

The Mismatch of the Language of Textbooks and Language of ESL Students in Content Classrooms

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Abstract: Debate concerning bilingual education effectiveness may focus around the definition of academic language. Two aspects of such—vocabulary and grammar—were examined in 4th and 8th grade textbooks. Results showed substantial increases in the number of abstract words and complex sentences, suggesting more daunting language demands for older non-English-speaking students.

Lisa Delpit (1998) states that children need to be language detectives. Educators in Language Education agree that children need instruction on how to discover language and make it their own. However, before children can become detectives, they have to be directed as to what they should be detecting. Therefore the main question we ask is, "What is academic language?"

The defining of academic language can be viewed politically. Recent public referenda placed into law by electoral processes, such as Proposition 227 in California (1998) and Proposition 203 in Arizona (2000), have and are currently imposing a one-year limitation for English as a Second Language (ESL) students to acquire English and enter mainstream classrooms at a faster pace. Other states are currently considering such measures.

In response to these ideas, many language education researchers (e.g., Castro Feinberg, 2002; Cummins, 2001; Krashen, 1996; Thomas & Collier, 1997; Wong Fillmore, 1991) have argued passionately that these propositions have considerably, if not completely, stifled the linguistic skills ESL students need to tackle academic language demands in mainstream classes. A single year of English cannot realistically suffice for mainstream academic achievement, especially when research indicates that students need a good five to seven years to learn any language (Collier & Thomas, 1989; Cummins, 2001; Stack, Stack, & Fern, 2002). In contrast, passage of these referenda would suggest that the public perception, however, is that children can learn enough English to participate in mainstream classes within a year (McQuillan & Tse, 1996).

Currently, students whose English language skills limit their academic progression often find themselves in classrooms that fail to support their learning of content material (Collier & Thomas, 2001). Since ESL students have significantly less English to process content than native speakers (Collier & Thomas, 2001; Hakuta, 2000), a gap separates these two groups of learners with regard to academic achievement, thereby inadvertently redefining status among native and non-native speakers in classrooms and schools. The gap is marked by the additional time non-native English speakers must spend in order to study the English their native-English speaking counterparts already know.

Closing the Gap

To mainstream ESL students is to place them immediately in English-only medium classes, regardless of their English proficiency. Collier and Thomas's (2001) research indicates that the most effective gap-closing suggestion is never to mainstream ESL students and have them share all their content classes in two languages with their native-English-speaking peers—a conclusion directly in conflict with the beliefs of the California and Arizona propositions. Despite the political controversy, new ideas for closing the gap have risen, in the hopes of increasing essential academic language skills for ESL students to achieve levels equal to those of their

native English speaking peers when such bilingual education constructs are unavailable. Such ideas include literacy concentrations involving children's choices of pleasure reading (Cho & Krashen, 1995) and the development of children's self-expression and cultural representation through personal writing (Klingner & Vaughn, 2000).

These two literacy format examples fit into the structure of overarching methodologies, often described as *sheltered English*, currently implemented to help ESL students access academic and abstract language (Chamot & O'Malley, 1994; Cloud, Genessee, & Hamayan, 2000; Echevarria & Graves, 1998; Jameson, 2000). These designs structure classroom procedures so that students have exposure to and practice with what Cummins (1979) labels Cognitive Academic Language Proficiency, or CALP. Practices such as SIOP (Sheltered Instruction Observation Protocol) (Echevarria, 1998), CALLA (Cognitive/Academic Language Learning Approach) (Chamot & O'Malley, 1994), and SDAIE (Specially Designed Academic Instruction in English) have been shown to be successful in helping ESL students achieve CALP.

Cummins (1979) also describes a simpler kind of language, known as Basic Interpersonal Communication Skills (BICS). BICS refers to the basic language one learns and uses in social situations such as coffee shops and school playgrounds. When comparing BICS and CALP with Bloom's (1956) taxonomy, the lower-level set of language—knowledge, comprehension, and applicability—characterize BICS, and the higher-level set—analysis, synthesis and evaluation—represent CALP.

The argument often found among language educators is that politicians and administrators are misinterpreting ESL students' growing fluency as sufficient preparation for students to move into mainstream classrooms. However, language education professionals are concerned that recently emigrated ESL students may have had enough English preparation to operate effectively in activities that only require BICS. Similarly, they believe ESL students may fail to receive sufficient CALP accessible materials or critical thinking skills to face academic language in regular classes. As a result, propositions in California and Arizona may have diminished or even eradicated the integration of CALP materials for English learners in the short amount of time the students are expected to learn the language. With this in mind, if we in TESOL and Bilingual Education tout the importance of academic language, we need to be able to describe what it is. In other words, simply saying that students aren't getting enough CALP may not be an explanation with enough specifics to satisfy supporters of these propositions.

Academic Language

Cook (1989) identified varying levels of discourse, reaching from the most rudimentary to the more global and complex. These include sounds and letters, lexis and grammar, cohesion, conversational mechanics, discourse function, discourse type, shared knowledge, and relationships. While it seems that the concept of academic language encompasses all aspects of discourse as described by Cook, the scope of this paper deals exclusively with aspects of lexis and grammar.

Nation (2001) states that comprehensible input of and attention to specific academic vocabulary is crucial in the development of one's language learning. As a result, ESL students need to be equipped with sufficient academic vocabulary in order to decipher sentences in their textbooks. Researchers (Coxhead, 2001; Nation, 2001; West, 1955) have developed extensive lists of vocabulary words often found in English language materials. West (1955) counted words from common everyday publications and established the First 1000 words and Second 1000 most commonly used words. Coxhead (2001) notes that West's word lists accounts for approximately

85 percent of all words used in academic texts and college textbooks and annals covering the fields of science, math, and social studies, law, and so forth. As a result, she developed a list of 570 academic words that account for nearly 10 percent of all academic language found at college level. To our knowledge, researchers who are counting such words have looked at college level vocabulary; however, we know of no accounts of lower level vocabulary for students at elementary, junior or high school levels.

Grammar has always been hailed as a primary component of foreign language scholarship. Perhaps the most popular method of teaching foreign language in the world today is known as the Grammar Translation Method, practiced in famous textbooks such as Celce-Murcia and Larsen-Freeman's (1998) *The Grammar Book* and Firsten and Killian's (1994) *Troublesome English*—both listed as seminal works by the *TESOL P-12 Teacher Education Standards* (Stack et al, 2002). Although there are established books of grammar available, the grammar, approached as an academic form of language, especially at elementary and secondary levels, has to our knowledge been little evaluated. Dwyer and Killian (2001) did, however, conduct a pilot study which examined four high stakes testing preparation books for math and literacy development at 4th and 8th grade levels (Emery, Mitchell, & Mitchell, 2000; Lund, 2000; Lund Orciuch & Babcock, 2000) in an effort to uncover principal grammar points that they believed ESL students should understand and process to pass the high stakes tests. In the examination of these texts, Dwyer and Killian (2001) identified nine grammar points that could potentially pose linguistic hurdles for any ESL student in content-based classrooms, identified in the following list along with example sentences (Emery et al, 2000; Lund Orciuch et al, 2000). They are two-word verbs (“Blood also *picks up* wastes at this time”); modals (“Why *might* this be a sign that you have an infection?”); instructions (“Predict how much the water level will go up if you add the pebbles”); strung prepositional phrases (“The parts *of the respiratory system* are shown in the drawings on the next two pages”); questions (“How many different ways can he pay for it using only dimes, nickels, and pennies?”); passives (“As it contracts, *blood is squeezed* through a valve into the right ventricle”); gerund and infinitival phrases (“*Finding a way to get the whales to move* is an example of problem solving”); clipped passives in conjunction with relative clauses (“*Blood sent through the body* gives up its oxygen to cells”); and complex constructions (“*While you are reading this story*, a scientist may be discovering something new about whales”).

Research Design

In designing this research we tackled the main question, “What is academic language?” especially as it pertains to ESL students who enter a mainstream English only classroom for the very first time. To understand the difficulties that academic language presents to ESL students, we investigated the kind of language students first encounter as they have their first experiences with English-medium textbooks in content classes. We analyzed the language of these textbooks to examine the degree of their exposure to academic language, and thus understand what English language learners are confronted with when integrated in their new English-medium.

Three books were analyzed for their academic language: *History of a Free Nation* (Glencoe/McGraw-Hill, 1996), used in 8th grade and high school courses in Florida, the fourth grade McGraw-Hill *Language Arts* text (Hansbrouck et al, 2001), and the 4th grade science book *Science Horizons* (Mallinson et al, 1993). The content of these three texts was transcribed, both by character recognition software as well as manual input. With respect to lexis, the actual words in these transcriptions were then counted in relation to Coxhead's (2001) Academic Word List (AWL). For each sentence, the number of words was counted. The overall number of

occurrences of words, as well as their proportionality to the overall text size, was then evaluated. With respect to grammar, for each text, a contiguous group of 101 sentences from the beginning of each text was analyzed. Each sentence was then examined for occurrences of each of the nine Dwyer/Killian grammar points. For each text set of 101 sentences, the number of occurrences for each grammar point was established.

Results

The results of the analyses are shown in Tables 1 and 2.

Table 1. Analysis of textbook academic language: Vocabulary and Sentence Size.

Vocabulary and Sentence Size Variables	8 th grade history (w = 22,567, s = 101)	4 th grade language arts (w = 18,165, s = 101)	4 th grade science (w = 14,171, s = 101)
Instances of AWL	1509 or 6.69%	537 or 2.96%	343 or 2.42%
# of words from AWL used	320/570 or 56.1%	104/570 or 18.2%	72/570 or 12.6%
Mean # of words per sentence	17.19	9.09	8.88
Range of words in sentences	6 — 38	3 — 16*	1 — 18

Note:* demonstrates one instance of a 38-word sentence

Table 2. Analysis of textbook academic language: Grammar.

Dwyer/ Killian 9 grammar points	8 th grade history (s = 101)	4 th grade language Arts (s = 101)	4 th grade science (s = 101)
Two-word verbs	7	7	9
Modals	1	7	9
Instructions	1	30	7
Strung prepositional phrases	35	7	13
Questions	2	9	15
Passives	17	4	18
Infinitival and gerund phrases	20	13	18
Clipped passives w/ relative clauses	4	0	5
Complex constructions	37	22	17

With respect to lexis, the length of sentences, as well as the range of sentence size, the 8th grade history text has approximately twice the mean number of words per sentence as the 4th grade science and language arts texts. Additionally, based on percentages, there is approximately three times as much academic vocabulary in the 8th grade text as there are in two 4th grade texts.

With respect to grammar, the following phenomena were present. Hardly any modals, instructions, or questions were evident in 8th grade history; hence, expectation for language and information learning seems to be based on students' reading ability, not by teacher generated or class generated discussion. In the 4th grade language arts text, classroom generated thoughts seem to be elicited through instructions whereas in 4th grade science text, classroom generated thoughts seem to be elicited through questions. Not surprisingly, nearly twice as many complex structures found in the 8th grade text were as evident as in 4th grade text. However, as many passive structures in 4th grade science text were observed as in 8th grade history text. Similarly, the quantity of infinitival and gerund phrases in both grades were also comparable.

Conclusions

The results of this study indicate that several critical grammatical structures must be addressed by ESL teachers and their mainstream teacher colleagues. For 4th grade students, it may be necessary for teachers to give specific attention to commands, complex structures, passives, infinitival and gerund phrases, questions, and strung prepositional phrases. Commands could be taught more often in the context of language arts; passives, gerund phrases, and infinitival phrases could be taught more often in the context of science. Furthermore, 4th grade teachers should consider presenting academic language in the form of regular science projects.

This study shows the tremendous linguistic demands native speakers and non-native speakers both undergo between fourth and eighth grades. It further emphasizes how the grade and/or age of the student who enters school impacts the amount of English language work in front of them as they enter class for the first time. An 8th grade student with no English is presented with abundantly more English demands than a 4th grade student with no English. As a result, these results underscore the importance for having all teachers take real care in their presentation of long sentences, especially with respect to strings of prepositional phrases. However, the depth to which 8th grade teachers make such accommodations should be substantially greater than those of the 4th grade teachers. These teachers may need to undertake special training in how they speak, how they repeat phrases, and how they break up and take breaths in the middle of sentences.

As ESL students work between 4th and 8th grades, progressively extra attention will need to be placed on the acquisition and learning of academic vocabulary. The quantity of abstract vocabulary rises extremely quickly, and teachers will have to guard that their students approach such language with reasonable expectations and assertive practice. A progressive academic word list based on grades may be necessary to help students focus energy on specific new words.

This study seems to indicate reasons for why children up to age 10 have a fighting chance at succeeding in a new language. It also provides evidence of an emergence of academic language, particularly with respect to the intense linguistic demands ESL students must endure and conquer from fourth grade on. This investigation indicates that there exists a mismatch between the language of textbooks and language of ESL students in mainstream classrooms. The mismatch lies in that the demands on ESL students to learn longer sentences with more abstract vocabulary intensify almost geometrically between fourth and eighth grades, thus creating a super-challenging atmosphere that younger learners certainly do not encounter.

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