Linguistic Features of the Language of Schooling

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This article provides an analysis of some linguistic features of school-based texts, relating the grammatical and lexical choices of the speaker/writer to the functions that language performs in school contexts. Broadly speaking, the context of schooling requires that students read and write texts that present information authoritatively in conventionally structured ways. This article describes some of the lexical and grammatical resources — the register features — that realize this context of schooling. It shows that the presentation of information typically requires technical and specific lexis and explicitly stated logical relations. Authoritativeness is reflected in the choice of declarative mood and the use of grammatical and lexical resources instead of intonation to convey speaker/writer stance or attitude toward what is said. A high degree of structure is expected in school-based language, realized through elaboration of noun phrases, sentence rather than prosodic segmentation, and clause-structuring strategies of nominalization and embedding. These features are functional for creating the texts students read and are expected to write at school.

Understanding the linguistic elements that are functional for making the kinds of meanings expected at school is important for effective assessment of students' language development and for designing effective curricula for student learning. Awareness of the alternatives that are functional for effective realization of different types of texts can inform linguistic analysis of students' developing writing, or of the challenges posed by the texts students are asked to read. The grammar of English offers alternative options for making different kinds of meanings in different contexts. In particular, it is important for researchers in language in education to understand the linguistic elements that make up the registers of schooling.

A *register* is the constellation of lexical and grammatical features that characterizes particular uses of language (Halliday & Hasan, 1989; Martin,

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1992). Registers vary because what we do with language varies from context to context. The choice of different lexical and grammatical options is related to the functional purposes that are foregrounded by speakers/writers in responding to the demands of various tasks. Texts produced for different purposes in different contexts have different features. For any particular text type, these features can be described in terms of the lexical and grammatical features and the organizational structure found in that text type. A register reflects the context of a text's production and at the same time enables the text to realize that context. In other words, the grammatical choices are made on the basis of the speaker's perception of the social context, and those choices then also serve to instantiate that social context. The social context includes what is talked about (field), the relationship between speaker and hearer or between writer and reader (tenor), and expectations for how particular text types should be organized (mode) (Halliday, 1994). Speakers and writers simultaneously present content, negotiate role relationships, and structure texts through particular grammatical choices that make a text the kind of text it is.

Register differences manifest themselves both in choice of words or phrases and also in the way that clauses are constructed and linked. The configurations of linguistic features that make up particular registers enable us to hear or read a text and form an impression of the context in which and for which the text was created. Research that systematically relates context and grammatical structure has illuminated many aspects of the relationship between context and the linguistic features that comprise the registers of particular genres (e.g., Christie, 1985, 1986, 1991, 1998; Coffin, 1997; Halliday, 1978, 1993b; Halliday & Hasan, 1989; Halliday & Martin, 1993; Jones, Gollin, Drury, & Economou, 1989; Martin, 1983b, 1989; Veel, 1998; Wignell, 1994).

Genres are purposeful, staged uses of language that are accomplished in particular cultural contexts (Christie, 1985). In academic contexts, too, there are clearly recognized text types that are characteristic, and these text types are instantiated through grammatical features that are common to school-based uses of language and that reflect the purposes for which language is typically used in schooling. Researchers have explored several genres expected in school settings, including sharing time narratives (Christie, 1985; Michaels & Collins, 1984), recounts (Heath, 1983), descriptions (Schleppegrell, 1998b), definitions (Snow, 1990), expository essays (Martin, 1989), research papers (Swales, 1990), and others. Each genre has its own register features, but as this article shows, school-based genres exhibit many common register features. This is due to the similar purposes of academic genres.[1] Certain lexical and grammatical features are functional for "doing schooling."

This article describes the lexical choices and strategies for clause structuring that are typical of the school-based registers that are represented in the texts students read and that students need to draw on in school-based language tasks.

These lexical and grammatical features are compared with features that occur more frequently in the interactional discourse with which all children are more familiar. The article suggests that terms like "complex" and "explicit," when used in linguistic research, need to be sensitive to the different kinds of complexity and different ways of realizing explicitness that characterize different registers. Social experience with the purposes and situations for which different registers are functional is necessary for students' development of these registers, and students' ability to respond to linguistic expectations for academic registers depends on sociolinguistic skills that develop through social experience. But research on language development and text analysis in school-based contexts needs to recognize the lexicogrammatical as well as the social dimensions of students' language choices.

EXPECTATIONS FOR LANGUAGE USE AT SCHOOL

Even in the very first tasks children engage in at school, the expectation is that they will adopt a stance that presents them as experts who can provide information that is structured in conventional ways. For example, during sharing time, a speech event typical of kindergarten and the early primary grades, the child is expected to describe an object or give a narrative account about some past event (see, e.g., Christie, 1985; Michaels, 1981; Michaels & Cazden, 1986; Michaels & Collins, 1984; Michaels & Foster, 1985). As Michaels and Collins (1984, p. 223) points out, during sharing time the teacher expects that objects will be named and described, even when in plain sight; talk will be explicitly grounded temporally and spatially; minimal shared background knowledge or context will be assumed on the part of the audience; and thematic ties will be lexicalized. Michaels and Cook-Gumperz (1979, p. 658) calls this a "literate style." Michaels and Collins (1984, p. 221) describes some grammatical features that are common to good sharing episodes: "Nouns were preferred to gestures or deictic pronouns, shifts between topics were to be lexically or syntactically marked, [and] no background or contextual knowledge was to be assumed on the part of the audience." Children who are able to produce spoken texts with these features are able to engage in synchronous interaction with the teacher that further develops their language skills, while students who are unable to approximate this register are considered disorganized by their teachers and are not as easily guided toward further development of this way of using language (Michaels, 1981). So even in the earliest school-based tasks, teachers have implicit assumptions about the form that academic texts should take, and these expectations are reflected in how they interact with children. While the grammatical features are seldom articulated, it is clear that the admonition to "tell about one thing only and in such a way that it sounds important"

(Michaels & Cook-Gumperz, 1979, p. 658) has linguistic correlates. As we will see, using lexicalized and expanded noun phrases, marking discourse structure with linguistic elements that are typical of written academic discourse, and choosing grammatical features that project an authoritative stance are features that are pervasive in school-based registers.

Not all children come to school equally prepared to use language in the expected ways, nor do all share the same understanding that certain ways of using language are expected at school. Snow, Cancini, Gonzalez, and Shriberg (1989), for example, finds social class differences among kindergarten children in their tendency to give formal definitions (definitions with an equivalency statement and some form of superordinate, such as "A donkey is an animal that ...") in response to being asked to tell what something means. Some children treated a request for a definition as the initiation of a decontextualized school-based task, giving "autonomous, well-planned, lexically specific information about the word meaning without incorporating either conversational devices or personal information. Other children tended, in contrast, to treat the request for a definition as the introduction of a new conversational topic, and to provide information but no definition in response" (Snow et al., 1989, p. 239). Middle-class children used more formal definitions, though the communicative adequacy of their definitions was not significantly greater than that of working class children in the same classrooms who defined words using less formal language. Their study points out, however, that the students who respond more formally are also those who do better academically, demonstrating that understanding and meeting the school's expectations for use of academic registers correlates with academic success more generally. This means that those children without experience with such decontextualized tasks are less likely to make the more highly valued choices in structuring their responses to such academic tasks.

Expectations for how their responses to school-based tasks should be linguistically structured and presented are seldom made explicit to students, and little research has focused on the linguistic expectations of assigned tasks, even though these expectations remain implicit in the standards by which students are judged as they progress through the grades. As students leave high school and go on to higher education, for example, production of an expository essay, with its expectation that points will be made in a well-marked hierarchical structure, with explicit links between the thesis and supporting points (Durst, 1984), becomes a mark of school success. Ability to compose such an essay is often taken as evidence of students' facility with the language of schooling, as expository essays become evaluation metrics in coursework and testing. Writing such an essay requires the student to draw on a range of grammatical and discourse features that comprise registers expected in academic tasks. Students are differentially successful with this, and their success ultimately depends on

mastery of academic language features that enable them to present information authoritatively in conventionally structured ways.

For example, guidelines that have been developed by a major university system for evaluating the writing skills of incoming freshmen suggest that both content considerations and language considerations are important in assessing writing skills. Students are expected ''to provide reasoned, concrete, and developed presentations of their points of view'' and demonstrate the ''ability to control a range of vocabulary appropriate for beginning college students, to manage varied syntax accurately and appropriately, and to observe the conventions of standard written English'' (Gadda, 1995, p. 2). The expository essay is expected to include a thesis supported by arguments why the thesis has been proposed (Martin, 1989) and judgments that are justified with concrete evidence and examples. In addition, the student has to adopt an authoritative stance, presenting him/herself as detached and knowledgeable.

Inexperienced students have difficulty with all of these aspects of exposition, and their difficulty is reflected in the lexical and grammatical features they draw on in writing their essays. Even after many years of schooling, many students have not yet mastered the grammatical and lexical features that enable the presentation of a well-constructed essay. Even when their ideas are complex and sophisticated, the way they are presented can result in texts that fail to conform to academic expectations.

The goal of this article, then, is to highlight the constellation of lexical and grammatical features that are most important for success in language tasks at school. Academic genres draw on written norms, so a focus on school-based language inevitably foregrounds grammatical differences that reflect the fact that many school tasks involve use of written language. But the written mode is not the only factor influencing the structure of texts, as research comparing written and spoken language has demonstrated (Biber, 1988). Instead, it is the purpose of the text that most influences grammatical and lexical choices. School-based genres typically structure information so that it can be presented efficiently and arguments can be hierarchically constructed for a noninteracting audience. This is reflected in the grammatical features that typically occur in these genres, whether spoken or written.

This means that it is important to identify the grammatical expectations that underlie language tasks assigned at school so that researchers, teachers, and students have more specific knowledge about what is valued in school-based texts. In addition, such knowledge can also help us better understand the challenges that use of school-based language poses for students. The ability to adopt the appropriate language for school-based tasks comes from experience with these tasks in contexts where their social purposes are apparent, and depends on knowledge about the grammatical choices that most felicitously realize them.

Knowing how to make the linguistic choices that realize appropriate texts is an aspect of sociolinguistic competence; i.e., knowing what is appropriate language use in particular contexts. Students may lack knowledge of and experience with the social contexts in which the ways of using language at school are functional and meaningful. This lack of knowledge and experience then manifests itself in linguistic choices that do not realize the kinds of meanings that are expected in school-based language tasks. Reading and constructing the types of texts that are valued in the school context calls for both linguistic and sociolinguistic competence with the language of schooling, the language that is functional for learning about the world in the formal context of schools. To understand the demands that schooling makes on students, we need to understand and acknowledge the linguistic challenges of school-based language.

THE REGISTERS OF SCHOOL-BASED LANGUAGE

This article uses examples from interactional and academic contexts to demonstrate how the grammatical choices typical of those situations reflect and constitute the social contexts. The register of spoken interaction reflects the joint construction of discourse, while school-based texts more typically reflect in their grammatical choices the fact that speaker and listener or writer and reader do not interact directly, and that the speaker/writer has time for planning and revision. But more importantly, the registers also reflect the kinds of ideas, different role relationships, and conventionalized patterns of discourse that are created by speakers/writers in response to the different contexts in which they find themselves. Their grammatical choices, in turn, evoke for participants certain social meanings that the language itself helps instantiate. Differences in social situation result in different realizations of those contexts through different registers.

These descriptions of register features draw on research that has shown that certain features occur in academic texts with a higher probability than in ordinary conversation. The example texts have been selected to illustrate those features. Evidence for the distribution of these features in different sets of probabilities comes from research on large language corpora. For example, the register differences that are characteristic of different linguistic situations are described in Besnier (1988) and Biber (1995), among others. The features of conversational language are illustrated in those corpora as well as in other corpus studies such as Carter and McCarthy (1995) and Chafe and Danielewicz (1987). Examples here are taken from a database of children's spoken language that is described more fully in Schleppegrell (1989). The features of school-based language are described in studies of science and history such as those reported in Halliday and Martin (1993). In addition, Atkinson (1996) and Halliday (1993a) are corpus studies that show how the grammatical and discourse structure of the

language of science emerged over time as scientists developed particular ways of presenting their research results. Huddleston's (1971) comparison of features of scientific articles with features in a corpus of spoken English and Biber's (1991) and Taylor's (1983) corpus investigations of the features of school textbooks also inform this work.

Drawing on the insights of these corpus studies, as well as on a series of discourse analytic studies that have examined language in pedagogical materials and student writing samples from middle school and high school students working in different school contexts and disciplines (e.g., Schleppegrell, 1989, 1992, 1996a,b, 1998a,b; Schleppegrell & Colombi, 1997), this article presents some relevant features of the registers of schooling and shows how these features create texts that are functional for the purposes of schooling. The register features described here are most strongly represented in the most advanced of the school-based genres (e.g., the academic research paper), but we can see the expectations for particular kinds of grammatical structuring even in the earliest academic genres (e.g., primary school sharing time episodes). Exemplars of the register features described here are ubiquitous in the school context. While any particular example may not demonstrate every register feature described here, each example, as a particular instance that realizes the register, has a constellation of features that situates it as an instantiation of the system as a whole. In the same sense that we have to abstract somewhat from actual language data to describe "English" or "Chinese," we can also describe the language that reflects "schooling" in a broad definition that captures its essential qualities.

"School" is also presented here as a unitary construct, in spite of the fact that each classroom and each school has its own subculture and its own ways of using language for learning. But "school" can also be conceptualized broadly as the institutional framework in which children are socialized into ways of formal learning in our society, and it is that understanding of "school" that informs the discussion here. In the context of schooling in systems that have evolved from western European traditions, we find similar expectations that students will learn to present the knowledge they are developing in particular ways through use of language. These expectations are reflected in the structure of the texts students are expected to read and in the writing and speaking tasks that are typical in school assignments.

Lexical Features

Table 1 outlines some register features that generally distinguish school-based and spoken interactional genres. We can assume that all children are familiar with the interactional features, and that for many children, the features of school-based texts are much less familiar, since children's out-of-school

Table 1. Register Features of Spoken Interaction and School-Based Texts

	Spoken interaction	*School-based texts*
Lexical features		
Lexical choices	generic	specific, technical
Lexical density	sparse	dense, elaboration of noun phrases through modifiers, relative clauses, and prepositional phrases
Subjects	pronominal, present or known participants	lexical, nominalizations, and expanded NPs
Grammatical strategies		
Segmentation	prosodic segmentation: structure indicated prosodically	sentence structure: structure indicated syntactically
Mood	varied, attitude conveyed prosodically	mainly declarative, attitude conveyed lexically
Clause linkage and conjunction strategies	clause chaining with conjunctions, information added in finite segments, use of many conjunctions with generalized meanings	clause-combining strategies of embedding, use of verbs, prepositions, and nouns to make logical links, conjunctions have core (narrow) meanings
Organizational strategies	emergent structure, clause themes include conjunctive and discourse markers that segment and link part of text	hierarchical structure, using nominalization, logical links indicated through nominal, verbal, and adverbial expressions, and thematic elements that structure discourse

experiences provide them with many more opportunities for interactional language use. Comparing the features of language used in these two generalized contexts, then, can help us see the linguistic challenges posed by school-based texts.

Table 1 indicates that both lexical and grammatical features are relevant to the different forms that language takes in formal school tasks. Vocabulary is an obvious feature of register differences, as it is the lexical choices that realize the ideational content of the text. Through lexical choices, students also situate themselves as members of particular discourse communities, displaying their ability to adopt the lexis of the field. Each subject area has its own demands in this regard, but in addition, nontechnical vocabulary items that occur rarely in interactional conversation are common in the texts students read. It is expected that students will adopt a technical and academic lexis in their writing as well.

This technical and academic lexis is apparent in Text 1, a paragraph on sedimentary rock from a seventh-grade science text:

Text 1

The formation of sedimentary rocks is closely associated with water. One type forms when water carries soil, pebbles, and other particles to the ocean floor where these sediments become rock. The second method involves chemicals dissolved in water. By evaporation and precipitation of substances like calcium carbonate, sedimentary rocks can form. (From *Science Plus*, Holt, Rinehart, and Winston, 1993, p. 352.)

The lexical choices in this passage are technical and academic. The referents are specific: "water," "soil," "pebbles," "calcium carbonate," and other terms that are being used in their scientific senses. Terms like "is associated with" and "involves" also mark this as a school-based text, drawing on general academic vocabulary that occurs across a range of disciplines.

Compare this text with Text 2, an excerpt from a group discussion by third-grade students about the strategies teachers use to find out what students have learned.[2] It is an example of language that is co-constructed in interaction with others.[3] Matthew makes the point that sometimes teachers call on students who have not raised their hands in order to catch people who are not paying attention. This means that sometimes students raise their hands even when they do not know the answer, hoping the teacher will call on people who are *not* raising their hands.

Text 2

Matthew: And um, like um sometimes if, um, like you think that the teacher? um, if you raise your hand and she says "No" so she'll pick on the peoples that don't know it? so you raise your hand she picks you and you go "Well, I think, I didn't, um, well."
Boyd: I was just stretching
Cara: Gosh.
Matthew: Yeah

A little later:

Boyd: The other thing is, the teachers usually try to call on people that aren't paying attention =
Cara: I know
Boyd: = which happens to me a lot.
Justin: And they surprise us.
Matthew: That's what I said like the people raise their hand? and — and she — because they think they're going to pick the person who don't know it? and when she picks on you she says, . . . "Oh."
Cara: I know, I used to do that.

The lexical choices in Text 2 can be contrasted with those in Text 1 to illustrate this aspect of the differences between interactional and school-based registers. Matthew uses ordinary, frequently occurring vocabulary to make his point. His lexical choices are more generic than those in the science textbook; for example, "people" is a generic choice that refers to the "students" he is talking about.

School-based texts are typically more dense than texts created in informal interactional contexts. Lexical density analysis is one way of quantifying these differences in lexical choices. Vande Kopple (1994) suggests that in order to achieve informational density, academic texts typically have a high proportion of nouns, as each clause presents a number of related concepts. By analyzing the number of content words per nonembedded clause (Halliday, 1994), we get a measure of lexical density that indicate the number of lexical items that have to be processed per clause in these two texts. As Table 2 shows, the lexical densities of Texts 1 and 2 differ considerably.

Table 2. Lexical Density

Text 1
1. The *formation* of *sedimentary rock* is *closely associated* with *water.*
2. One *type forms*
3. when *water carries soil*, *pebbles*, and other *particles* to the *ocean floor*
4. where these *sediments* become *rock.*
5. The second *method involves chemicals dissolved* in *water.*
6. By *evaporation* and *precipitation* of *substances* like *calcium carbonate*, *sedimentary rocks* can *form*.
Lexical density: 30/6 = 5.0

Text 2
1. And um, like um sometimes if, um, like you *think* that the *teacher*?
2. um, if you *raise* your *hand*
3. and she *says "No"*
4. so she'll *pick on* the *peoples* that don't *know* it?
5. so you *raise* your *hand*
6. she *picks* you
7. and you *go*
8. "Well, I *think*,
9. I didn't, um, well."
. . .
10. That's what I *said*
11. like the *people raise* their *hand*?
12. and — and she — because they *think*
13. they're going to *pick* the *person* who don't *know* it?
14. and when she *picks* on you
15. she *says*, . . . "Oh."
Lexical density: 23/15 = 1.5

Text 1 is more than three times as lexically dense as Text 2. This means that student have to process more ideas per clause when they read a textbook passage like this one. Such a difference is typical of these two types of discourse (Halliday, 1993b), as the more highly structured nature of written school-based genres contributes to their lexical density.

The more highly structured nature of school-based texts comes from a combination of lexical and grammatical resources. Below we will see how features such as nominalization, along with conjunction strategies that rely on lexical choices and embedding, result in more densely structured texts. Here, we can focus on one area where grammar and lexical choices interact; the selection of clause subjects. One way that school-based genres are more highly structured is through the types of clause subjects they typically select. Subject position in the clause, especially when the subject is the first element of the clause, makes an important contribution to information structuring and also reflects the different interpersonal contexts of these texts' production.

An examination of the clause subjects in these texts shows that the interactional text relies heavily on pronominal subjects, while the textbook passage uses lexical subjects. This is demonstrated in Table 3, which shows the subjects of each finite clause (except embedded clauses) in the first part of Matthew's explanation (Text 2) and in the textbook passage (Text 1). In conversation, pronominal subjects are typical (Chafe, 1992; Halliday, 1994). As we see in Table 3, Matthew's subjects are "you," "she," and "I." Such choices, typical of interactional discourse, are described by Chafe (1986) as "light subjects." They reflect the fact that participants in conversation typically engage in exchanges in which their clauses begin with a shared pronominal referent and add new information about that referent in clause complements. The subjects of the textbook passage, on the other hand, are lexicalized, and include expanded noun phrases. Such "long subjects" (Vande Kopple, 1994) enable the academic writer to develop an argument that builds progressively from one clause to the next,

Table 3. Clausal Subjects

Text 1	*Text 2*
The formation of sedimentary rocks	you
One type	you
water	she
these sediments	she
The second method	you
sedimentary rocks	she
	you
	I
	I

using the subjects to create cohesion, as the textbook author does with "one type" and "the second method."

Research describing the language of schooling often characterizes it as more explicit than ordinary interactional language (Gumperz, Kaltman, & O'Connor, 1984; Michaels & Cazden, 1986; Michaels & Collins, 1984; Olson, 1977; Scollon & Scollon, 1981; Snow, 1983; Torrance & Olson, 1984). It is the lexical choices that are typically considered a measure of explicitness. Explicitness is valued in academic contexts, as we noted above in the sharing time research, where teachers encourage students to provide lexical labels even for objects that are held up for all to see. This is not because the student is clearer or more precise in making meanings when the lexical label instead of the pronominal or deictic is chosen, but because the context of schooling is more appropriately realized through the lexical labeling.

Nystrand and Wiemelt (1991) point out that "explicit" is typically used to mean that there is no doubt about possible meaning, and suggest that explicitness is valued because it is said to reflect the full and careful articulation of thought. From this perspective, then, being explicit has a cognitive dimension, rather than being a matter of a register choice that is functional for realizing different contexts of situation. On the other hand, if we think of explicitness as a matter of register choices that are functional for creating situationally appropriate texts, we can understand students' sharing time choices of deictic or generic terms as reflecting an inadequate understanding of the context of situation for the sharing time task, rather than an inability to be explicit or precise. This is why it is important to identify the linguistic elements of register, so that we do not confuse linguistic inappropriateness with lack of cognitive skills.

There is nothing inherently inexplicit in a pronominal referent. The pronominal subjects in Text 2 are contextualized by the situational referents present for the interlocutors. The first and second person pronouns in Text 2 realize a context in which the interlocutors are present and interactive, but are not less explicit than the lexical NP referents that serve as subjects of Text 1. These choices are clearly functional for the different contexts in which they occur. Clarity of meaning does not depend on explicit lexis. Clarity of meaning depends on prior knowledge and a match between the speaker/writer's presentation and the background knowledge and expectations of the listener/reader. The more frequent use of exophoric referents, pronouns, and generalized conjunctions in spoken texts does not mean that spoken texts are less explicit than written texts. When students adopt this strategy in contexts in which a lexical rendering is expected, this may, however, reflect an inadequate understanding of the expectations of the context. Schooling is a context in which assumptions about shared situational knowledge often need to be suspended. The grammatical structure that comes from lexicalized referents, especially subjects, is functional for realizing the school-based context.

The grammatical difference between choosing pronominal and lexical subjects also has important organizational implications for the structure of ideas in school-based texts. Subject position in a clause is functional for information structuring. In many registers, clauses are typically structured so that what comes first is information which the speaker/writer treats as given, known, or readily accessible to the listener/reader. What comes at the end of the clause is information that is typically new; the point of the clause (Halliday, 1994). Since clause subjects are often the first element of the clause, they often present given information.[4] Both spoken and written clauses typically begin with a given element and introduce new information at the end of the clause. But the way they do this differs in interactional and school-based contexts.

In conversation interaction, the subject is typically the person or thing being talked about, and, as we have seen, a pronoun often serves as the ''given'' subject about which more can be said in the clause complement. The pronominal subjects also create cohesion through anaphora, as speakers co-construct a text that progressively adds information about the named referents. In school-based texts, however, the task is different. A single author is challenged to progressively build an argument, summarizing and recapitulating prior discourse as each clause expands and furthers the exposition. For this purpose, as we see in Text 1, the academic text uses noun phrases that condense what has already been said, presenting that information as given, and then adding further new information clause by clause. One type, for example, the subject of the second sentence, evokes the *sedimentary rock* of the prior clause. *These sediments*, in the final clause of this sentence, recapitulates the *soil, pebbles, and other particles* mentioned in the preceding clause. Being about the construction and presentation of information, school-based texts do not tend to introduce a referent and then say many things about that referent, as we do in conversational interaction, but instead typically build up information, using the resources of the noun phrase,

Nominalization is a grammatical resource for the construction of long noun phrase subjects, and for the re-presentation of information as given. A pervasive feature of academic and scientific texts (Martin, 1991), nominalization is the expression as a noun or noun phrase of what would more congruently be presented as a verb. Chafe (1985, p. 108) defines nominalization as a process ''by which verbs like *tend*, *prefer*, *speak*, *refer*, and *use* or adjectives like *abstract* become noun phrases that can then be the arguments of other verbs or the objects of prepositions.'' In Text 1, for example, the author uses the nominalization ''evaporation'' and ''precipitation of substance.'' This is a condensation of what might otherwise be a lengthy explanation about how water evaporates, increasingly concentrating the chemicals dissolved in the water until they become precipitates. The nominalization allows an extended explanation to be condensed into a complex noun phrase. Such nominalizations also allow information that has already been presented to be summarized and re-

presented as given in a following clause. For example, the author of Text 1 begins with the long noun phrase subject "the formation of sedimentary rocks." This noun phrase presents as given the fact that sedimentary rocks form, providing a nominalization that links back to prior text. Movement from the presentation of a new idea in one clause to the re-presentation of the same information as a nominalized element of a succeeding sentence is a typical feature of academic prose that contributes to the density of school-based texts and to the kind of organization that is often described as more complex.

Lexical features, then, such as choice of generic versus specific lexis, lexical subjects, and the density of content words, contribute to the realization of different registers. These lexical features interact with the grammatical strategies that also differentiate registers, as the next section will demonstrate.

Grammatical Features

The register differences between conversational and school-based texts go beyond lexical resources. As Table 1 shows, different strategies of segmentation, different mood structure, and different strategies of conjunction, clause linkage, and text organization also characterize these different registers.

The most obvious difference between conversational interaction and school-based texts is the segmentation conventions that indicate discourse structure. In conversational interaction, structure is indicated prosodically, as intonation is a major resource in spoken texts that is not available in reading and writing. Intonation helps Matthew segment his presentation in order to interact with and involve his interlocutors, and it is also a resource for conveying meanings that are not otherwise lexicalized. In Text 2, for example, Matthew's intonation as he says "Well, I think, I didn't, um, well" conveys all the embarrassment and chagrin that he felt during this episode. In written school-based texts, on the other hand, meaning are conveyed without the flexible and pervasive resource that prosody provides in speech, and these texts draw on lexical resources for expression of meanings that would otherwise be conveyed by intonation.[5] In addition, school-based texts are segmented with sentence structure, using clause organization and presentation strategies that are highly formalized and conventionalized. Sentence structure has to be learned by developing writers, and the type of mood structure the sentences select is also expected to follow particular norms, with declarative mood structure the most typical choice in school-based texts.

Selection of mood, whether declarative, interrogative, or imperative, is a choice that presents the language user as someone who states, questions, or commands. Dialogic conversation typically has varied mood structure, as speakers question and command each other. School-based texts typically do not rely on the interaction of interlocutors for their creation and interpretation. This calls for a mood structure that enables the realization of an assertive author who presents him/herself as a

knowledgeable expert providing objective information. For example, the expectation for "reasoned, concrete, and developed" essays (Gadda, 1995) requires that student writers draw on linguistic features that enable them to create texts with these characteristics by assuming a monologic, rather than dialogic stance.

Developing writers often do not control the grammatical resources that enable an argument to be challenged in the detached, rather than involved, style that is more highly valued in academic contexts. Texts 3–5 are examples from an essay by a bilingual high school senior who uses rhetorical questions and exclamatory challenges in her response to an essay in which Wendell Berry argues that technology has eliminated the feeling of satisfaction that comes from hard work.

Text 3
Wendell Berry thinks that escaping nature is what we seek for satisfaction, but how can that be so?

Text 4
He also mentions, "Life will become a permanent holiday." That is impossible!

Text 5
Let us not part from nature nor from technology, instead let us carry them both with us into the future!

This writer expresses her disagreement through rhetorical questions, as in Text 3. She challenges Berry in Text 4, and speaks directly to the reader, as illustrated by Text 5, an appeal to her audience that ends her essay. The essay is subjective and hortatory, construing a context of high involvement and emotional appeal. This approach will not serve her well in many academic contexts, where she will be expected to express her attitudes less explicitly. Different grammatical resources are functional for this detached presentation of opinion. Text 6, for example, demonstrates how another student writer expresses disagreement with Berry's thesis in a more academic style:

Text 6
Although technology has caused many people to lose sight of their own capabilities and talents, we cannot overlook the medical advances and research possibilities that it has allowed us and still allows us. (0129)

This writer takes the same stance toward Berry's thesis that the writer of Texts 3–5 has, disagreeing with Berry's view of technology, but the writer of Text 6 begins with a concession to Berry and then brings out the points on which she will disagree. This calls for use of conjunction strategies ("although") and modal verbs ("cannot") that enable her to state her position in a more "reasoned" way

that does not depend on a hortatory style that instantiates a context of interaction. Her grammatical choices also enable to link her challenge to Berry with the arguments she will use to challenge his ideas, while the writer of Texts 3 and 4 has chosen clause structures that only accommodate the challenge.

School-based texts rely on clause-linking resources of a different type than those resources that serve to link clauses in informal interaction. Clause linking is the means through which logical connections are marked, and the system of conjunction is a major clause-combining resource that is used differently in conversational interaction and school-based texts. Conjunctions are a pervasive feature of ordinary spoken language, where a few commonly used conjunctions serve a variety of discourse functions, including interpersonal functions and broad linking from one section of a text to another. In school-based texts, on the other hand, a more varied set of conjunctions is used in more restricted ways, to convey primarily textual and ideational meanings that are more conventionalized.

In Text 2, for example, Matthew uses conjunctions to introduce all but three of the nine nonembedded clauses. Text 2′ shows the finite, nonembedded clauses in the first part of Matthew's explanation:

Text 2′

Matthew: (a) And um, like sometimes if, um, like you think that the teacher?
(b) um, if you raise your hand
(c) and she says "No"
(d) so she'll pick on the peoples that don't know it?
(e) so you raise your hand
(f) she picks you
(g) and you go
(h) "Well, I think,
(i) I didn't, um, well."

Matthew begins his explanation at (a) with the clause "And um, like um sometimes if, um, like you think . . .." The "if" marks the clause as introducing a hypothetical case, but we can see that the other conjunctions he uses suggests that what he is about to say is linked to previous discourse ("and") and that it will introduce an example ("like"). The next segment (b)–(d), introduces a further hypothetical ("if"), followed by the next event in the evolving scenario, introduced with "and." At (e)–(i), Matthew then describes an instance in which a student does what has been described in (b)–(d), introduced with a causal marker ("so") at (e), followed by the next event in the sequence (f), with the consequence at (g)–(i). This frequent use of conjunctions to introduce clauses, typical of spoken discourse, illustrates two major functions of conjunctions in speech: to display generalized semantic meanings and to mark text structure with discourse markers (Schiffrin, 1987).

When used clause-initially, conjunctions are cohesive devices that specify how what will follow relates to what has already been said (Halliday & Hasan, 1976, p. 226). Matthew's use of coordinating conjunctions, especially "and," to link his clauses in this oral discourse is a major strategy for maintaining coherence in speech (Danielewicz, 1984). Lazaraton (1992) finds five times more clauses connected by "and" in speech than writing. "And" also exhibits a wider range of semantic functions in spoken texts. In conversational interaction, these relationships are typically generalized logical linkages reflecting temporal sequence, consequence, comparison, or addition. In Text 2′, for example, "and," although logically an additive conjunction, actually links clauses with adversative relationships at (c) and (g); relationships that would typically be realized by "but" in written texts. In spoken interaction, clauses linked by conjunctions do not necessarily display the explicit semantic relationship that the conjunction conveys in more decontextualized reflections on its meaning (see also Schleppegrell, 1991).

Text 1, on the other hand, does not rely on clause linkage with conjunctions. Text 1′ shows the finite, nonembedded clauses in Text 1:

Text 1′

(a) The formation of sedimentary rocks is closely associated with water.
(b) One type forms
(c) when water carries soil, pebbles, and other particles to the ocean floor
(d) where these sediments become rock.
(e) The second method involves chemicals dissolved in water.
(f) By evaporation and precipitation of substances like calcium carbonate, sedimentary rock can form.

Where as Text 2′ uses "so" clauses to indicate causal links, Text 1′ instead uses nominal and verbal expressions ("is closely associated with," "forms," "involves"). While in spoken discourse logical connections are most often made with conjunctions, in school-based registers, fewer conjunctions are used, and those that occur are used in more restrictive and precise ways. In academic texts, logical connections are more typically made through clause embeddings or through nominal or verbal structures (Halliday & Hasan, 1976; Martin, 1983a). This contributes to more a hierarchical clause structuring in the academic text.

Marking the overall structure of a text is important for school-based reading and writing contexts. How a writer structures a text from clause to clause enables the presentation of information and the development of an exposition. While we focused above on the role of clause subjects in this information structuring, subjects are not always the first structural element in a clause.

Halliday (1994) has shown how the first structural element, which he calls the *theme* of the clause, is the grammatical element that is the "point of departure" (p. 37) for the clause as a whole. Different from the notion of *subject*, theme occurs first in the clause in English and can be realized with a noun, adverb, prepositional phrase, or other grammatical element. Analysis of theme can help us see organizational differences in texts and understand the choices a writer has made in developing an exposition or discussion. By analyzing the thematic structure of a text, we can identify the organizational approach and method of development used by the writer (Fries, 1981; Ghadessy, 1995; Halliday, 1994; Mauranen, 1996).

Different kinds of themes indicate different approaches to the organization of a text. Themes can be identified by examining the linguistic elements that precede the finite verb in each clause. Table 4 provides the themes of Texts 2 and 1.

We can see that the clause themes differ in ways that are functional for the development of the two different kinds of texts. In Text 2, the themes of Matthew's clauses are primarily conjunctions and pronominal subjects. The conjunctions ("and," "if," "so") realize the condition and consequence structure of the point Matthew is making about students (his generalized "you") and teachers ("they"). In Text 1, on the other hand, the author uses the theme position to progressively build an understanding of how sedimentary rocks are formed. The first theme, "the formation of sedimentary rocks," presents the notion that sedimentary rocks form, and the further themes explicate the types of formations ("one type" and "the second method"). The theme of the "where" clause picks up the elements that were presented in the "when" clause ("soil, pebbles, and other particles"), calling them "these sediments." Finally, the theme of the last clause, "by evaporation and precipitation of substances like calcium carbonate, sedimentary rocks," enables the author to elaborate the details of the second method introduced in the prior sentence as the point of departure for the sentence, and end the paragraph with a restatement of the point of the paragraph as a whole, that sedimentary rocks can form.

Table 4. Clause Themes

Text 1	*Text 2*
The formation of sedimentary rocks	And um, like um sometimes if, um, like you
One type	if you
when water	and she
where these sediments	so she
The second method	so you
By evaporation and precipitation of	she
substances like calcium carbonate,	and you
sedimentary rocks	Well, I

Grammatical choices of clause structures and text-organizational patterns affect what is thematized and thereby how the text is organized, contributing to the realization of different contexts and text types. Arguments, for example, typically thematize the logical and attitudinal connectives (e.g., "however," "nevertheless") that the author is using to make the argument. Procedures, on the other hand, typically thematize the imperatives and temporal marking that realize a set of steps or instructions (Martin, 1989).

School-based expository texts often thematize noun phrases, using nominalizations as clause subjects that condense prior information and present what has already been said, so that further comment can be made about it. We saw this above in Text 1, where "these sediments" was picked up as clause theme. Using this resource for creating the given/new structure that provides dynamism to a text, the creator of a school-based text can exploit the functionality of theme for controlling the method of development.[6] An example of this is seen in the first two sentences in Text 7.

Text 7

Many astronomers now believe that the radio sources inside quasars are objects known as **black holes**. The existence of black holes is more or less taken for granted by many astronomers, although no one has ever seen one. (From *Science Plus*, Holt, Rinehart, and Winston, 1993, p. 444.)

The second sentence begins with the thematic element "The existence of black holes." This theme takes the information in the previous sentence, that there are objects known as black holes, and re-presents it as a nominalized element in the second sentence, as the point of departure for further discussion about black holes.

The notion of theme is a useful construct for better understanding the relationship between subjects, nominalization, and information structure in academic texts. Information structuring involves the presentation of what is new and what has already been established in ways that are highlighted by the textual structure. Just as, at the clause level, known or given information appears at the beginning of the clause, and new information that is the focus of the speaker/writer appears at the end of the clause, this structuring is also reflected in discourse structure, where texts typically begin with what is already known and move toward what is new.

In our examples, Texts 1 and 2, the clause themes are, for the most part, also clause subjects, as we saw above. Vande Kopple (1994) points out that grammatical subjects often correspond to theme. He focuses in particular on the expanded noun phrases that form long grammatical subjects, suggesting that these are functional for constructing nonnarrative texts. Subject, theme, and nominalization often occur together in school-based texts, contributing to higher

lexical density and the kind of clause structuring described above. Nominalization "allows a lot of information to be packed into the Theme/Subject position which otherwise needs a whole clause to express" (Harvey, 1993, p. 36). This means that students have to process more ideas per clause in academic texts, a point that we already noted in the discussion of lexical density. Nominalization makes a text more dense, and nominalizations also typically result in the technical vocabulary that indicates the taxonomic relationships of particular academic subject areas. As Ravelli (1996, p. 380) points out, "[n]ominalisation is usually associated with other, related linguistic features including complex nominal group structure, with many pre and post modifiers, the use of embedded clauses, and lexical choices which are prestigious, technical and formal, rather than coming from a more everyday realm." This complex nominal group structure and use of embedded clauses create a clausal structure in academic texts that differs from that of typical interactional discourse.

Summary

We have seen that the lexical and grammatical features of conversational interaction and school-based texts differ on a wide range of dimensions. In interactional discourse, pronominal subjects and generic vocabulary result in a lexically sparse text. School-based registers, on the other hand, typically make lexical choices that are specific, and expanded noun phrases and nominalizations result in lexically dense texts. In addition to differences in lexical choices and lexical density, these registers also differ in the clause-structuring features that are functional for their realization. Conversational interaction uses intonation to segment bits of discourse, and typically relies on clause chaining to enable an emergent structure through which participants share and co-construct meanings. The emergent structure of interaction is reflected in prosodic segmentation, varied mood structure, and clauses chained together with conjunctions. School-based texts, on the other hand, typically use sentence structure, organizing texts through clauses that are structured to present information in more hierarchical ways. School-based texts use mainly declarative sentences and indicate logical linkages without relying on conjunctions. The features described here interact with each other, because the more restricted use of conjunctions in school-based texts requires writers to develop alternative strategies of clause combining that draw on nominalization and embedding. Information is parceled out differently in speech and school-based texts, with different choices of cohesive resources and organizational options that are realized through clause themes. Central grammatical features of the language of schooling include lexical strategies such as nominalization that compact the informational content of school-based texts, and conjunctive strategies that rely on lexical choices and embedding rather than clause-chaining with conjunctions. The thematic structure of academic texts,

using lexical subjects and nominalizations, enables the presentation of information in highly structured ways.

THE FUNCTIONALITY OF DIFFERENT REGISTERS FOR DIFFERENT PURPOSES

We have seen that school-based texts have grammatical features that make them functional for purposes of presenting information in highly structured ways, and in ways that enable the author/speaker to take an assertive, expert stance toward the information presented. The presentation of information is facilitated by the use of lexical rather than pronominal or intonational resources and through the expansion and elaboration of nominal elements. The authoritative stance conveyed through school-based registers emerges from their impersonal subjects, declarative mood structure, and the lexical realization of meanings that are realized by varying mood structure and prosody in conversational interaction. The conventional organization of school-based registers emerges from the nominalized and expanded noun phrase subjects and logical linking with nouns, verbs, and prepositions, rather than conjunctions, along with the use of clause themes that highlight organizational strategies. These features work together to create the registers that are culturally expected in school-based genres.

The lexical and grammatical features of school-based registers are functional for creating texts that enable the speaker/writer to achieve the common purpose of most school-based language tasks: to present information authoritatively, in a highly structured fashion. In the emergent organizational structure of spoken interaction, on the other hand, generic lexical choices and chaining of finite clauses allow the speaker to develop and illustrate a point without prior preparation and planning. In academic texts, the writer/speaker can plan a text's structure, drawing on lexical choices and grammatical strategies that function to incorporate more ideational content into each clause. In both cases, these register features enable the speaker/writer to convey ideas, adopt an interpersonal stance, and structure a text in culturally expected ways. The grammatical features of school-based registers work together and interact with each other to make coherent and expected text types in the school context, just as the features of conversational discourse enable the give and take of spoken interaction. These register differences emerge from and realize the different purposes and contexts of language use in different situations.

The language of schooling has been characterized as more complex than informal interaction (Gumperz et al., 1984; Michaels & Collins, 1984; Olson, 1980; Snow, 1983). Halliday (1987, 1989), on the other hand, argues that speech and writing are both complex, but that the complexity is manifested differently in the two modes. Biber (1992) also demonstrates that discourse complexity is a multidimensional construct, with different types of structural elaboration reflect-

ing different discourse functions. School-based registers are complex in their internal clause structure, while spoken interaction is complex in the way clauses are chained and linkages are indicated from one part of a discourse to another. Each kind of complexity is functional for the type of text it helps to realize.

The structure of Matthew's explanation in Text 2′ is complex in its introduction and elaboration of background information, and in its linking of various structures into a coherent text through conjunctions and discourse markers. The unfinished clause at (a) is illustrated by the scenario depicted in (b)–(i). (b)–(d) present the thinking of the student and (e)–(i) present the outcome. Rising intonation, indicated by the question marks after ''teacher'' (a) and ''know it'' (d) helps Matthew segment the explanation into its three major parts: the introduction of the topic (setting up the scenario), the outcome the student expects (that the teacher will choose someone who is not raising a hand), and what actually happens (the student raising his hand is nominated by the teacher).

In school-based texts, we find a different kind of complexity. Attributive adjectives, participles, prepositional phrases, adverbial phrases, and other devices allow for expansion of clause-internal structure at the same time that infinitive clauses, ''that'' clauses, restrictive relative clauses, and other such structures allow for the embedding and integration of ideas (Chafe, 1985). The complexity of Text 1 comes from its elaborated noun phrases and verbal constructions such as ''The formation of sedimentary rock'' and ''evaporation and precipitation of substances like calcium carbonate.'' The overall structure of Text 1 is simple and clearly marked. Each kind of complexity is functional for realizing the purposes of the different text types. The ability to draw on the elaborated noun phrases and clause-organizational strategies that realize the complexity of school-based language requires experience with these linguistic features as well as experience making the kinds of meanings for particular social purposes that the genres of school represent.

Using the school-based register enables a clearer presentation of meanings for the purposes of schooling, but only for those who have developed skill in use of this register. It is not clearer or more explicit just because of its grammatical structure. Inferencing on the basis of background assumptions plays a central role in the interpretation of academic texts, just as it does with all texts (Sinclair, 1993). In fact, even where meanings are lexicalized, they can be obscure and ambiguous to students who lack the necessary background assumptions. The nominalization common in academic texts, for example, often makes a text less explicit, and sometimes purposely so. In environmental education texts, for example, nominalization is a means of avoiding the expression of agency (Schleppegrell, 1998a). Environmental problems can be presented as nominalizations such as ''destruction of the rainforest,'' ''extinction of species,'' and ''habitat loss.'' Representing these nominalizations as full active clauses requires expression of grammatical agents, while the nominalized technical term allows

the agent to be suppressed. Information such as agency is typically lost through the distillation of ideas that results from nominalization and other strategies of academic writing, making texts less explicit.

Strategies of logical linking without conjunctions can also result in meanings being obscured in school-based texts. We have seen that spoken language uses conjunctions in ways that have very generalized meanings. This may appear inexplicit, but in the emergent and co-constructed interaction of ordinary conversation, speakers typically have no difficulty understanding the logical relationship that links two clauses, whether or not the conjunction chosen by the speaker would convey that same logical relationship in written academic texts. The generalized use of conjunctions in Text 2, discussed above, does not mean that we have trouble understanding the speaker's reasoning. On the other hand, the use of alternative strategies for clause structuring in some academic texts leaves some ideas buried or implicit and may make it difficult for students to grasp the full meanings.

True explicitness comes from a match between the context in which a text is used and the reader's purposes, situations, and cultures (Nystrand & Wiemelt, 1991). The point is not whether the text is explicit in some abstract way through the use of lexical noun phrases, but rather how the author uses the lexical and grammatical resources to realize a text that appropriately identifies needed referents and structures information, and how prepared student readers and writers are to cope with the demands of this register. Whether a referent in an academic text is explicit or not depends on the presuppositions of the writer of academic texts and the background knowledge of the reader, just as in conversational texts, where the explicitness of referents depends on the shared situational context and background knowledge. Use of lexical noun phrases does not necessarily make a text more explicit. An elaborated academic text is just as incomprehensible to uninitiated outsiders as a spoken text written down can be to those not present at its creation. Neither register is clearer or more complex or more appropriate; both are functional for realizing the different contexts in which they are expected.

At the same time that the strategies of the school-based register may obscure some kinds of meaning, the nominalization and clause-condensation strategies are functional for realizing school-based texts. As a resource for structuring texts, nominalization is functional for presenting information in subject position or as clause theme so that it can be further commented on in the clause complement. Clause-condensation strategies are functional for creating the kind of text that accumulates knowledge, condensing information into nominal elements that can serve as subjects or themes for succeeding sentences and enabling an argument or exposition to be structured and developed.

This is not to say that academic registers cannot be made more "reader-friendly," or more accessible to the novice to the field. But the academic writer

cannot abandon the conventions of school-based texts and still create texts that will be functional for the purposes of conveying information authoritatively in conventionally structured ways. The register features of school-based texts are not just devices used to exclude the uninitiated, but are functional for the purposes for which these genres have evolved and which they serve.

Researchers, then, need to consider how they present and discuss the expectations for students' language use. Applying terms such as "explicit" and "complex" only to school-based genres undervalues the social and cultural experiences that are reflected in the interactional language with which all children are familiar and competent, and minimizes the difficulties students face in achieving competence with academic genres. Both registers are explicit in their own contexts, both have resources for conveying author stance, and both can be characterized as complex, as we saw above. Explicitness, if considered to mean clarity of meaning, is as much a feature of informal interaction as it is of academic texts. In fact, for the participants in the discourse, the disambiguating context of informal interaction may make meanings clearer than those typically expressed through academic registers. Author/speaker attitude is expressed through lexical choices and clause-structuring strategies rather than through the prosody or variation in mood structure that expresses author attitude in interactional contexts. The task of creating a coherent, well-formed spoken explanation in an informal context requires a level of complexity that is accomplished through prosodic structuring and clause chaining with conjunctions and discourse markers. The complexity of academic language, on the other hand, is accomplished through hierarchical structure, lexicalization of logical links, and clause-linking strategies of condensation and embedding.

CONCLUSION

When we contrast informal, interactional language with the kind of language children encounter at school, we find significant grammatical differences. These register features contribute to particular realizations of school-based texts and comprise an alternative syntactic approach that may be unfamiliar to students whose exposure to academic contexts is limited to school settings. This suggests that the development of ability to use school-based registers is crucially dependent on students' experience with and knowledge about conventions for language use in schools, requiring opportunities for them to participate in authentic contexts for which school-based registers are functional. Unfortunately, access to knowledge of and experience with these ways of making meanings is not equally available to all school children. Even for native speakers of English, the syntax and discourse organization of the language expected at school are quite different from the ways of using language that students are accustomed to outside the classroom. The discontinuities for speakers from other backgrounds

are even greater. With so many nonnative speakers and speakers of nonstandard dialects in today's classrooms, it is important to recognize that the linguistic demands of schooling pose challenges that are not being effectively addressed in many classrooms.

Language researchers can contribute to our understanding of the challenges of schooling by recognizing the linguistic basis of sociolinguistic competence at school. The expectation that students will perform school-based tasks in ways considered appropriate for the school context requires that students be familiar with the context for which such tasks and texts are functional and that they control the meaning-making resources needed to meet those expectations. While students may not be expected to write texts like Text 1, they do need to be able to read and understand them. Further, their writing needs to move in the direction of incorporating the register features in Text 1 in order to achieve the styles that enable them to function successfully as members of an academic discourse community. Consistently using the specific syntactic features described here in coherent registers is a problem for students with little experience with academic genres. Children who have little access to incidental learning of such registers may need opportunities for explicit attention to these register elements and participation in genuine contexts where they are functional if they are to learn to use them appropriately. Current educational practice assumes that such knowledge will be acquired without explicit attention to the particular lexical and clause-combining strategies appropriate to particular genres, as grammar and discourse structure are seldom in focus in classrooms. But this is problematic for nonnative speakers and others who are unfamiliar with the academic context and the kinds of meanings typically expected there. Developing new registers, like learning a second language, requires experience, practice, motivation, and opportunity to interact and negotiate meaning. Many of these features are lacking in students' current experience with language at school.

Researchers can contribute to a fuller understanding of the challenges of schooling by studying the grammatical and discourse characteristics of particular school-based genres. More research on the register features of specific academic text types can help identify at a more detailed level specific expectations regarding different school-based genres. In addition, researchers need to bring to the interpretation of students' performance on school-based tasks an understanding of the role of prior experience in students' ability to respond in expected ways to tasks that require academic language, rather than interactional language skills. Where students respond by drawing on the resources of the interactional register, as they often do in their writing (Schleppegrell, 1996a), the role of prior experience and practice needs to be taken into account. "Content" knowledge cannot be separated from the linguistic means through which it is presented (Christie, 1985), and assessment of students' abilities needs to consider the contexts of elicitation and the opportunities students have had to understand the

purposes and expectations of particular tasks. Considering the linguistic demands can make us more aware of the real nature of communicative and sociolinguistic competence in the language of schooling.

NOTES

1. This is not to suggest that there is one uniform version of any register that can be precisely described, as registers can exhibit considerable variation (Halliday & Martin, 1993). Finer distinctions among registers can also be made; for example, considering scientific language as a subset of academic language, or analyzing texts of different types from the same discipline (e.g., Conrad, 1996), or texts from different disciplines (Martin, 1991; Taylor, 1983). Different register features also characterize particular parts of a genre, with different grammatical choices typical of, for example, the introduction, methods sections, and discussion in research reports (Swales, 1990). But in general, we can identify some register features that commonly occur in the language of school tasks and that tend not to occur in more informal uses of language.

2. See Schleppegrell and Simich-Dudgeon (1996) for background on this study.

3. Of course, speakers from different cultural backgrounds have different ways of constructing spoken discourse. The features analyzed here are intended to highlight differences between the normal mode of talking of children from mainstream backgrounds and expectations for the structure of school-based genres. The distance between academic registers and interactional discourse in other cultural contexts can be assumed to be even greater.

4. In Halliday's (1994) framework, the first element of the clause, the crucial element of information structure, is the *theme* (discussed in a later section of this article). Halliday (p. 43) notes that the *subject* is the unmarked choice of theme in a declarative clause. As this is the option chosen in both Texts 1 and 2, for purposes of the present discussion, *subject* and *theme* are equivalent.

5. Even when academic texts are spoken, different kinds of prosodic contours are characteristic of academic tasks, so intonational patterns do not convey the same meanings that they do in ordinary conversation. Collins (1987), for example, describes the reading aloud activities of elementary school students as having a distinctive staccato style. The prosodic patterns associated with sharing time episodes also realize a marked school register that has distinctive intonation patterns and involves slower and more careful enunciation than casual conversation (Michaels, 1986; Michaels & Foster, 1985).

6. In the most highly developed of the academic text types, the scholarly article, Fries (1981, p. 9) suggests that "... one tends to find complex arguments in which each successive idea is an expansion of and dependent on an idea in a previous sentence."

REFERENCES

Atkinson, D. (1996). The philosophical transactions of the Royal Society of London, 1675–1975: A sociohistorical discourse analysis. *Language in Society, 25*, 333–371.

Besnier, N. (1988). The linguistic relationships of spoken and written Nikulaelae registers. *Language, 64*, 707–736.

Biber, D. (1998). *Variation across speech and writing*. Cambridge: Cambridge University Press.

Biber, D. (1991). Oral and literate characteristics of selected primary school reading materials. *Text, 11*(1), 73–96.

Biber, D. (1992). On the complexity of discourse complexity: A multidimensional analysis. *Discourse Processes, 15*, 133–163.

Biber, D. (1995). *Dimensions of register variation: A cross-linguistic comparison*. Cambridge: Cambridge University Press.

Carter, R., & McCarthy, M. (1995). Grammar and the spoken language. *Applied Linguistics, 16*(2), 141–158.

Chafe, W. (1985). Linguistic differences produced by differences between speaking and writing. In D.R. Olson, N. Torrance, & A. Hildyard (Eds.), *Literacy, language, and learning: The nature and consequences of reading and writing* (pp. 105–123). Cambridge: Cambridge University Press.

Chafe, W. (1986). Writing in the perspective of speaking. In C.C. Cooper, & S. Greenbaum (Eds.), *Studying writing: Linguistic approaches* (pp. 12–39). Beverly Hills, CA: Sage.

Chafe, W. (1992). Information flow in speaking and writing. In P. Downing, S.D. Lima, & M. Noonan (Eds.), *The linguistics of literacy* (pp. 17–29). Amsterdam: John Benjamins.

Chafe, W., & Danielewicz, J. (1987). Properties of spoken and written language. In R. Horowitz, & F.J. Samuels (Eds.), *Comprehending oral and written language* (pp. 83–113). New York: Academic Press.

Christie, F. (1985). Language and schooling. In S. Tchudi (Ed.), *Language, schooling and society* (pp. 21–40). Upper Montclair, NJ: Boynton/Cook.

Christie, F. (1986). Writing in schools: Generic structure as ways of meaning. In B. Couture (Ed.), *Functional approaches to writing: Research perspectives* (pp. 221–239). London: Pinter.

Christie, F. (1991). First- and second-order registers in education. In E. Ventola (Ed.), *Functional and systemic linguistics* (pp. 235–256). Berlin: Mouton de Gruyter.

Christie, F. (1998). Science and apprenticeship: The pedagogic discourse. In J.R. Martin, & R. Veel (Eds.), *Reading science: Critical and functional perspectives on discourses of science* (pp. 152–177). London: Routledge.

Coffin, C. (1997). Constructing and giving value to the past: An investigation into secondary school history. In F. Christie, & J.R. Martin (Eds.), *Genre and institutions: Social processes in the workplace and school* (pp. 196–230). London: Cassell.

Collins, J. (1987). Using cohesion analysis to understand access to knowledge. In D. Bloome (Ed.), *Literacy and schooling* (pp. 67–97). Norwood, NJ: Ablex.

Conrad, S.M. (1996). Investigating academic texts with corpus-based techniques: An example from biology. *Linguistics & Education, 8*(3), 299–326.

Danielewicz, J.M. (1984). The interaction between text and context: A study of how adults and children use spoken and written language in four contexts. In A.D. Pellegrini, & T.D. Yawkey (Eds.), *The development of oral and written language in social contexts* (pp. 243–260). Norwood, NJ: Ablex.

Durst, R.K. (1984). The development of analytic writing. In A.N. Applebee (Ed.), *Contexts for learning to write: Studies of secondary school instruction* (pp. 79–102). Norwood, NJ: Ablex.

Fries, P.H. (1981). On the status of theme in English: Arguments from discourse. *Forum Linguisticum, 6*(1), 1–38.

Gadda, G. (1995). *The university Subject A examination book.* Oakland, CA: University of California.

Ghadessy, M. (Ed.). (1995b). *Thematic development in English texts*. London: Pinter.

Gumperz, J.J., Kaltman, H., & O'Connor, M.C. (1984). Cohesion in spoken and written discourse: Ethnic style and the transition to literacy. In D. Tannen (Ed.), *Coherence in spoken and written discourse* (pp. 3–19). Norwood, NJ: Ablex.

Halliday, M.A.K. (1978). *Language as social semiotic*. London: Edward Arnold.

Halliday, M.A.K. (1987). Spoken and written modes of meaning. In R. Horowitz, & J. Samuels (Eds.), *Comprehending oral and written language* (pp. 55–82). San Diego, CA: Academic Press.

Halliday, M.A.K. (1989). *Spoken and written language*. Oxford: Oxford University Press.

Halliday, M.A.K. (1993a). The construction of knowledge and value in the grammar of scientific discourse: Charles Darwin's *The Origin of the Species*. In M.A.K. Halliday, & J.R. Martin (Eds.), *Writing science: Literacy and discursive power* (pp. 86–105). Pittsburgh, PA: University of Pittsburgh Press.

Halliday, M.A.K. (1993b). Some grammatical problems in scientific English. In M.A.K. Halliday, & J.R. Martin (Eds.), *Writing science: Literacy and discursive power* (pp. 69–85). Pittsburgh, PA: University of Pittsburgh Press.

Halliday, M.A.K. (1994). *An introduction to functional grammar* (2nd ed.). London: Edward Arnold.

Halliday, M.A.K., & Hasan, R. (1976). *Cohesion in English*. London: Longman.

Halliday, M.A.K., & Hasan, R. (1989). *Language, context, and text: Aspects of language in a social–semiotic perspective* (2nd ed.). Oxford: Oxford University Press.

Halliday, M.A.K., & Martin, J.R. (Eds.). (1993). *Writing science: Literacy and discursive power*. Pittsburgh, PA: University of Pittsburgh Press.

Harvey, N. (1993). Text analysis for specific purposes. *Prospect, 8*(3), 25–41.

Heath, S.B. (1983). *Ways with words: Language, life, and work in communities and classrooms*. Cambridge: Cambridge University Press.

Huddleston, R.D. (1971). *The sentence in written English: A syntactic study based on an analysis of scientific texts*. Cambridge: Cambridge University Press.

Jones, J., Gollin, S., Drury, H., & Economou, D. (1989). Systemic–functional linguistics and its application to the TESOL curriculum. In R. Hasan, & J.R. Martin (Eds.), *Language development: Learning language, learning culture* (pp. 257–328). Norwood, NJ: Ablex.

Lazaraton, A. (1992). Linking ideas with AND in spoken and written discourse. *International Review of Applied Linguistics, 30*(3), 191–206.

Martin, J.R. (1983a). Conjunction: The logic of English text. In J.S. Petofi, & E. Sozer (Eds.), *Micro and macro connexity of texts* (pp. 1–72). Hamburg: Helmut Buske Verlag.

Martin, J.R. (1983b). The development of register. In J. Fine, & R.O. Freedle (Eds.), *Developmental issues in discourse* (pp. 1–40). Norwood, NJ: Ablex.

Martin, J.R. (1989). *Factual writing*. Oxford: Oxford University Press.

Martin, J.R. (1991). Nominalization in science and humanities: Distilling knowledge and scaffolding text. In E. Ventola (Ed.), *Functional and systemic linguistics* (pp. 307–337). Berlin: Mouton de Gruyter.

Martin, J.R. (1992). *English text*. Philadelphia: John Benjamins.

Mauranen, A. (1996). Discourse competence — evidence from thematic development in native and non-native texts. In E. Ventola, & A. Mauranen (Eds.), *Academic writing: Intercultural and textual issues* (pp. 195–230). Amsterdam: John Benjamins.

Michaels, S. (1981). "Sharing time": Children's narrative styles and differential access to literacy. *Language in Society, 10*, 423–442.

Michaels, S. (1986). Narrative presentations: An oral preparation for literacy with first graders. In J. Cook-Gumperz (Ed.), *The social construction of literacy* (pp. 94–116). Cambridge: Cambridge University Press.

Michaels, S., & Cazden, C.B. (1986). Teacher/child collaboration as oral preparation for literacy. In B.B. Schieffelin, & P. Gilmore (Eds.), *The acquisition of literacy: Ethnographic perspectives* (pp. 132–154). Norwood, NJ: Ablex.

Michaels, S., & Collins, J. (1984). Oral discourse styles: Classroom interaction and the acquisition of literacy. In D. Tannen (Ed.), *Coherence in spoken and written discourse* (pp. 219–244). Norwood, NJ: Ablex.

Michaels, S., & Cook-Gumperz, J. (1979). A study of sharing time with first grade students: Discourse narratives in the classroom. In *Fifth annual meeting of the Berkeley Linguistics Society* (pp. 647–660). Berkeley, CA: Berkely Linguistics Society.

Michaels, S., & Foster, M. (1985). Peer–peer learning: Evidence from a student-run sharing time. In A. Jaggar, & M.T. Smith-Burke (Eds.), *Observing the language learner* (pp. 143–158). Newark, DE: International Reading Association and National Council of Teachers of English.

Nystrand, M., & Wiemelt, J. (1991). When is a text explicit? Formalist and dialogical conceptions. *Text, 11*(1), 25–41.

Olson, D.R. (1977). From utterance to text: The bias of language in speech and writing. *Harvard Educational Review, 47*, 257–281.

Olson, D.R. (1980). Some social aspects of meaning in oral and written language. In D.R. Olson (Ed.), *The social foundations of language and thought: Essays in honor of Jerome S. Bruner* (pp. 90–108). New York: W.W. Norton & Co.

Ravelli, L.J. (1996). Making language accessible: Successful text writing for museum visitors. *Linguistics & Education, 8*(4), 367–388.

Schiffrin, D. (1987). *Discourse markers*. Cambridge: Cambridge University Press.

Schleppegrell, M.J. (1989). *Functions of because in spoken discourse.* PhD dissertation, Georgetown University, Washington, DC.

Schleppegrell, M.J. (1991). Paratactic *because*. *Journal of Pragmatics, 16*, 121–135.

Schleppegrell, M.J. (1992). Subordination and linguistic complexity. *Discourse Processes, 15*(2), 117–131.

Schleppegrell, M.J. (1996a). Conjunction in spoken English and ESL writing. *Applied Linguistics, 17*(3), 271–285.

Schleppegrell, M.J. (1996b). Strategies for discourse cohesion: *Because* in ESL writing. *Functions of Language, 3*(2), 235–254.

Schleppegrell, M.J. (1998a). Agency in Environmental Education. *Linguistics & Education, 9*(1).

Schleppegrell, M.J. (1998b). Grammar as resource: Writing a description. *Research in the Teaching of English, 32*(2), 182–211.

Schleppegrell, M.J., & Simich-Dudgeon, C. (1996). What's a good answer? Awareness about behavioral and content features of successful classroom interaction. *Linguistics & Education, 10*(4), 273–286.

Schleppegrell, M.J., & Colombi, M.C. (1997). Text organization by bilingual writers: Clause structure as a reflection of discourse structure. *Written Communication, 14*(4), 481–503.

Scollon, R., & Scollon, S. (1981). *Narrative, literacy and face in interethnic communication*. Norwood, NJ: Ablex.

Sinclair, M. (1993). Are academic texts really decontextualized and fully explicit? A pragmatic perspective on the role of context in written communication. *Text, 13*(4), 529–558.

Snow, C.E. (1983). Literacy and language: Relationships during the preschool years. *Harvard Educational Review, 53*, 165–189.

Snow, C.E. (1990). The development of definitional skill. *Journal of Child Language, 17*, 697–710.

Snow, C.E., Cancini, H., Gonzalez, P., & Shriberg, E. (1989). Giving formal definitions: An oral language correlate of school literacy. In D. Bloome (Ed.), *Classrooms and literacy* (pp. 233–249). Norwood, NJ: Ablex.

Swales, J.M. (1990). *Genre analysis: English in academic and research settings*. Cambridge: Cambridge University Press.

Taylor, C.V. (1983). Structure and theme in printed school text. *Text, 3*(2), 197–228.

Torrance, N., & Olson, D.R. (1984). Oral language competence and the acquisition of literacy. In A.D. Yawkey, & T.D. Yawkey (Eds.), *The development of oral and written language in social contexts* (pp. 167–182). Norwood, NJ: Ablex.

Vande Kopple, W.J. (1994). Some characteristics and functions of grammatical subjects in scientific discourse. *Written Communication, 11*(4), 534–564.

Veel, R. (1998). The greening of school science: Ecogenesis in secondary classrooms. In J.R. Martin, & R. Veel (Eds.), *Reading science: Critical and functional perspectives on discourses of science* (pp. 114–151). London: Routledge.

Wignell, P. (1994). Genre across the curriculum. *Linguistics & Education, 6*(4), 355–372.