentially significant handicap for K-12 students with limited L2 proficiency is that a number of concepts in the L2 may not have a parallel in the L1, and the kinds of internal translation processes all L2 learners use cannot be deployed. Where the L2 learners come from poor and rural communities in their native countries education itself is often a rarity. Many concepts that these learners encounter in the L2 school environment are quite alien, and the absence of concepts and labels in the L1 of some immigrant children makes increase the strain of acquiring the L2.

In some respects the new concepts represent new information (e.g., globalization, genetics, etc). In other respects, however, the new concepts represent *ways* of thinking. Cognitive processes such as categorization that we might consider universal appear to be shaped to a substantial degree by local cultural/environmental forces. The famous Russian neuropsychologist, A.R. Luria, demonstrated the effect of localized cultural experiences on the way humans categorize (Luria, 1979). He compared the way Russian peasants and urban workers categorized objects. An array of pictures representing everyday objects was presented to individuals (various tools such as an axe, saw, and hammer, and various objects that might be associated in some way, such as milking buckets and logs). To his amazement, Luria found that the urban workers immediately sorted the tools into a “tools” category. However, the peasants sorted objects in an associative manner: the axe would be sorted with the log because the axe

would be used to cut the log. From their own cultural perspective the reasoning of the peasants was perfectly logical. From the perspective of the urban workers, objects with similar semantic features naturally sorted themselves into categories that are more familiar to those we learn in school.

In some languages the associative categorization is actually grammaticized so that one cannot refer to a "hand" or "leg" without attribution: *the hand or leg of so-and-so*. Speakers of such languages may find learning an L2 with categories such as "body parts" or "tools" (without the attributive) quite difficult because of the extra conceptual task. The experience may be somewhat analogous to that of native English speakers who must learn increasingly abstract concepts in science and mathematics, where the learning process often involves both newly acquired concepts the development of quite different ways of thinking about natural phenomena.

Similar differences in thinking may be observed in cultures where females are experientially restricted. When families from these cultures emigrate to countries where females are permitted normal lives, the L2 learning experience for females can be quite different initially from that of males from the same culture. Adult females in particular may have difficulty acquiring quite ordinary vocabulary (especially abstract nouns, verbs, adjectives) in the L2 simply because the constraints on their lives have precluded many almost any type of abstract thought.

Although children are cognitively resilient, the matter of cognitive distance may play a larger role in L2 development than is often thought. Considering that L2 children have so much to learn and adapt to, and considering the fact that it is usually the L2 populations from the

poorest regions that experience the most difficulty in L2 and basic academic development, some type of modification in the L2 education might ease the transition to the L2 language and culture.

Conclusion

It is not an easy matter to identify the source of unusually slow L2 development, but the task is not impossible. Much more can be done to educate teachers and clinicians about the languages and the language changes in the home countries/communities of L2 students. With that information it would be easier to make a fair and objective analysis of a child's first language development and then to provide the kind of remediation that would boost L2 development. More could be done to provide better L2 education as well. Many students with limited L2 proficiency may simply lack a curriculum that ensures regular use of and steady development in the L2.

Where L2 students seem to have general learning problems special education professionals may need to develop a good understanding of a child's original culture and language, and also the possibility of a different cultural mentality (e.g., attitudes toward females, social class, etc) that might make it difficult for a child to adapt to the educational system in a new country. When these cultural issues are resolved a more appropriate assessment and instructional program can be developed.

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