Demands and opportunities: Analyzing academic language in a first grade dual language program

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ABSTRACT

Academic language, the register necessary to be successful in school, has been widely studied in recent years. Researchers have devoted much energy to defining the construct of academic language and identifying ways that teachers can support students – particularly those learning two languages simultaneously – as they develop it. Several scholars have suggested that identifying the academic language demands of content curricula and classroom contexts is a productive first step in demystifying academic language for teachers and students. In this article, therefore, I report findings from a yearlong qualitative case study in a first grade dual language program. My analysis centers on the explicit and implicit academic language demands of the curriculum, as well as teachers’ understandings of and expectations about the role of academic language in their classrooms. These findings have implications that extend beyond dual language programs to mainstream classrooms with emergent bilingual students in them.

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1. Introduction

Schools around the country are increasingly implementing dual language education as a way to foster academic success and biliteracy, yet an overly simplistic attention to language of instruction underestimates the complexity of bilingual and biliterate development within such programs (Hickey, 2001; Potowski, 2004; Valdés, 1997; Wiese, 2004). In particular, the development of academic language alongside content knowledge likely plays a role in the success that emergent bilingual children achieve. Therefore, the opportunity to receive quality, cognitively appropriate instruction in the first language is a defining feature of dual language (DL) education (Howard, Sugarman, Christian, Lindholm-Leary, & Rogers, 2007; Lindholm, 1991; Lindholm-Leary, 2001). The purpose of this article is to present an analysis of the academic language demands of the first grade curriculum in one dual language program. This analysis serves to elucidate the purposes and functions that language can accomplish in such settings. Like others, I also argue that content curricula have embedded language demands and that identifying these demands is a productive first step for teachers who work with emergent bilingual students (Ernst-Slavit & Mason, 2011; Gibbons, 1993). Furthermore, I explore the tensions that arose with regard to academic language use in this program. Finally, I extend findings about the academic language demands of primary classrooms beyond dual language education to apply to mainstream classrooms in which many language minority students receive instruction.

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2. Conceptual framework and literature review

2.1. Academic language and its development

Academic language is privileged in educational contexts and is a necessity if students are to be successful in school (Cummins, 2000; Valdés, Bunch, Snow, Lee, & Matos, 2005). Researchers agree that it does not develop quickly or without instruction. It may take more than five years for second language learners to attain grade-level academic language proficiency, even though they are cognitively ready for complex content much earlier than that (Cummins, 1981, 1992).

For native speakers of a language, a strong conversational base facilitates academic language, and it is likely that the same is true for those learning two languages simultaneously, who I refer to as emergent bilingual children (García & Kleifgen, 2010; Scarcella, 2003; Snow, 1987). Cummins and others have argued that while certain aspects of language competence – such as pronunciation and knowledge of sentence structure – have defined endpoints, other aspects of language proficiency (i.e., those more closely associated with academic language) continue to develop over many years, even in native speakers of a language (Cummins, 2000; Stahl & Nagy, 2006). From this perspective, academic language is never fully acquired per se, and looks different at various educational and developmental levels (Scarcella, 2003).

The importance of academic language proficiency for all students has been emphasized in the literature (Bunch, 2004, 2009; Gibbons, 2003; Schleppegrell, 2004; Valdés et al., 2005), but exactly what constitutes it continues to be a matter of some debate. The definition of academic language that guided this study is based on theoretical and empirical work, particularly that which has addressed its development in both first and second languages.

The first element I considered in the definition is the purpose for which academic language is used. Given that speakers of a language must understand the requirements to participate in particular conversations or activities, proficiency in academic registers enables children to become part of a “culture of literate English” (or any other language) (Stahl & Nagy, 2006, p. 139). As Scarcella (2003) noted, “academic English arises not just from knowledge of the linguistic code . . . but also from social practices in which academic English is used to accomplish communicative goals . . . the particular conventions and norms that characterize the people who use it” (p. 29).

As a second factor in defining academic language, I considered the concept of language at both the structural and functional levels. The mastery of specific structural components, such as facility with content-specific vocabulary (Echevarría, Vogt, & Short, 2008; Goldenberg, 2008), complex grammatical structures (Cummins, 2003; Stahl & Nagy, 2006), morphological word parts (Echevarría et al., 2008), and linguistic features specific to particular academic disciplines (Cummins, 2000; Scarcella, 2003) are considered to be essential to academic language proficiency. Emergent bilingual students may encounter difficulty with these structural components because they are not typically encountered in nonacademic settings. Beyond this, however, I considered the functions that academic language is intended to accomplish. For example, it may be used to justify an opinion, compare two objects, or transition between ideas (Bunch, 2004; Echevarría et al., 2008; Gibbons, 2002; Goldenberg, 2008; Snow, 1991). While these functions are undoubtedly undertaken in everyday communication (such as explaining to a friend why baseball is better than basketball), the level at which they need to be completed is considerably higher in academic settings, as is the level of accuracy and explicitness required. In short, academic language requires students to master a broader range of structural components to accomplish the same functions they use in everyday communication.

2.2. Functional linguistics

Researchers have argued steadfastly that teachers need to be able to conduct linguistic analyses of their curriculum in order to identify potential challenges for emergent bilingual students (Achugar, Schleppegrell, & Oteliza, 2007; Ernst-Slavit & Mason, 2011; Gibbons, 1993; Schleppegrell, 2001). Functional linguistics provides a framework for conducting such analyses, and it is a tool used in the present study. Language functions are the goals a speaker is trying to accomplish through specific language structures and vocabulary. Functions could therefore be considered a subset of purposes, such as when a student trying to “talk like a scientist” makes a prediction about an experiment using specific language. Researchers have argued that identifying the language functions underlying grade-level content is an important consideration for classroom teachers (Gibbons, 1993, 2002; Schleppegrell, 2004). A key benefit of using this framework is that it foregrounds the meaning-making role that language plays in content–area learning. It also provides “a metalinguage for analyzing language that highlights issues of overall organization and voice and goes beyond structural categories such as noun and verb to show the meanings that follow from different language choices” (Schleppegrell, 2007, p. 123).

3. Setting and participants

The setting for this study was a public K-5 International elementary school in the Pacific Northwest, Hurley Heights International School. The school is located in a racially diverse neighborhood near downtown in a large city in the Pacific Northwest. At the time of the study, it enrolled approximately 440 students. Twenty-five percent spoke Spanish as a first language, and an additional 40% spoke other languages at home. In a typical year, 42% of students receive ESL services, and

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1 This and all other names in this article are pseudonyms.
69% are eligible for free and reduced lunch. It had the second largest ESL population in the district. As part of its international school designation, the school offered 50–50 dual language (DL) immersion in Spanish and partial immersion in Mandarin Chinese, as well as an English-only strand. I focused my study exclusively on the Spanish–English strand, not only because Spanish is the largest language minority group in the United States (Goldenberg, 2008; Malagon & DeLeeuw, 2008), but also because I am a fluent Spanish speaker and certified K–12 Spanish teacher, so I was able understand instruction and academic language norms and expectations in that strand.

3.1. The dual language program

At the time that this study was conducted (the 2009–2010 school year), Hurley Heights was in its second year of implementation of the dual language education model. It had only been implemented through first grade, and all three first grade classrooms participated in this study. There were twenty-seven students in the program; based on home language surveys, thirteen were native speakers of Spanish and thirteen were native English speakers. Only one child had been exposed to both languages since birth and was therefore considered a simultaneous bilingual student.

As is typical of such programs, proficiency levels in both languages varied widely. Students ranged from beginning speakers of their second language to those who were fluently bilingual and biliterate by first grade. Most of the Spanish-speaking children in the program were born in the U.S. to immigrant parents. One notable exception was newcomer Leo, whose family moved to the Pacific Northwest from Mexico shortly before the school year began. Families were from Mexico, El Salvador, and Nicaragua, among other places.

The program was structured in such a way that DL students spent half their day learning in Spanish and half in English. Content areas and teachers were therefore separated by language. Señora Molly Gregor, the Spanish-medium teacher, taught literacy and social studies to all twenty-seven DL students. She was only in her second year of teaching young children, but had almost ten years of experience as a high school Spanish teacher in a nearby district. She was in the process of completing a master’s degree in education during the data collection period. She was a White, native English speaker.

There were two English-medium teachers, both of whom taught half the DL students math and science. Mr. Brad Riley was in his fifth year of teaching first grade at Hurley Heights. He had previously taught second, third, and fourth grades. He shared his job with another teacher, and was therefore only responsible for teaching math and science. He was a White, monolingual English speaker who had little formal knowledge about language acquisition but many questions and concerns about it. He expressed frustration about his lack of knowledge and did not feel like he had anyone to ask, saying “I’d like to know more, but I don’t think like anybody has sort of a rubric or a framework for kind of what norms are and what we’re expecting [from kids].”

The other English-medium teacher was Ms. Rebecca Cortez, who had been teaching first grade at Hurley Heights for seven years. She also had several years of experience as a fourth grade teacher, which she reported had a profound effect on her instructional practices to support academic language. For example, she justified the weekly time she spent developing oral language with her first graders in the following way: “Everybody knows that kids need to be able to explain their thinking, but that experience [teaching fourth graders] . . . anyway, that’s why I do that once a week with them”. She was a White, native English-speaker who was married to a Mexican man. Her son was the simultaneous bilingual child mentioned earlier.

3.2. Units observed

The unit observed in Sra. Gregor’s class was a social studies unit on cultura. It was developed by the three first grade social studies teachers (including another study participant, Ms. Cortez) and incorporated a number of elements from GLAD (Guided Language Acquisition Design), a language-focused strategy program that is widely used throughout the district and region. GLAD does not come with ready-made materials; teachers have to make them themselves. Therefore, all of the posters and charts used during the unit were handmade by Sra. Gregor. The books she read were either handmade or trade books she already owned. The unit comprised of ten lessons over a period of three weeks, and I observed and audiorecorded nine of them. Nine of the ten lessons focused on defining or understanding the meaning of content-specific words like cultura, ancesstro, and contiunente. The average length of a lesson was forty minutes, and most were a combination of whole class instruction and small group work. There were no instances of independent work observed during this unit.

The science unit observed in Mr. Riley’s class was about balls and ramps. It was from the district inquiry-based curriculum and included a kit of materials and an instructional guide with specific focus questions and investigations to guide each lesson. The unit consisted of fourteen lessons, nine of which focused on the properties of balls and five on the behaviors of balls when run down ramps. I observed fourteen sessions over a period of six weeks. The average length of a session was one hour, but several ran longer than that. Because of the inquiry-based nature of the unit, most sessions followed a cycle that included review and orientation, setting up a new task, doing the task, and reflecting on the task (Gibbons, 2006).

The unit observed in Ms. Cortez’s room was from the Everyday Math curriculum, which had been adopted by the district the year prior to data collection. It included a teacher’s manual with stated content objectives and suggested activities for each lesson. The unit consisted of eight lessons, which Ms. Cortez taught in eleven sessions over a period of three weeks. I observed and audiorecorded eight of those sessions. The average length of a session in this unit was forty minutes, but it varied widely, with some being as short as twenty minutes. A typical session included whole group discussion with frequent
opportunities to pair share about the properties of various shapes. Once a week during math Ms. Cortez and community volunteers facilitated learning centers.

3.3. Data sources and analysis

Data presented in this article come from a larger qualitative case study of academic language demands and instruction in a first grade DL program. I had three primary sources of data: audiorecordings of classroom observations, interview transcripts, and relevant documents (Patton, 2002), each of which are described in more detail in the following section.

3.3.1. Data sources

I conducted this study as a participant–observer in three first grade DL classrooms (and teacher meetings) for the 2009–2010 academic year (Becker & Geer, 1969) – the Spanish-medium classroom as well as the two English-medium classrooms that served the same children. The degree to which I participated in classroom activities in addition to conducting formal observations varied throughout the year depending on immediate circumstances (Emerson & Pollner, 2001). In general, I refrained from active participation during whole group instruction and independent work. I was most likely to engage directly with students during small group activities.

I observed entire units rather than only individual lessons in order to observe changes in the teachers’ instruction and expectations as children became more proficient in the register of the content area and in academic language overall. The theoretical importance of observing sequences of lessons has been articulated in the literature (Ball, Thames, & Phelps, 2008; Christie, 1995; Gibbons, 2003; Lin, 1993). Lin (1993), for example, discussed how observing cycles of activity in classrooms allows a researcher to understand how key events are shaped by and related to other events within the same cycle. Christie (1995) also noted that shifts in language use occur across lessons as students build knowledge together – a shift that is particularly relevant to this study of academic language.

During classroom observations, I focused on key events including whole group instruction, teacher interactions with individual students about unit content, and small group interactions (Cohen, Raudenbush, & Ball, 2003; García, 1996; Gersten & Baker, 2000). I paid special attention to student use of academic language in such interactions as related to the instructional moves I observed on the part of the teacher. All classroom observations were audiorecorded, which provided me with naturalistic speech data in which to ground my analysis. I used a structured observation protocol, took detailed descriptive written field notes (Dyson & Genishi, 2005) and audiorecorded interpretive post-observation reflections.

My second primary data source was the semi-structured interviews I conducted with the three teachers, the principal, and the school’s ESL specialist. I used prepared interview guides to highlight the issues of focus and to indicate topics on which I may need to probe or follow-up (Patton, 2002). I did interviews at the beginning of data collection to get an overview of their understanding of academic language and its development in young emergent bilinguals. I then interviewed each focal teacher either once or twice more, usually at the beginning and end of the unit I observed, and all interviews were audio recorded and transcribed in full. Additionally, I had several informal conversations throughout the year with all participants, which were summarized in either my field notebook or in my post-observation audio reflections.

My third data source was fifty documents ranging from instructional and professional development materials to samples of student writing. Teacher instructional guides were particularly helpful to the analysis of academic language demands, and I carefully reviewed them for evidence of language goals and expectations. In most cases, such demands went unstated or were presented as content goals instead (i.e. students will describe a shape to a partner).

3.3.2. Data analysis

I analyzed data through the lens of curricular academic language demands and teacher expectations. Because this study was conducted inductively, emerging constructs became more focused as I proceeded (Brenner, 2006). I engaged in ongoing analysis throughout the data collection period, in addition to conducting a focused analysis upon leaving the field. The process of returning to the data as insights develop and constructs change is what Glaser and Strauss (1967) referred to as the constant comparative method.

I found the functional demands of language useful as a lens through which to view instruction, as well as to identify patterns of practice across languages and content areas that might support the acquisition of academic language in both Spanish and English. The first step in analysis was open coding to identify the academic language demands of the first grade curriculum. This open coding allowed me to group data collected from fieldnotes, transcripts, and documents into categories. Through this process (Glesne, 2006; Merriam, 1998; Miles & Huberman, 1994) I highlighted the themes that appeared most frequently and significantly across data sources. I elaborated on these themes in analytic memos for each of the units I observed. Finally, I shared analytic memos with participants as appropriate and to the extent that they were interested in order to confirm that my interpretation of their reflections on and explanations of their own instruction matched the information they give me (Brenner, 2006; Merriam, 1998).
4. Academic language demands of first grade at Hurley Heights

I begin this findings section by discussing the purposes for using academic language in these units. Then, I foreground the three key language functions that were embedded in the units. Finally, I discuss the tensions that existed around the instruction of academic language for emergent bilingual students within this program.

4.1. Purposes for using academic language

In each focal classroom, academic language was used for specific purposes, namely to participate in a literate community (Gutierrez, 1993; Stahl & Nagy, 2006) and to present oneself as an expert on a given topic.

4.1.1. Participation in an academic community

Hurley Heights principal Maggie Scott defined academic language in part as “language that helps children become successful in school and ultimately, successful in the world of work and continued schooling.” She also equated teaching children academic language with empowering them to access content, solve problems, and have their academic needs met. When I asked her about the level of knowledge she thought her teachers had, she said “I would hazard a guess that most of the staff defines academic . . . or has defined academic language as vocabulary. So they teach kids the vocabulary for math, the vocabulary for science. They’re teaching it in that specific context and not getting that more global view.”

This speculation was not borne out in my findings. Rather, it was apparent from my interviews that teachers shared Maggie’s broad understanding of academic language. For example, all three emphasized clear communication as a purpose for using academic language, and Ms. Cortez specifically noted the way it could help her students “navigate themselves through their academic journey” and “take an active role . . . to be able to learn what they need to learn at school in a given situation.” What follows are definitions of academic language given by two of the teachers:

Sra. Gregor: Not just having an awareness of the academic terms, or the important photosynthesis words, and that kind of thing, but of the accompanying vocabulary, the little prepositions and things, that you need to understand to get the whole picture.

Mr. Riley: To use, yeah, the not just the target words and the vocabulary words, but the actual, um, how to ask a question, how it starts, what the inflection is and what it sounds like at the end and how it’s different from just telling someone something.

In line with these definitions, academic language was presented in all three classrooms as a way for children to engage identities as learners and participants in various content areas (Snow, 1991; Stahl & Nagy, 2006). Through the use of academic language, students were positioned as scientists in Mr. Riley’s class, mathematicians in Ms. Cortez’s class, and readers and writers in Sra. Gregor’s class. They were encouraged to be part of a community that used language to communicate knowledge and understanding to one another. In Mr. Riley and Ms. Cortez’s classrooms, in particular, children were consistently encouraged to “talk like scientists” and “use good math words”. Academic language was considered an essential part of being a scientist or mathematician, along with appropriate behavior and scholarly ideas. In one lesson in the second week of the science unit, for example, Mr. Riley showed a video of scientists working together and explained that they were “talking about what they’re observing with other scientists.” He also modeled working with a partner to conduct an investigation, and reminded students that part of being a good scientist is being a good partner both in terms of sharing information and listening when appropriate.

Ms. Cortez frequently recognized academic language as evidence of sophisticated thinking, as when she praised an English-speaking boy for asking about the relationship between diamonds and rectangles by saying, “you’re just thinking like a second grader” and noting to the class that this was “the question of a very intelligent thinker.”

4.1.2. Becoming an expert

Another purpose for using academic language that was emphasized by all three teachers was to be an expert on a given topic. This was evident in one of two primary ways: to either be the holder of knowledge in an in-class activity or to explain a concept to someone outside the class. As an example of the first, during Mr. Riley’s balls and ramps unit, pairs of students investigated the properties of one type of ball, then orally contributed to a whole-class chart comparing the properties of many types of balls. In order to elicit contributions, Mr. Riley said “raise your hand if you’re a (ball name) expert please” and then thanked them accordingly, with something like “thanks very much, (ball name) experts.”

The importance of being able to explain a concept to someone outside the class was often highlighted by Ms. Cortez, who used small group math centers as a venue for engaging in dialogic interactions with her students on two occasions. As she worked with students to help them more clearly articulate their knowledge about the properties of shapes, she encouraged them to include as much detail as possible, as if they were “writing this for someone who has no idea what a rectangle is.”

An example that illustrates this point was when Ms. Cortez was guiding a small group of students to write out the definition of a rectangle. She began by encouraging students to think about their own understanding of the essential properties of a rectangle. She instructed them to write “so that we understand your thinking”, emphasizing that they should write their own thoughts. Leo, a newcomer from Mexico who was a highly proficient reader and writer in Spanish, began writing almost
immediately when instructed to do so. He began with “I think . . .” but was stopped by Ms. Cortez, who chastised him in stumbling Spanish, “No, Leo, no tienes que poner ‘I think.’ No más empieza con ‘a rectangle tiene . . . a rectangle has’” [No, Leo, you don’t have to put ‘I think’. Just start with ‘a rectangle has . . . a rectangle has’].

From my perspective as an observer, Leo’s confusion was clear. He had been told to write his own thoughts and therefore likely believed he was giving an opinion. Ms. Cortez, on the other hand, seemed to want him to write a declarative and generalizable mathematical definition. As an educated native English speaker and experienced teacher, she had certain ingrained expectations about how a definition should be structured. It was not, however, obvious to newcomer Leo, and unclear expectations caused difficulty for Leo and frustration for Ms. Cortez. This was a case where “the unconscious use of everyday language by the teacher may counter her conscious expectations for students to increase their use of academic language” (Ernst-Slavit & Mason, 2011, p. 437).

Finally, as part of Señora Gregor’s cultura unit, the class created a poster dictionary of key content vocabulary. They were encouraged to use their background knowledge in concert with academic language structures to co-construct the knowledge displayed on the poster, in the form of predictions of word meaning, actual definitions, and examples of the words used in sentences. Although Sra. Gregor was not as explicit with students about how this drew on their expertise as the other two teachers were, she encouraged them to use the dictionary – and therefore their own and others’ ideas – as a resource in their class discussions and shared writing. In some sense, then, they had an authentic purpose for using academic language, and were positioned as knowledgeable enough to do so.

4.2. Language functions

A second major element of academic language that played a role in these classrooms was the functions that it served in learning key unit concepts. In general, the focal teachers were more knowledgeable about purposes for using academic language than they were about functions; they were less able to identify the functional demands of the unit they were teaching, or articulate them to students. Nonetheless, through observations and document analysis, I identified three categories of language functions that were embedded in the curriculum across content areas and over the entire school year: defining and describing, comparing and contrasting, and predicting and hypothesizing (Bunch, 2004; Echevarría et al., 2008; Gibbons, 2002; Goldenberg, 2008; Snow, 1991).

The fact that these were central language functions is unsurprising given that these are common uses for language in schools across grade levels. Nevertheless, I investigated how each of these categories was presented, reinforced, and assessed in focal classrooms as part of my detailed analysis. At a theoretical level, this functional approach provides a way to broaden our understanding of the complexity of academic language in primary classrooms, which has mostly been studied at higher levels of schooling (Valdés et al, 2005). At a practical level, it can inform instruction within primary classrooms beyond Hurley Heights.

For the purposes of clarity, I have presented operationalized definitions of each function category, as well as examples, in Table 1.

These functions are of course accomplished in conversational language as well as in academic language, and children at Hurley Heights undoubtedly used them in everyday communication. However, the level at which they are expected to be used during class discussions and groupwork is considerably higher than it is on the playground, as is the level of accuracy and explicitness required.

4.2.1. Define and describe

The first function that was central in these classrooms was define/describe, which was by far the most common language goal that occurred across the three data sources. Defining and describing played a central role in all three units. I have combined these as one function because teachers considered them to be related and they were often confounded in practice.

As noted earlier, several lessons in the cultura unit focused in part on defining or understanding the meaning of content-specific academic words. In their October planning meeting for the unit, the first grade team explicitly identified defining

<table>
<thead>
<tr>
<th>Function</th>
<th>My definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define/describe</td>
<td>Language that formally or informally defines a word or concept; language that names the properties of a word or concept; any use of a word in a descriptive sentence; language that asks someone else to define or describe a word or concept</td>
<td>Sra. Gregor: Lo que significa cultura es ‘la manera de vivir . . . de cierta gente en cierto tiempo o época.’</td>
</tr>
<tr>
<td>Compare/contrast</td>
<td>Language that identifies the similarities and/or differences between two objects or concepts; language that asks someone else to identify similarities and/or differences</td>
<td>[What culture means is ‘the way people live together in a certain time or time period’]</td>
</tr>
<tr>
<td>Predict/hypothesize</td>
<td>Language that predicts a future event or the meaning of an unknown word or concept; language that suggests alternate possibilities; language that asks someone else to predict or hypothesize</td>
<td>Ms. Cortez: When you compare something, you think about what’s alike and what’s different.</td>
</tr>
</tbody>
</table>

Mr. Riley: Which ball do you think is going to bounce more times?
**cultural** as a learning target. The “kid-friendly” objectives they created at that meeting, however, did not use the term define. Instead, they were “I can learn what culture means” and “I can use the word culture in a sentence.” These objectives were never communicated to students in the Spanish immersion social studies class with Sra. Gregor, but a primary task of the unit was to create a class Cognitive Content Dictionary,² so they did get oral practice defining key words and using them in sentences.

When I talked to Sra. Gregor about the define/describe language function, she noted that she was trying to be intentional about using the word **significado** [meaning] and asking “¿qué significa _____?” [what does _____ mean?] rather than the more colloquial “¿quiere decir _____?” [what does _____ mean?] to move students’ academic language forward. She also explained the value of having students create sentences that showed they really understood the meaning of the word, without simply restating the definition. For example, she wanted students to produce descriptive sentences like “el perro estaba corriendo detrás del gato” [the dog was running after the cat] in addition to definitional statements like “un perro es un animal con cuatro patas y una cola” [a dog is an animal with four legs and a tail]. She acknowledged that the distinction between defining and describing was difficult to teach, even to the high school students she worked with prior to working at Hurley Heights.

In the balls and ramps unit, defining and describing were also important. Mr. Riley’s approach to introducing new language and concepts was similar to Sra. Gregor’s in that he guided students to accomplish the functions without explicitly telling them what those functions were. However, the line between defining and describing was especially blurred in his classroom. For example, on several occasions Mr. Riley asked students to tell him “what makes a ball a good bouncer.” Sometimes this was a prompt for a definition, as in “it bounces high” or “it bounces a lot of times.” On other occasions, it was a prompt to describe the properties of balls that are good bouncers, such as “it is made of rubber.” At times it seemed that students did not understand whether he was asking for a definition or a description, and there were at least a few occasions on which he and the class experienced shared frustration because of the confusion. The following class discussion about the properties of balls is a good example of this:

| 74. | Mr. Riley (to whole class) | What could the small rubber ball or the large rubber ball do that made it the best bouncer? Okay, go ahead. |
| 75. | Dulce | What could it do that made it the best bouncer? (invites children to pair share) |
| 76. | Ramona | Is . . . it is bouncy. |
| 77. | Dulce | It’s bouncy. And it’s made of rubber. And . . . let me think. |
| 78. | Ramona | Is . . . |
| 79. | Dulce | It’s rubber. |
| 80. | | It’s red. |

(later in the same discussion)

| 95. | Mr. Riley (to whole class) | What could your ball do that let you know that it’s the best bouncer? Beatriz? |
| 96. | Beatriz | Because it’s not . . . hollow. |
| 97. | Mr. Riley | But the question is what did it do? Is being hollow something that your ball did? Or is it something that your ball is? |
| 98. | | Today we’re really thinking about what does the ball do? |
| 99. | | What does the ball do? What did your ball do, C.J, to let you know it’s the best bouncer? |
| 100. | | It bounced many times. |

This confusion seemed to arise because at the beginning of the unit the class had spent several lessons describing the salient properties of various balls. The focus questions presented in those early lessons honed in on the describing function, asking children to ponder such questions as “how can you describe different balls?” and “what kinds of balls are good bouncers?” Mr. Riley himself told me that he thought the shift from describing to defining good bouncers and rollers was conceptually difficult for children, and I contend that it was exacerbated by the fact that they did not understand the implicit language expectations.

Ms. Cortez’s geometry unit also included defining and describing as language goals. The Everyday Math instructional guide listed the following as key concepts and skills for the unit: identifying, describing, comparing, and contrasting. These are fairly standard math skills that can also be language functions, and it is not surprising that defining is not among them, given that it is usually considered strictly a language goal rather than a content goal. Nonetheless, Ms. Cortez incorporated definitions into her instruction. She did so largely because of her previous experience as an intermediate grade teacher; she explained that when many language minority students start taking state tests in third grade, they struggle to explain their thinking because they “just don’t think that they need to say it (what they know), because it’s obvious.” Guiding her students as they orally defined academic terms was a practice that she used to support both academic language production and conceptual understanding. The following excerpt from a dialogic interaction during centers provides an example of

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² This is the name of a GLAD strategy that was used throughout the school. It included new words, predictions of their meaning, actual meanings (taken from a dictionary), and examples of sentences containing the word.
how Ms. Cortez provided such guidance. It also highlights how Ms. Cortez frequently emphasized to students the need to be explicit and give as many details as possible:

| 322. | Ms. Cortez | What can you tell me about a rectangle? |
| 323. | Laura | It’s long. |
| 324. | Ms. Cortez | It’s long. What do you mean by long? So, it has four sides. |
| 325. |  | 1,2,3,4. Are these, are these, is this long, right here? (points to left and right sides) |
| 327. | Xheng | No. |
| 328. | Ms. Cortez | No. Where, where’s the long part? (pause) Right here? And so, how can I explain that? If I wanted to write that down, what could I say? (pause) Can you think of a way to say that? |
| 330. | Hoa | The top and the bottom is long. |
| 331. | Ms. Cortez | What if I had a rectangle that looked like this? (flips rectangle) |
| 333. | Clarence | No way! |
| 334. | Ms. Cortez | I could have a rectangle that was facing this way. Now the top and bottom are short. So… |
| 336. | Clarence | ((The sides)) |
| 337. | Ms. Cortez | Could I say two sides? (pause) Two sides what? |
| 338. | Xheng | Two sides are long. And…? |
| 339. | Ms. Cortez | Two sides are long. And…? |
| 340. | Laura | Two sides are short. |
| 341. | Ms. Cortez | Two sides are long. That’s a great start. And two sides… are what? |
| 343. | Hoa | Are short. |
| 344. | Ms. Cortez | That’s a great way to describe it. |

What is notable about the above interaction is how Ms. Cortez moved back and forth between content goals and language goals. In lines 328–330, for example, she pressed Xheng to be clear about which sides of the rectangle were long and then encouraged him to think about how he could explain this understanding using academic language structures. When Hoa joined the conversation in line 331, Ms. Cortez increased the conceptual complexity by asking the group whether the orientation of a rectangle matters to its definition. Then, in line 339, she rephrased Xheng’s contribution to be linguistically accurate, and in line 341 she told the group that Laura’s contribution would be a great way to start their definition.

### 4.2.2. Compare and contrast

The second academic language function that was reinforced in first grade at Hurley Heights was comparing and contrasting. These language functions were more prevalent in the science and math units than they were in the social studies unit. There was only one occasion on which I observed Sra. Gregor asking students to compare two groups of people, and she did not provide any instruction focused on accomplishing the task. Therefore, for analysis purposes, I did not consider comparing a function that children were asked to accomplish in the cultura unit.

As with defining and describing, I combined these two functions into one category because of their related nature. In balls and ramps, both comparing and contrasting were incorporated into focus questions on multiple occasions, as in, “How are balls the same and different?” and “What is the same about good bouncers?” Again, Mr. Riley did not clearly articulate to children when they were comparing, even when he provided somewhat extensive support for the linguistic process of comparing through a simultaneous focus on content and language, as in the following example:

| 170. | Mr. Riley | Turn and whisper with your partner, what is something, what are some of the properties that you noticed are the same about these two? What did you notice are the same about these two? (opportunity for students to pair share) |
| 172. | Mr. Riley | What did you notice, when you were whispering with your partner, how did your sentences start when you were talking about ways that these properties were the same? How did your sentence start? How did your sentence begin when you were talking about how these properties were the same, Pedro? |
| 179. | Pedro | They both… |
| 180. | Mr. Riley | Okay, stop there. They both. They both. Did anybody else notice that their sentences started with “they both...”? Did you notice that, Javier? Did yours start with “they both...”? Yours did. Pedro, finish the sentence. They both what? |
| 183. | Pedro | They both have a line through them. |
| 185. | Mr. Riley | Thank you, thank you, thank you. How else are these properties the same? Jesenia? |
| 187. | Jesenia | They both is a sphere. |

Mr. Riley interrupted content instruction (line 180) to draw students’ attention to linguistic structure. In line 183, he handed it back to Pedro, who was able to finish his content contribution. Notably, this interaction supported at least some students in making comparisons using academic language, as can be seen in Jesenia’s response to his final question (line 186). Even without a clear understanding of the function she was attempting to accomplish, this intermediate Spanish speaker met the content goal of comparing two balls and the language goal of doing so in a full – if not completely correct – sentence.
Mr. Riley expressed to me his desire to move students beyond low-level skills like identifying and describing, but he was uncertain how to facilitate that. He felt that his emergent bilingual students in particular were “doing okay at the kind of really lower level, um . . . just like knowledge . . . but when we start to sort of compare or start to analyze, or look deeper, . . . um, we need to take a step backwards, ([I guess]).”

In contrast to balls and ramps, on the first day of the geometry unit, Ms. Cortez told students they were going to practice comparing objects during the unit, and even reminded them of the meaning of compare, calling it a “great math word”: “when you compare something, you think about what’s alike and what’s different. That’s, that’s all comparing is. Finding the things that are alike and different.” Students then had a chance to compare their object with another student’s, and to share out what they discovered about similar or different properties.

4.2.3. Predict and hypothesize

The third and final focal language function that frames the data presented in this article was predicting and hypothesizing. The ability to make predictions and formulate hypotheses was reinforced in both the balls and ramps and cultura units, but it was only explicitly instructed in the cultura unit.

Sra. Gregor used predictions in two main ways over the course of the cultura unit: to make guesses about the meaning of unknown words, and to predict what was going to happen next in a book or story. The first use of predicting corresponded closely to the GLAD tool she was using (the Cognitive Content Dictionary), and the second is a commonly taught literacy strategy and something her students regularly practiced during read-alouds, as well as guided reading. The example below corresponds to the first type of predicting, which was more representative of the role predicting had during this unit. During the first lesson, Sra. Gregor told children that in order to create a class dictionary, “vamos a predecir el significado de la palabra cultura . . . van a adivinar, van a predecir” [we’re going to predict the meaning of the word culture . . . you’re going to guess, you’re going to predict] and asked if they knew what it meant to predict:

25. [Sra. Gregor: Do you know what prediction means? Or predict? Andrés?]
26. Andrés: That, that you don’t know if it’s true or not.
27. Sra. Gregor: Saben lo que quiere decir predicción? O predecir? Andrés?
28. No sabemos la respuesta, pero vamos a decir lo que pensamos, si tenemos una idea. Quizás tenemos razón o quizás no, pero vamos a decir lo que pensamos.
29. [Sra. Gregor: We don’t know the answer, but we’re going to say what we think, if we have an idea. Maybe we’re right and maybe not, but we’re going to say what we think.]

Students repeated the cycle of predicting, defining, and a using a different content-specific word (ancestro) in a sentence one more time over the next several lessons. As support, Sra. Gregor provided small groups of students with written sentence structures to guide their discussion and subsequent sharing with the class. Each time they were called upon to make predictions, Sra. Gregor named the function, using its various forms as appropriate: predecir (to predict), predicción (prediction), predijimos (we predicted), whereas Mr. Riley never used the word predict during the observations I made of the balls and ramps unit, despite its conceptual importance to the balls and ramps unit.

5. Tensions

In this section, I explain the most salient tensions that I identified with regard to the academic language demands of this first grade DL program. I also explore their potential significance in the education of emergent bilingual children in this setting.

5.1. Theoretical vs. real demands

One of the primary tensions that arose during data analysis centered on how the language demands I identified actually played a role in classroom instruction and discourse. I gleaned information about expectations and demands from interviews with participants and document analysis, but when I analyzed the observation transcripts and fieldnotes, I became aware of some discontinuities. For example, a stated language goal of the cultura unit was for each student to define the term cultura. In practice, however, students did the defining in small groups and only a few shared their ideas with the whole class. Therefore, students could opt out of oral participation in those small group interactions, and some did. As Sra. Gregor expressed in our initial interview:

In some perfect world, I’m aware what oral language component I am focusing on in every lesson, in every time that I’m doing a read aloud, in every time that . . . you know, we’re doing anything, so, yeah, I feel that’s there’s a gap because that’s not happening every single time.

In Mr. Riley’s class, he often gave Spanish-speakers a choice of whether to participate in whole group discussions or not. In our interview halfway through the balls and ramps unit, he justified this practice by saying that, “it’s just kind of about not wanting to put anybody on the spot”. He felt this was especially important for lower proficiency English-speakers, who he hoped would eventually become comfortable enough to share aloud.
While Mr. Riley’s concern for children’s socioemotional well-being is notable, it does raise questions about how much press is needed for academic language to develop. If children in early grades are able to be part of an academic community without having to use academic language (or any language at all), then perhaps there is a lost opportunity to develop language and conceptual understanding concurrently. This may manifest itself later, when these emergent bilingual students get to the intermediate grades unable – or unwilling – to engage in cognitively and linguistically appropriate discussions in either language. There is evidence that at least one struggling Spanish speaker took advantage of this practice and rarely opted to share out at all. As a result, he was often disengaged from classroom conversation and activities. This may have undermined Mr. Riley’s key message that being a scientist (in this case) includes using academic language.

On the Spanish side of the program, the issue was somewhat different. In some sense, theoretical and real functional demands came together more in the cultura unit than in the others, mainly because all of the writing was done in groups. Therefore, being able to orally define key content vocabulary and use it in an appropriate and descriptive sentence was theoretically essential to being successful. On the other hand, as I noted earlier, it was impossible for Sra. Gregor to monitor all of the small group conversations, and only a subset of students shared their group’s work in front of the class, so there were undoubtedly students who were exempt from having to participate in the production of the target oral academic language.

Sra. Gregor herself expressed concern about the difficulty of raising real expectations to the level of her theoretical expectations: “I feel like it’s something I constantly have to remind myself to be conscious of, but when we’re sharing, when we’re brainstorming, and things like that, to say thing in complete sentences … producing language instead of simply gestures or movements.” Ernst-Slavit and Mason (2011) raised a similar issue. They found that there were multiple missed opportunities for teachers to model academic language despite their awareness of the need to do so. In their study, “not only did teachers water down the quality of their explanations by not using academic terminology, but they left out key terms and only explanations that would have enhanced the understanding of complex concepts and narratives” (p. 434). This was especially relevant in the case of Sra. Gregor. Because of her background as a language educator, she was more aware of the need to develop facility with language for her students, and she was focusing on facilitating academic language for Spanish speakers in their home language. However, as a relatively new first grade teacher, she was struggling to balance the demands of language and content, especially with two groups of students with very different Spanish levels and needs.

5.2. Teachers’ depth of knowledge

Although all three first grade teachers were mindful of and concerned about language issues in their classrooms, they were not always aware themselves of the academic language demands of their curriculum. Señora Gregor, a trained language teacher, was the most knowledgeable about this, and we had a rather extended conversation about how she taught predicting in the cultura unit. She also indicated that she was aware of the difference between defining focal vocabulary terms and describing them, but that she had difficulty communicating that difference to her students. Perhaps the fact that she did not have access to a published curriculum made the language demands more obvious to this already more experienced and knowledgeable teacher. The unit was largely built around learning new and somewhat abstract vocabulary terms, with predicting and defining as key language goals. In contrast, the science and math units were content-oriented and the language foci were harder to identify.

In fact, when I asked Mr. Riley and Ms. Cortez to identify the academic language demands of the unit, they recognized only the language demands that coincided with content goals; comparing in Ms. Cortez’s geometry unit and predicting in Mr. Riley’s science unit. Predicting was a key content and language goal in the balls and ramps unit, but Mr. Riley never named it nor provided explicit instruction about possible language to use when making predictions.

The need for teachers to recognize and analyze the language demands of their content areas is made all the more crucial by the fact that curriculum materials designed for mainstream English-speaking students do a poor job of presenting functional language demands or helping teachers decipher the purposes for using language in a given unit. This may be the case even when specific accommodations for language minority students are included in planning materials. In this study, the teachers’ manuals for both the science and geometry units used by focal teachers included suggestions for assisting the language development of emergent bilingual students, but they fell short of being truly useful because of their vagueness or because teachers did not follow up on the suggestions. For example, the balls and ramps instructional manual recommended that teachers support language learning by “identifying the language objectives within the science lesson and providing modeling to promote student understanding,” but the language objectives were not stated anywhere and a teacher like Mr. Riley with a low level of linguistic understanding did not discern them from those sparse directions.

In another example, the Everyday Math planning materials used by Ms. Cortez provided the following types of advice to teachers with language learners in their classrooms: “encourage children to use the mathematical terms in contexts of working with the 2- and 3-dimensional shapes” and “encourage children to use vocabulary related to plane shapes and solid figures such as side, corner, surface, flat, circle, triangle, square, sphere, cylinder, and rectangular prism.” The focus was clearly on the development of individual vocabulary words, and did not go far toward helping Ms. Cortez understand what children were truly expected to do with language beyond using isolated words in context.
6. Conclusion and implications

In this article, I have elucidated the academic language demands of the first grade curriculum in one dual language elementary school program with regard to purposes for using it and the functions it accomplishes. I have also highlighted some of the key challenges and tensions that arose as teachers attempted to understand and provide instruction to address those demands. This work is important because academic language proficiency for all students is emphasized in the literature, but little is known about the specific functional demands of grade-level curricula or how much teachers understand about them (Ernst-Slavit & Mason, 2011; Schleppegrell, 2007).

This analysis of academic language demands contributes a few key findings to existing literature. First, it was clear that all of the focal teachers had language goals and expectations of their students. Some of these demands were embedded in the curriculum, and others were based on teachers’ knowledge and experience. In both cases, however, there were consequences for students who did not understand or use the language in expected ways. The existence of language demands – explicit or implicit – within content areas even as early as first grade cannot be ignored if we are to support school success for all.

This issue is especially relevant to the education of emergent bilingual students, since they learn content in two languages simultaneously. Dual language education presents a unique opportunity for such children to develop academic registers in both languages, but only if teachers themselves understand the demands and create opportunities for students to learn and use language in expected ways. To that end, more research is needed to identify relevant language functions at different grade levels and in various content areas. In addition, both DL and mainstream elementary school teachers need to be supported as they learn about academic language and how to identify it in their curricula. Teacher education at both the pre-service and inservice levels needs to address this knowledge gap by supporting pre-service teacher candidates as they learn about first and second language development and the process of analyzing their curricula through the lens of academic language.

The second key finding was that teachers at Hurley Heights had some understanding of the structural components of academic language and all were in agreement about the value of teaching it. Despite this, they did not have a deep understanding of the functions that students needed to accomplish with language in their classrooms, and therefore were sometimes unsuccessful in supporting students as they attempted to develop sophisticated disciplinary language. My analysis also suggests that while there was overlap in language functions across all three classrooms, the teachers missed critical opportunities to facilitate cross-content and cross-language academic language development for their emergent bilingual students. This suggests that teachers need to not only understand the construct of academic language well enough to identify it in course materials and plan lessons accordingly, but also to be able to provide meaningful and systematic instruction for emergent bilingual students. Therefore, in the context of teacher education, theoretical and practical knowledge about academic language need to be integrated rather than taught as separate constructs.

In the past ten years – and therefore too recently to influence my participants – prominent teacher education scholars have proposed “what teachers need to know about language” (Fillmore & Snow, 2002; Lucas, Villegas, & Freedson-Gonzalez, 2008) in order to work effectively with second language learners. Likewise, a number of strategy-oriented language acquisition programs like SIOP (Echevarria et al., 2008) and GLAD have become available to school districts. I argue that what is missing is a link between theory and practice that would support teachers in developing flexible pedagogical content knowledge (Ball et al., 2008; Shulman, 1987). This would require teacher education programs to explicitly teach pedagogical practices to develop academic language in concert with content demands. Thus, I propose an integrated approach to teacher education that clearly focuses on the needs of language minority and emergent bilingual students by addressing what teachers need to know and do.

It is becoming increasingly common for university-based teacher education programs to offer (and in some cases even require) foundational and methods courses in second language acquisition and instruction. Therefore, a productive area for future research is to qualitatively and longitudinally follow new teachers graduating from such programs as they move into classroom placements – both mainstream and dual language – to investigate whether and how their practices provide long-term academic language benefits to their students.

In addition to these findings, I have illustrated throughout this article the value of a functional approach to the study of academic language demands in both DL and mainstream classrooms. I have shown how it can be productive to investigate instruction by taking as a starting point the classroom and curricular expectations of what language should be used and how. I argue that such an approach will enable us to develop a better understanding of the interplay between conversational and academic registers that is rooted more in authentic classroom practices than in scripted ideas about what constitutes academic language use. This approach to the study of classroom practice, in concert with findings from this study, can guide us toward a deeper knowledge base about the demands that academic language places on young emergent bilingual children and the opportunities they have to develop it in both dual language and mainstream classrooms.

Appendix A. Transcription conventions

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