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Meeting the Literacy Development Needs of Adolescent English Language Learners Through Content-Area Learning - PART TWO: Focus on Classroom Teaching and Learning Strategies

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Meeting the Literacy Development Needs
of Adolescent English Language Learners
Through Content-Area Learning

PART TWO:
Focus on Classroom Teaching
and Learning Strategies

By Julie Meltzer and Edmund T. Hamann

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This publication is the third monograph coauthored by Drs. Meltzer and Hamann. They have also written *Meeting the Needs of Adolescent English Language Learners for Literacy Development and Content-Area Learning, Part One: Focus on Motivation and Engagement* (The Education Alliance, 2004) and *Multi-Party Mobilization for Adolescent Literacy in a Rural Area: A Case Study of Policy Development and Collaboration* (The Education Alliance, in press).

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Meeting the Literacy Development Needs of Adolescent English Language Learners Through Content-Area Learning

Part Two: Focus on Classroom Teaching and Learning Strategies

Today, English language learners (ELLs) represent an increasing proportion of U.S. middle and high school enrollment. As a result, mainstream content-area teachers are more likely than ever to have ELLs in their classrooms. At the same time, education policymakers and researchers are increasingly calling for improved academic literacy development and performance for all adolescents. The research on recommended practices to promote mainstream adolescents' academic literacy development across the content areas and the research on effective content-area instruction of ELLs in middle and high schools overlap substantially, suggesting that mainstream teachers who use effective practices for adolescents' content-area literacy development will be using many of the practices that are recommended for those trained to work with ELLs. Such practices appear to support the literacy development and content-area learning of both ELLs and other adolescents. Eight instructional practices are supported by both literatures: (1) teacher modeling, strategy instruction, and using multiple forms of assessment; (2) emphasis on reading and writing; (3) emphasis on speaking and listening/viewing; (4) emphasis on thinking; (5) creating a learner-centered classroom; (6) recognizing and analyzing content-area discourse features; (7) understanding text structures within the content areas; and (8) vocabulary development. These practices should be part of the design of pre-service and in-service teacher professional development, thus enabling mainstream content teachers to be more responsive to the needs of all of their students.

Keywords: Adolescent literacy, English language learners (ELLs), teaching strategies, secondary school, content-area reading, effective instruction

I. Introduction

Because they are not native English speakers, English language learners [ELLs] require explicit instruction in the genres of academic English used in scientific reports, court documents, public information articles, and the like. Exposure to domain-specific language facilitates content-area understanding, bringing English learners to the academic forefront.

—Rebecca Callahan (2005, p. 323)

Today, educational researchers and policymakers are increasingly attuned to two major issues in secondary education: the growing need to attend to adolescent literacy development if all students are to demonstrate content-area mastery across the curriculum (Kamil, 2003; Moore, Bean, Birdyshaw, & Rycik, 1999; Snow and Biancarosa, 2003; Vacca, 1998) and the imperative to attend to school improvement for English language learners (ELLs) at the secondary level. The latter is a growing priority because of ELLs' poor educational outcomes (in aggregate) and their current unprecedented level of enrollment in secondary schools throughout the United States (Fix & Passel, 2003; National Center for Education Statistics [NCES], 2004; Suárez-Orozco & Suárez-Orozco, 2001; Waggoner, 1999; Wortham, Murillo, & Hamann, 2002). As a result, middle and high school teachers and administrators are being pressed to simultaneously meet two goals: to better support all students' academic literacy development and to be responsive to the learning needs of ELLs.

This paper presents one step in a multi-step process to improve concurrent support of ELLs' academic literacy development and content-area learning. Because research findings developed from monolingual English-speaking student samples may not apply to ELLs (LaCelle-Peterson & Rivera, 1994), we reviewed the research literatures on both adolescent literacy and secondary school responsiveness to ELLs to develop a research-grounded underpinning for teacher training, professional development, and other support for content-area middle and high school teachers. We found many similarities between the literature related to adolescent academic literacy development and that related to promising instructional practices for ELLs. Both are highly critical of the status quo and have common recommendations for changes to current secondary school classroom teaching practices. In this paper we present our findings on where these two literatures overlap with regard to suggested teaching strategies for helping ELLs effectively build advanced academic literacy skills across the content areas.

Three important assumptions guided our review of the relevant literature:

(1) The central task of secondary school is to prepare students to become independent learners, who can use reading, writing, listening, speaking, and thinking skills to successfully negotiate their roles as workers, family members, and democratic citizens.

(2) Given the scope of this task, instruction across the content areas in middle and high schools needs to explicitly address literacy development. All teachers, therefore, are individually and collectively responsible for students' continued academic literacy development.

(3) ELLs have an equal right and need to become independent learners. Schools must support their literacy development in ways relevant to their current and future circumstances.

Why This Matters

The Alliance for Excellent Education estimates that six million middle and high school students are reading below grade level (Joftus, 2002) and are "at risk" or "struggling." This is more than a quarter of our current student population in grades 6-12. But these six million are not a homogeneous group as readers. "[Some] lack extensive reading experience, [some] depend on different prior knowledge, and/or [some] comprehend differently or in more complex ways. A large percentage of secondary readers who are so mislabeled [as struggling] are students of color and/or students from lower socio-economic backgrounds" (National Council of Teachers of English [NCTE], 2004, p. 2). Many are ELLs.

In October 2002, the National Clearinghouse for English Language Acquisition (NCELA) estimated that 1,146,154 limited-English-proficient students were attending grades 7–12 in U.S. public schools (excluding Puerto Rico and other outlying jurisdictions) (Kindler, 2002). Despite these numbers, ELLs at the secondary level are not being served as well by their school experience as are other student populations (Abedi, 2005; Northwest Regional Educational Laboratory [NWREL], 2004), as measured by secondary school completion rates (August & Hakuta, 1997; NCES, 1997), participation in advanced classes (Cadeiro-Kaplan, 2004; Harklau, 1994a, 1994b), or postsecondary educational pursuits and success (Callahan & Gándara, 2004; Harklau, Losey, & Siegal, 1999; Santos, 2002). These indicators are particularly troubling given extensive evidence that ELLs can do well in school (e.g., Callahan & Gándara, 2004; Ernst, Statzner, & Trueba, 1994; Genessee, 1999; Lucas, 1993, 1997; Lucas, Henze, & Donato, 1990; Mehan, Villanueva, Hubbard, & Lintz, 1996; Pugach, 1998; Reyes, Scribner, & Scribner, 1999; Romo & Falbo, 1996; Walqui, 2000a; Wilde, Thompson, & Herrera, 1999). Their relative lack of success may be attributed to the fact that many educators do not have the necessary skills and training to serve ELLs well (Zehler et al., 2003) or that school systems, by design, do not support ELLs' educational achievement (Coady et al., 2003; Dentler & Hafner, 1997; Ruiz-de-Velasco, 2005).

According to Brinton, Snow, and Wesche (1989), content-area instruction generally occurs for second language learners in one of three ways: (1) content area instruction by trained second language teachers (teachers trained in second language acquisition, not necessarily the content area), (2) team teaching by second language teachers and content-area teachers; or (3) sheltered immersion instruction by content-area teachers in which teachers modify their instruction, in terms of pace and language, to make it more accessible to second language learners. All three approaches, when implemented well, have been shown to respond to the needs of ELLs for content-area learning when combined with language and literacy development in English (e.g., Anstrom, 1997; Chamot, 1995; Covey, 1973; Gersten, 1985; Lucas et al., 1990; Short, 1999). A fourth strategy—newcomer schools or programs—has also come into increased use in recent years. There is a record of such transitional programs also helping ELLs when implemented well (e.g., Genessee, 1999; Spaulding, Carolino, & Amen, 2004; Walqui, 2000a).

Despite research proving the success of the previously mentioned four strategies, a fifth scenario is becoming more common: Many ELL students are being placed in mainstream classrooms with teachers who have little or no training in how to be responsive to their needs (Carrasquillo & Rodríguez, 2002; Gándara, Rumberger, Maxwell-Jolly, & Callahan, 2003; General Accounting Office [GAO], 2001; Ochoa & Cadeiro-Kaplan, 2004; Waggoner, 1999; Zehler et al., 2003). Placement of ELLs in mainstream classrooms occurs for a number of reasons: assumptions regarding what ELLs need; the longstanding national scarcity of trained ESL and bilingual teachers relative to demand; the growth of ELL populations; ELLs' dispersal into more districts; and restrictions in a growing number of states regarding the time ELLs can stay in ESL or bilingual programs (August & Hakuta, 1997; Boe, 1990; Enright & McCloskey, 1988; Short, 1999; Zhao, 2002). Unless these factors change, it is likely that more and more ELLs will spend their time in school (1) with teachers not necessarily trained to work with second language learners, (2) with teachers who do not see meeting the needs of ELLs as a priority, and (3) with curricula and classroom structures that were not tested with or explicitly designed to meet the needs of ELLs (Coady et al., 2003; LaCelle-Peterson & Rivera, 1994). This raises several questions: Can content-area teachers with ELL students be part of a viable multi-part strategy that supports ELLs' academic success? If so, what skills do content-area teachers need to develop and deploy to make this promise real? Would practices recommended by the literature related to academic literacy development and content-area reading also benefit ELLs in middle and high school?

As teachers see more and more ELL students in their classrooms, yet continue to lack adequate training in how to address their needs, the answers to these questions will become increasingly important. In 2001-02, 43% of all teachers had at least one ELL in their classes, three and a half times as many as in 1991-92. Of these 1.27 million teachers, 23.2% had bilingual, ESL, or other ELL-related certification and 5.6% had

a masters or doctorate in a relevant field; 9.8% were working with just provisional certifications. Further, 39.9% reported having had no in-service development related to ELLs in the previous five years and an additional 20.8% of teachers reported fewer than 10 total hours of in-service related to ELLs in that period. Schools with more than 30 identified ELLs had higher percentages of new teachers than did schools with fewer than 30 ELLs. Finally, middle school and high school teachers of ELLs were substantially less likely to have had significant training for working with ELLs than their elementary colleagues (Zehler et al., 2003, pp. 69-73). Gándara et al. (2003, p. 1) have noted that in California, ELLs "are assigned to less qualified teachers, are provided with inferior curriculum and less time to cover it, are housed in inferior facilities where they are often segregated from English speaking peers, and are assessed by invalid instruments that provide little, if any, information about their actual achievement."

Wong Fillmore and Snow characterize the problem: "Too few teachers share or know about their students' cultural and linguistic backgrounds, or understand the challenges inherent in learning to speak and read Standard English" (2000, p. 3). In their study, Ruiz-de-Velasco and Fix (2000) found that this lack of knowledge about ELLs often leads teachers to have lower expectations for their ELL students' performance. Ruiz-de-Velasco later notes, "The long-term shortage of new teachers specially trained to work with ELL students underscores the importance of training *veteran* teachers to work more effectively with new populations of ELL immigrants" (2005, p. 40). Likewise, Genessee (1999) observes that a common theme of different programs that serve ELLs well is "ongoing, appropriate, and state-of-the-art professional development for teachers in specially designed programs *and* [italics added] for mainstream teachers who work with ELLs" (p. 3).

Who Are ELL Secondary Students?

The term ELL and the related terms *potentially English proficient (*PEP*), limited English proficient (*LEP*), language minority*, and ESL or ESOL student bring to the forefront the challenge of creating effective instructional supports for a population that may be defined differently by different authors (e.g., Abedi, 2005; Nayar, 1997; Rivera, Stansfield, Scialdone, & Sharkey, 2000; Thomas & Collier, 1997). In this paper, our definition of ELL is purposefully inclusive. The population we address is students who come to school with a first language other than English and whose opportunities to fully develop English language literacy to grade level have not yet been fully realized.

The *Lau v. Nichols* (1974) U.S. Supreme Court decision is the starting point for our definition. Making the point that Reeves (2004) has illustrated well—that treating ELLs the same as other students is not equal or fair treatment—the Lau decision declared unmediated instruction unconstitutional for students who did not have sufficient background in English to learn adequately from such instruction. As a result, school districts need to classify and count the number of their enrollees who need structured support. However, because this requirement does not specify a uniform standard for

ELL, there are notable variations among states and even among districts within a state regarding who is tallied as an ELL (Abedi, 2005; Rivera et al., 2000).

Moreover, the U.S. GAO (2001) acknowledges that students exited from English-as-a-Second-Language (ESL) and bilingual programs are not necessarily as proficient in academic English as native speakers, a finding confirmed by de Jong (2004). August and Hakuta (1997) identify recently exited ELLs (i.e., those no longer in ESL or bilingual programs) as a language-minority student population that needs to be more closely studied. Harklau et al. (1999) describe "Generation 1.5" students who come from households where English is not a first language and who have not developed their first language literacy skills. Such students spend at least their secondary school years in *mainstream* (i.e., unmodified English), usually lower-track classrooms. When they make it to college, they often suffer from underdeveloped English literacy skills, inadequate for the advanced literacy expectations they encounter. The exited students described in the GAO report and the Generation 1.5 students introduced by Harklau et al. are included in our definition of ELLs as non-native English-speakers who are affected academically by limitations in their literacy skill development in English. We acknowledge that such a definition encompasses a heterogeneous population and that not all educational treatments will work equally with each ELL, even as there are important patterns in what is likely to work with many ELLs.

ELLs come to secondary school with a wide range of L1 (native language) and L2 (second language) literacy habits and skills, uneven content-area backgrounds, and vastly different family and schooling experiences (Abedi, 2004; Colombi & Schleppegrell, 2002; Freeman & Freeman, 2001; Harklau et al., 1999; Henze & Lucas, 1993; Hornberger & Skilton-Sylvester, 2003; Montero-Seiburth & Batt, 2001; NCES, 2004; Olsen & Jaramillo, 2000; Peregoy & Boyle, 2000; Ruiz-de-Velasco, 2005; Suárez-Orozco & Suárez-Orozco, 2001; Zehler et al., 2003). Some of these differences–for example, parent educational background (Abedi, 2005) and track placement (Callahan, 2005)–seem to be stronger predictors of ELLs' academic success than their proficiency in English.

One particularly notable difference among ELL students is their previous literacy development in their native language. "Struggling reader" and "struggling writer" are terms found in the literature in reference to ELLs as well as monolingual English-speaking students. Study by study, it is not always clear whether these labels take into account abilities in the native language or only in English. Some adolescent ELLs need to learn to read for the first time, while others are building second (or third) language literacy on developed first language skills (Peregoy & Boyle, 2000). According to Zehler et al.'s (2003) summation of reports from school-based ELL services coordinators, 38.9% of ELLs also had limited literacy skills in their native language. Fleischman and Hopstock (1993) estimated that 20% of all high school-level ELLs and 12% of middle school-level ELLs had missed two or more years of schooling. Such under-schooled

students are often overlooked; Garcia (1999), Mace-Matluck, Alexander-Kasparik, and Queen (1998), and Ruiz-de-Velasco and Fix (2000) have all noted that most ESL and bilingual programs at the secondary level assume students have developed some literacy in their first language. While frequent and purposeful use of the promising practices in the framework will not be harmful to students with interrupted and limited schooling, they will be inadequate. Such students need basic as well as advanced literacy development.

Research suggests that four or more years of English language instruction is key to ELLs' subsequent success and that continued instruction in students' first language can be useful (e.g., Bialystok & Hakuta, 1994; Collier & Thomas, 1997; Covey, 1973; Cummins, 1981; Kaufman, 1968; Klesmer, 1994; Mitchell, Destino, & Karam, 1997; Mohan, 1990; Ochoa & Cadeiro-Kaplan, 2004). However, not every ELL student enters the school four or more years before graduating (Hamann, 2001; Short, 1999). DebBurman (2005) notes that teenage immigrants tend to complete fewer years of schooling than immigrant students who arrive at younger ages. But the task for ELLs is not just mastery of English. According to Carrasquillo and Rodríguez (2002), "The academic success that culturally and linguistically diverse students will experience in school hinges more on how these learners are able to manipulate language in a variety of contexts and purposes than on the specific language they use" (p. 29). Adams, Astone, Nunez-Wormack, and Smodlaka (1994) even found a negative correlation between Mexican American ninth graders' English proficiency and their academic success. They do not posit that English proficiency caused these students' academic struggles, but they do offer a useful reminder that a language acquisition-only focus will often fail to support ELLs' learning across the content areas.

What Do We Mean by "Adolescent Literacy"?

For the purposes of this paper, literate adolescents are those who "can use reading, writing, speaking, listening, and thinking to learn what they want/need to learn AND can communicate/demonstrate that learning to others who need/want to know" (Meltzer, 2001). This clarifies that adolescent literacy is more than a focus on reading comprehension and much more than decoding (Langer, 2002; Martin, 2003; Scarcella, 2002). It acknowledges the literature's emphasis on the interdependence and synergy of reading, writing, speaking, listening, and thinking skills in the adolescent learner's construction of knowledge. As the word *construction* implies, our definition presumes an active dimension to literacy (Colombi, 2002). Literacy is not a static body of pre-determined knowledge; rather, literacy becomes manifest in the moment of knowledge deployment, in engaging with language to gather, generate, or convey meaning. Our definition of adolescent literacy incorporates other academic literacies defined in the literature–such as information literacy, technological literacy, mathematical literacy, and scientific literacy–but these each suggest more specificity than the more encompassing idea of *adolescent literacy*. Our definition also clarifies that we are not talking about that small proportion of struggling adolescents who lack even rudimentary literacy skills

and who need intensive support before the practices described here are relevant to their proximal academic development.

Given the critical connections between literacy and thinking/learning, examining the role of literacy development within the context of content-area instruction seems a promising strategy for identifying important new practices. Both the adolescent literacy literature and the ELL literature stress the need for helping all learners develop a sophisticated set of literacy habits and skills for the demands of employment, higher education, and personal success in the 21st century. Langer (2002) writes that secondary students must develop "high literacy,"

> . . . the ability to use language, content, and reasoning in ways that are appropriate for particular situations and disciplines. Students learn to "read" the social meanings, the rules and structures, and the linguistic and cognitive routines to make things work in the real world of English language use, and that knowledge becomes available as options when students confront new situations. This notion of high literacy refers to understanding how reading, writing, language, content, and social appropriateness work together and using this knowledge in effective ways. It is reflected in students' ability to engage in thoughtful reading, writing, and discussion about content in the classroom, to put their knowledge and skills to use in new situations, and to perform well on reading and writing assessments, including high stakes testing. (p. 2)

Colombi and Schleppegrell (2002), in discussing the literacy needs of first and second language learners, offer a similar definition for "advanced literacy":

> . . . the kind of meaning-making that is typical of secondary and postsecondary schooling, and that is also required for participation in many of the professional, technical, bureaucratic, and social institutions of our world. We focus particularly on educational contexts, where students need to work in content areas that have particular ways of making meaning. Students' learning of disciplinary knowledge requires participation in social context where texts are actively constructed. Students need to be able to participate in literacy in ways that enable them to contribute to the evolution of knowledge by shaping what is learned and shared, or by challenging current practices and developing new ways of using language in advanced literacy contexts. . . . In today's complex world, literacy means far more than learning to read and write in order to accomplish particular discrete tasks. Continual changes in technology and society mean that literacy tasks are themselves always changing, calling for skills in handling technical, bureaucratic, and abstract language; often simultaneously requiring that people get meaning from print, visual, electronic, and other kinds of media. In this context of change, literacy cannot be thought of as something that is *achieved* once and for all. (pp. 2-3)

Thus, development of "high," "advanced," or "adolescent" literacy is intertwined with content-area instruction and therefore, a logical and important part of a secondary school content-area teacher's task.

What is involved with academic literacy development at the classroom level?

Reading and learning are acknowledged by researchers to be complex, interconnected, synergistic composites of cognitive and metacognitive habits and skills and socio-cultural perspectives and motivations. Given that and given the variety of literacy habits, learning styles, and skills students bring to school, it is difficult to imagine that any academic literacy support strategies emerge as promising for middle and high school students. We know, however, that good readers might use up to 30 different strategies in working with a particular text and that weak readers can be taught the strategies used by stronger readers to favorable effect on reading comprehension (Duke & Pearson, 2002; National Reading Panel, 2000; Pressley, 2001). We also know that the way in which students comprehend texts is connected to their interests, their relationship with the teacher, their assignments of task value, and their literacy identities (Guthrie, 2001; Harklau, 2000; McKenna, 2001; Meltzer & Hamann, 2004; Smith & Wilhelm, 2002). Teachers' knowledge of students' strengths, areas of challenge, and socio-cultural backgrounds, as well as their understandings about literacy, can strongly affect the quality of their instruction (e.g., Ball, 1998; Ball & Farr, 2003; Lee, 2004; Meltzer & Hamann, 2004). For content-area teachers to meaningfully and effectively address the inherent challenge of developing academic literacy habits and skills while deepening content area learning, middle and high school teachers must have an extensive knowledge base and a set of promising strategies to employ.

To investigate what adolescent literacy development might look like within the context of school reform, we conducted an extensive literature review in 2001 that was eventually summarized as the Adolescent Literacy Support Framework (Meltzer, 2001). That framework describes four components that the adolescent literacy literature consistently references as key to helping all adolescents develop literacy skills across the academic content areas. Those four components—motivation and engagement for literacy, literacy strategies for teaching and learning, paying attention to the reading and writing demands of each content area, and structures and leadership—each then subdivide into three to five practices (see Figure 1). Our approach in this paper was to look at the research on secondary-school-level ELLs through the categories identified by the framework to illustrate and clarify the applicability of the framework to improving the school experiences and outcomes of ELLs.

Figure 1: Adolescent Literacy Best Practices (Meltzer, 2002, pp. 14-16)

A. Address Student Motivation to Read and Write

• Making connections to students' lives

• Creating responsive classrooms

• Having students interact with each other and with text

B. Implement Research-Based Literacy Strategies for Teaching and Learning

• Teaching thru modeling, explicit strategy instruction,
  and using multiple forms of assessment

• Emphasizing reading and writing

• Emphasizing speaking and listening/viewing

• Emphasizing thinking

• Creating a learner-centered classroom

C. Integrate Reading and Writing Across the Curriculum

• Teaching recognition and analysis skills for discourse features

• Teaching understanding of text structures

• Explicitly attending to vocabulary development

D. Ensure Support, Sustainability and Focus Through Organizational Structures and Leadership

• Meeting the agreed-upon goals for adolescents in that particular community

• Articulating, communicating, and actualizing a vision of literacy as a priority

• Utilizing best practices in the area of systemic educational reform

• Defining adolescent literacy in relation to the larger educational program

• Providing ongoing support for teacher professional development

• Using a clear process for program review and evaluation.

Component A, addressed in Part One of this series (Meltzer & Hamann, 2004), includes recommended practices for motivating and engaging students with academic literacy tasks. It provides a foundation for the eight practices described in this paper, which are the eight recommended practices associated with Components B and C. These two components specifically attend to the actions teachers should take to ensure students' ongoing purposive development of academic literacy habits and skills. The five practices related to Key Component B are more generic than those in Key Component C. That is, they are applicable across and vary less by content areas. The three practices related to Key Component C vary according to the particular discipline being studied– for example, how one talks about, writes about, and reads about history is quite different than how those same literacy activities are carried out in science or math. Component D of the framework refers to the leadership and organizational capacities, actions, policies, and structures that support teachers to implement the practices noted in components A, B, and C.[1]

The eight practices from B and C are overlapping and synergistic, and they should be considered in relation to one another. For example, the literature reinforces that even if the goal is improved *reading* comprehension–the ability to independently transact meaning from a text–writing, speaking, listening/viewing, higher-order thinking, and metacognitive skills are all involved. It is difficult to meaningfully discuss the effectiveness of a particular "reading comprehension" strategy without examining how it uses these other modalities to support its success. In Gee's words, "Reading and writing cannot be separated from speaking, listening, and interacting, on the one hand, or using language to think about and act on the world, on the other" (2001, p.1). The centrality of *thinking* emerges in conjunction with all of these. For example, strategic reading, writing to learn, Socratic discussion, debate preparation, concept development, questioning the author, question and answer relationships, think alouds, and reciprocal teaching are cited throughout the literature as strategies to improve reading comprehension, and all involve critical thinking. Thus, literacy and thinking cannot be separated (e.g., Van den Broek & Kremer, 2000; Verhoeven & Snow, 2001).

Policy in the Face of Current Realities

Teacher preparation policies, policies related to pressure for mainstreaming ELLs, and the side effects on ELLs of policies directed at other issues (e.g., class-size reduction or assuring teachers' content area expertise) together often result in the placement of ELLs in unsupported, English-only, content-focused classes for most or all of their day. When this is not the case, ELLs are often instead segregated in environments where they have little access to authentic interaction with more competent English speakers

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[1] Adger and Peyton (1999), Coady et al. (2003), Dentler & Hafner (1997), Genessee (1999), and Miramontes, Nadeu, & Commins (1997) address some themes that a reconciliation of the ELL literature and Component D of the adolescent literacy framework would cover.

(Ruiz-de-Velasco, 2005; Scarcella, 2002; Valdés, 2001; Wong Fillmore & Snow, 2000). Neither condition provides ELLs with a quality secondary education, an important point as we identify research-grounded recommendations for how the practice of *mainstream* content-area teachers could be changed to better support the literacy acquisition and academic success of ELLs.[2] ELLs need access to academic English and they need support to assure that they will fare well academically (Callahan, 2005; Genessee, 1999).

In part because of the adequate yearly progress (AYP) expectations of *No Child Left Behind*, the pressure to support ELLs' academic success has intensified (Crawford, 2004; NWREL, 2004). Research suggests that instruction simultaneously focusing on language, literacy, and content is essential to address these students' needs (Berman, Abuto, Nelson, Minicucci, & Burkhart, 2000; Carrasquillo & Rodríguez, 2002; Echevarria & Goldenberg, 1999; Genessee, 1999; Olsen & Jaramillo, 2000; Peregoy & Boyle, 2000; Williams & Snipper, 1990). Waiting until secondary-level ELLs "learn English" before enrolling them in content-area courses ignores: (1) the fact that content can be the impetus for language learning, (2) that ELL students have already developed capacities in the content areas, and (3) that adolescent newcomer ELLs have to master content within a shortened amount of time (Brinton, et al., 1989; Carrasquillo & Rodríguez, 2002; Enright & McCloskey, 1988; Freeman & Freeman, 2001; Short, 1999). While policy changes in school management and teacher preparation programs are ultimately necessary to tackle these problems (Grant & Wong, 2003), there are teachers in secondary classrooms with ELLs who need strategies and guidance now. This paper is intended to identify research findings that could inform such guidance.

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[2] We are aware that the term *mainstream* can have hazardous implications, suggesting that those not in the mainstream are not normal and perhaps reifying their marginalization (Grey, 1991). Like Carrasquillo and Rodríguez (2002), we use the term for the sake of clarity. Terms like "grade-level classroom," proposed by Enright and McCloskey (1988), are not familiar to most readers and thus raise the risk of distracting from our main points. We also use the term to concur with LaCelle-Peterson and Rivera (1994) that most U.S. schooling is not designed with ELLs in mind. Mainstream thus refers to the unmodified majority of educational settings and pedagogical and curricular strategies for U.S. schools. We want to emphasize rather than obscure the fact that these are the settings that ELLs increasingly negotiate. Of course, the larger premise of this paper is that these environments are not intrinsically unwelcoming of ELLs: There are practices recommended in the adolescent literacy and ELL literatures in which secondary-level mainstream teachers can engage that would improve these environments' responsiveness to ELLs.

II. Methodology

"The literatures for some of the most prominent topics in education are multivocal. They are characterized by an abundance of diverse documents and a scarcity of systematic investigations. Despite the nature of the literatures, the salience of these topics generates interest in, and requests for, reviews of the available information."

—Rodney Ogawa and Betty Malen (1991, p. 266)

This paper is the product of two overlapping research reviews, one looking at research on the academic literacy development of adolescents and one at the educational experiences and learning needs of adolescent ELLs. Both of these areas of inquiry are relatively new and under-developed, with a particular scarcity of longitudinal studies, studies using experimental designs, and research reviews (Alvermann, 2001; Curtis, 2002; Kamil, 2003; NWREL, 2004). When possible, we have been careful to look at such studies (e.g., August & Hakuta, 1997; Fitzgerald, 1995a, 1995b; Henderson & Landesman, 1992; Thomas & Collier, 2002) and have also read broadly throughout academic content areas and disciplines of educational research to substantially triangulate our reviews. In general, for both reviews we used a strategy supported by the National Research Council's (2002) *Scientific Research in Education*, whose authors noted, "Rarely does one study produce an unequivocal and durable result; multiple methods, applied over time and tied to evidentiary standards, are essential to establishing scientific knowledge" (p. 2).

During our initial review of the adolescent literacy literature, carried out in 2001 (see Meltzer, 2002; Meltzer & Hamann, 2004), we sought to understand the characteristics of school and classroom contexts that support and promote adolescents' academic literacy development at the secondary school level. Because literacy is more than just reading and writing, we examined research from other fields as well, including motivation, cognition, English language arts, secondary school content-area instruction, and secondary school reform. In addition, we investigated what the research says about ongoing adolescent literacy development across the content areas to improve reading comprehension and success with academic literacy tasks (e.g., responding to reading, discussion of text, writing papers, and making presentations) for students who are not meeting standards, but who do not struggle with the initial building blocks of literacy such as decoding and basic fluency. In our review, we repeatedly asked: What should teachers be doing in classrooms on a regular basis to ensure content

learning and literacy development of students who "struggle" with at least some types of text? How can students achieving below grade level get up to grade level? How can average students who might fall behind over time without support or above average students who do not yet have strategies for facing the more advanced academic literacy challenges they will encounter in college be given the explicit training they need?

The more than 250 sources reviewed were identified by title searches and citation referencing and represent literature reflecting a range of research designs and traditions–quasi-experimental, qualitative, case study, meta-analytical studies, theoretical constructs, literature reviews, and evaluation studies. We continued to identify and review sources until themes appeared redundantly across multiple studies that used varying methodologies. Themes that did not appear in several studies were not pursued. By selecting only themes that were supported by different kinds of studies, we avoided distracting debate about preferred research methodologies or philosophies of reading instruction, school reform, or instructional improvement.

The original purposes of the first review were twofold: (1) to ascertain what we know about how to effectively support academic literacy development for adolescents, and (2) to support the design of research-based recommendations for secondary school educators related to content-area literacy development within the context of standards-based educational reform. Our goal was to inform the classroom practice of mainstream content area teachers. The results of this review were consolidated into the Adolescent Literacy Support Framework (Meltzer, 2001). Since 2001, the original review was summarized (Meltzer, 2002) and updated (Meltzer & Hamann, 2004), and the recommended research-grounded practices of each component of the framework have been re-examined and ultimately reinforced. For example, recent reviews of the literature by others (e.g., Biancarosa & Snow, 2004; Curtis, 2002; Duke & Pearson, 2002; Kamil, 2003) and edited volumes of the reading research (e.g., Block & Pressley, 2002; Farstrup & Samuels, 2002; Morrow, Gambrell, & Pressley, 2003; Strickland & Alvermann, 2004) have reiterated the importance of Component B and Component C literacy support strategies to promote academic literacy development across the content areas.[3]

The second review looked for congruence or discrepancy with the recommended practices discovered through the first review. We examined the literature on secondary-level schooling and ELLs to identify effective instructional practices that support academic literacy development and content-area learning for ELLs. Faltis (1999), Garcia and Godina (2004), Ruiz-de-Velasco (2005), Walqui (2004), and others have

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[3] The original and follow-up reviews of the adolescent literacy research did not look at the special education literature in general, but did include some experimental studies related to teaching reading strategies to adolescents with reading disabilities (e.g., Bakken, Mastropieri, & Scruggs, 1997) and evaluation studies of cognitive strategy routines that appear effective within the context of content-area teaching and learning with students who have learning disabilities (e.g., Clapper, Bremer & Kachgal, 2002).

noted that the educational research on ELLs in secondary education is quite limited. However, the 2004 NWREL report, *English Language Learner Programs at the Secondary Level in Relation to Student Performance*, presents an annotated bibliography of 73 studies on this topic. That list was the starting point for the second literature review. It prioritized studies that met new NCLB scientifically based research criteria, were published since 1990, referenced students in middle and/or high school, looked at student performance outcomes, provided information about history of ELL education research, included a variety of study types, were carried out in the U.S., and/or addressed the teaching of English (p. 7). Seventeen of the 73 annotations from NWREL that identified as sharing substantive information on teachers' classroom behaviors and attitudes (p. 20) were considered particularly carefully.

Additionally, we sought out studies and research syntheses that address middle and high school ELLs' performance in various academic content areas (e.g., Anstrom, 1997; Ballenger, 1997; Carrasquillo & Rodríguez, 2002; Gutiérrez, 2002; Quiroz, 2001; Warren, Ballenger, Ogonowski, Rosebery, & Hudicourt-Barnes, 2001) because the research on ELLs has often focused only on language acquisition and not attended to subject-area learning (Callahan, 2005; Casanova & Arias, 1993). To expand our pool of studies, we also looked at research on content-based instruction for post-secondary students and adults (e.g., Brinton et al., 1989; Curry, 2004; Stryker & Leaver, 1997) and upper elementary school students (e.g., Carlo et al., 2004; Doherty, Hilberg, Pinal, & Tharp, 2003; Fitzgerald, 1993). In general, we did not give great weight to the studies on different kinds of environments and populations. However, given the relative scarcity of information on content-acquisition strategies for ELLs in secondary school; given that upper elementary, secondary, post-secondary and most adult education efforts expect the use of literacy skills for content learning; and given that we were trying to uncover any research that contradicted the consistent themes we were seeing, it made sense to explore whether upper elementary, post-secondary and adult education sources could help. Thus, for the second review, the initial body of research identified by NWREL (2004) was extended.

Methodologically, both reviews can be characterized as "reviews of multivocal literatures" (Ogawa & Malen, 1991), where the goal is to identify themes or discrepancies across studies of different types. In accordance with this strategy–a strategy similar to that used for ethnology (Erickson, 1986; Noblit & Hare, 1995; Osborne, 1996)–we reviewed studies that supported certain assertions and then made an equal effort to identify studies that were contrary to the assertions. As part of this quest to find contradictory evidence, we did not restrict our reviews to particular journals, methodologies, or time periods (although most of what we reviewed was published after 1985). We found certain strategies recommended again and again in the research, so one purpose for expanding our review was to broaden our search for counterexamples or challenges.

The next two sections of this paper focus on specific literacy support strategies confirmed by the adolescent literacy literature review as central to teaching and learning that promotes academic literacy development at the secondary level. In each of these sections, we begin with a brief summary of the adolescent literacy literature undergirding the highlighted promising practice. This is followed by a discussion of our findings from the ELL literature related to the use of each practice. The pedagogical implications of any overlap across the two literature bases are highlighted throughout each section. Finally, Section V shares some conclusions and implications for policy.

III. Research-Based Teaching Strategies for Developing Adolescent Literacy Across the Content Areas

"The integration of language and content should relate language learning, content learning, and the development of thinking, and should aim to find systematic connections among them."

—Bernard A. Mohan (1990, p. 113)

The growing body of research on effective academic literacy development for adolescents basically divides into two types: literacy support strategies that are generically useful irrespective of classroom context and topic matter, and literacy support strategies that vary substantially in implementation according to disciplinary context. This section focuses on five sets of synergistic classroom practices found throughout the adolescent literacy research to improve academic literacy development, including reading comprehension, and content-area learning throughout content areas:

(1) Specific attention to improving reading comprehension through teacher modeling, explicit strategy instruction in context, and use of formative assessment;

(2) More time spent reading and writing–more reading and writing assignments accompanied by more reading and writing instruction;

(3) More speaking, listening, and viewing related to the discussion, creation, and understanding of texts;

(4) More attention to the development of critical thinking and metacognitive skills as key parts of academic literacy tasks; and

(5) Flexible grouping and responsiveness to learner needs.

Researchers have examined the results from the combined use of some or all of these practices in specific content areas (e.g., Doherty et al., 2003; Flynn, McCulley, & Gratz, 1986; Guthrie, Wigfield, & Perencevich, 2004; Langer, 1999, 2002; Moll & Allen, 1982; Pugalee, 2002). They have also examined particular strategy routines that combine several of the promising practices and can be used throughout the content areas (e.g., Alfassi, 2004; Anderson & Roit, 1993; Klingner & Vaughn, 1996; Klingner, Vaughn, & Schumm, 1998; Palincsar & Brown, 1984; Rosenshine & Meister, 1994; Schumaker & Deschler, 1992) and in required, year-long literacy courses for all

students (e.g., Schoenbach, Greenleaf, Cziko, & Hurwitz, 1999). In all cases, students using or experiencing some combination of these practices improved their learning, although in a few cases the scores of the students in experimental groups on one of the outcome measures were not statistically different than the scores of control groups (e.g., Farragher & Yore, 1997). The ELL literature generally agrees that to maximize literacy development, assignments should require students to use reading, writing, speaking, and listening skills and should contain aspects that draw students' attention to both spoken and written language use (their own and others) as well as content (Anstrom, 1997; Carrasquillo & Rodríguez, 2002; Doherty et al., 2003; Enright & McCloskey, 1988; Wong Fillmore & Snow, 2000).

The adolescent literacy research offers a clear picture of the teaching and learning practices that support literacy development and enhance content-area learning. Indeed, study of classrooms or control groups where these practices were not present (e.g., Bakken et al., 1997; Christie, 2002; Stahl, Hynd, Britton, McNish, & Bosquet, 1996) reinforce the findings of Alvermann, Hynd, and Qian (1995), who wrote: "The results of our content analysis of students responses in the question/answer condition suggest that when left to their own device, students tend to use immature and ineffective study strategies" (p. 153). From the literature, it appears that the key to adolescent literacy development and content area learning is for most or all of the identified useful practices to occur regularly as part of every student's middle and high school program. This conclusion, also put forth by Biancarosa and Snow (2004), has yet to be confirmed conclusively by multiple longitudinal studies.

One of the themes common to all five general promising practices is that of *questioning*. Questioning is effective for improving comprehension because it provides students with a purpose for reading, focuses attention on what must be learned, helps develop active thinking while reading skills, helps monitor comprehension, helps review content, and relates what is being learned to what is already known (Armbruster, Lehr, & Osborn, 2001). Questioning comes up throughout the literature in a variety of ways. For example, reading comprehension strategies such as Question and Answer Relationship (QAR), Questioning the Author (QtA), Question Exploration, and the Framing Routine all explicitly involve asking questions of the text–and each has a limited research base suggesting its effectiveness (e.g., Beck & McKeown, 2002; Deshler et al., 2001; Raphael, 1986). Having students generate their own questions about a text has been shown to be an effective strategy for improving reading comprehension (Duke & Pearson, 2002; National Reading Panel, 2000; Rosenshine, Meister, & Chapman, 1996). Ogulnick, Shelton-Colangelo, and Williams (1998) describe their "hot seat" strategy as one way of doing this with ELLs in a literature class. In that model, students strategize in small groups about text-related questions and then act out how different characters in the text would respond to the question. Verplaetse (2000a) offers another example from a middle school science class where students are encouraged to speculate, wonder, hypothesize, and offer explanations.

Questioning is also a part of several other learning strategies. For example, writing to learn strategies enacted in response to higher-order thinking questions, Socratic discussion, use of analytical graphic organizers, inquiry-based learning, and collaborative routines for text study (such as reciprocal teaching, collaborative strategy instruction, and collaborative strategic reading) all involve asking and answering questions, and all have been proven effective in improving literacy habits and skills, including reading comprehension. Similarly, developing metacognitive skills requires asking oneself if a particular text is making sense and, if not, why not. Finally, activating prior knowledge, described in the literature as an essential way to connect students with text and improve reading comprehension and the ability to learn from text, requires asking questions. Because questioning is a common theme throughout the literature and applies to a variety of different skills, we have chosen to discuss it as part of each of the five promising practices reviewed in this section.

Another common theme that underlies these promising practices is the importance of interacting with and actively processing text in order to improve reading comprehension and learning. That is, students are required to do something with the text, not just pass their eyes over the words, unsure of where to focus. Doing something might involve questioning the text (as described above); creating visual representations of the text; paraphrasing through structured note taking or readers' theatre; summarizing verbally or in writing; coding or comprehension monitoring when reading; or developing a response to the text that involves transposing, reorganizing, or rewriting certain sections. Studies indicate that students using these strategies learn more from the text, retain more of the information for a longer time, and improve their strategic reading skills (e.g., Serran, 2002). There is some evidence that this is also the case for reading disabled or delayed adolescents (e.g., Bakken et al., 1997; Clapper et al., 2002).

Some Notes About Reading, Strategy Instruction, and Content Area Learning

Before describing the practices, we note three important shifts in how "reading" is understood and three important connections between reading and content-area instruction. First, there is no longer a belief that reading is learned "once and for all." Due in large part to the seminal work of Jeanne Chall (see, e.g., Chall, 1996), reading development is now seen as a continuum. There is growing awareness that students who need initial assistance to "learn to read" may need continued instruction on the use of increasingly challenging texts as they move through the middle and upper grades.

Second, there is increasing acceptance that the task of reading differs according to purpose and genre. Reading an article for facts is different from reading a mystery novel for pleasure. Teaching adolescents about genre-based differences in reading requires that the teacher act as an expert reader, modeling for students how to approach reading in a variety of texts. This emphasizes reading as an activity requiring both metacognitive and higher-order thinking and reinforces the goal of transacting meaning from a text. (See, e.g., Schoenbach et al., 1999; Wilhelm, Baker, & Dube, 2001.)

Third, there used to be a belief that some people were good at reading and/or writing; some were not and there was not much that could be done about it. The research is resoundingly clear that this is not the case. There is clear evidence that poor comprehenders do not use as many or as powerful strategies as good comprehenders do when it comes to complicated texts (Collins, 1994; Kletzien, 1991), and that differences do exist between better and poorer readers in the area of metacognitive skills–methods for learning, studying, or solving problems, and awareness of one's own thinking processes (Duke & Pearson, 2000; Pearson, Roehler, Dole, & Duffy, 1992). Studies show this is the case for ELLs as well (see, e.g., Song, 1998). However, researchers are now in agreement that poorer readers can be taught the strategies that better readers use (e.g., Alvermann & Moore, 1991; Collins, 1994; Palincsar & Brown, 1984; Rosenshine & Meister, 1994; Weinstein & Mayer, 1986). This seems to be true for ELL readers as well (Song, 1998).

These shifts have obvious implications for classroom instruction at the middle and high school level where reading instruction has long been seen as either remedial or within the purview of the English department–if considered at all (Peterson, Caverly, Nicholson, O'Neal, & Cusenbary, 2000). The following subsections each discuss one of the five sets of generic promising practices that support academic literacy development across the content areas. We present an overview of the adolescent literacy research that grounds the recommended practices, followed by a discussion of the literature related to the instruction of ELLs.

A. THE ROLES OF THE TEACHER – MODELING, EXPLICIT STRATEGY INSTRUCTION IN CONTEXT, AND USE OF FORMATIVE ASSESSMENT

Teachers need to model, explicitly teach, and regularly assess students' literacy habits and skills in order to determine what to further model and teach. This approach to teaching, discussed here in specific relation to developing adolescents' academic literacy habits and skills, is not currently part of most middle and high school teachers' regular repertoire. As the cycle of modeling, explicit teaching, and assessment undergirds the effective implementation of all of the promising practices discussed later in the paper, it is a fitting place to begin the discussion of effective generic literacy support strategies. If the cycle is implemented as described, the research suggests that it can help teachers meet the academic literacy development needs of diverse learners, including ELLs.

Teacher Modeling

Reading and writing are complex skills that vary by context. For example, reading a scientific journal does not require the same skills as reading a historical novel. Likewise, writing geometric proofs, lab reports, short stories, poems, or persuasive letters all require different approaches and skills. Each reading and writing task, therefore, requires overlapping but not identical sets of skills, some of which are highly context, purpose, or genre specific (Grossman & Stodolsky, 1995). Moreover, people who are

proficient in some aspects of reading and writing may be novices at others. Yet for all content areas, modeling and using a literacy apprenticeship framework are effective ways to make reading and writing visible and, therefore, to support the development of more sophisticated reading and writing skills (Schoenbach et al., 1999).

Throughout the literature, there is an emphasis on the efficacy of a gradual release model for teaching reading comprehension and other literacy support strategies (Beckman, 2002; Curtis, 2002; Duke & Pearson, 2002; Wilhelm et al., 2001). That is, the teacher models the use of the strategy, practices it together with the students, and has the students try the strategy with one another before expecting them to use the strategy independently. Modeling is a necessary early implementation step for successful strategy instruction. Studies show that teacher modeling has a beneficial effect on student performance (e.g., Alfassi, 2004). According to Curtis (2002), "The extent of improvement experienced by learners seems to depend on the degree to which instruction focuses on improving knowledge about when and why to use the strategy–information that seems best gained when teachers and students model the process and talk about its use" (p. 8).

The use of think alouds is one clear way that teachers can model how they approach extracting meaning from text. According to Duke and Pearson (2002), studies typically have not examined the effect of teacher think aloud by itself,

> . . . but rather as a package of reading comprehension strategies. Therefore, although we cannot infer directly that teacher think aloud is effective, it is clear that as part of a package, teacher think aloud has been proven effective in a number of studies. For example, think aloud is part of the Informed Strategies for Learning (ISL) program (Paris, Cross, & Lipson, 1984), reciprocal teaching…[and] the SAIL program all of which have been shown to be effective at improving student comprehension. It is also an important part of the early modeling stages of instruction in many comprehension training routines, for example the QAR work of Raphael and her colleagues (Raphael, Wonnacott, & Pearson, 1983) and the inference training work of Gordan and Pearson (1983). These studies suggest that teacher modeling is most effective when it is explicit, leaving the student to intuit or infer little about the strategy and its application, and flexible, adjusting strategy use to the text rather than presenting it as governed by rigid rules. Teacher think aloud with those attributes is most likely to improve students' comprehension of text. (pp. 235-236)

Originally, think alouds were used primarily as a qualitative research tool to determine what readers do as they read. They are now seen as ways for teachers and students to communicate how they are thinking as they read and how they are approaching a given reading task. Using think alouds, a teacher can model the practice for students and thus can model expectations of how to complete an academic literacy task by providing questions about the task, how to "fix" comprehension breakdown, how to connect the task to prior knowledge about the topic, and how one might go about organizing a

thoughtful verbal or written response to text (Kucan & Beck, 1997). The ultimate goal is that the practice of "thinking aloud" becomes an integral part of the way the classroom community approaches text–that is, to change the classroom academic culture.

> From a social constructivist perspective, the potential result of participating in a social situation involving reading and thinking about texts is that individual students can draw upon the teacher and other students to help them construct not only an understanding of text ideas, but also an understanding of what it means to read and think about texts. (Kucan & Beck, 1997, p. 289)

There is increasing evidence that student think alouds also have positive effects on reading comprehension. (See the section on "thinking" later in this section.)

Relevance for ELLs

Hamayan (1990) asserts that mainstream teachers should see themselves as models of academic use of English for ELLs (or, as she puts it, potentially English-proficient students). In noting this prospective role, she acknowledges both that ELLs are often isolated from native speakers of English and that, even when they are exposed to L1 (first language) English peers, the peers' English might not be a good model of academic English. Valdés (2001) has also been critical of ELLs' frequent lack of access to good models of academic English, noting that the junior high ESL teachers she has observed were both substantially outnumbered (as the only native English speakers in classrooms of 30 or more students) and often "modeled" an overly simplified version of English.

Hadaway, Vardell, and Young (2001) describe the effectiveness of using poetry to scaffold oral language development and serve as an entry to content learning for ELLs. In discussing how to best use poetry as a language, literacy, and learning scaffold, they emphasize the importance of teacher modeling, whether the instructional goal is oral interpretation, analysis or writing of poetry or use of poetry as a bridge between prior knowledge and experience and new content learning.

Curry (2004, p. 7) discusses the necessity of modeling for ELLs within the community college setting with regard to "providing examples of the types of texts they are expected to produce," but she stresses that faculty should clarify that students are not simply to imitate exemplars. Curry also discusses the value of modeling questioning strategies as well as types of questions to ask. As with other strategies, it is essential that students practice questioning techniques after they are modeled. She notes that some cultures consider it rude to question the teacher. Referring to Chen, Boyd, and Goh's work (2003) about how to help under-prepared Chinese students negotiate college successfully, Curry notes that many ELLs do not realize that questioning is an expected form of participation in U.S. classrooms.

Hamayan (1990) describes a related role for mainstream teachers of ELLs: that of cultural mediator. She is careful to characterize this role as multi-directional. In other words, modeling academic English should not be viewed as a task of assimilating the students, but rather a task of supporting a student's access to the language, genres, and habits that mark academic success, without sacrificing the student's cultural and linguistic identities. This observation is related to student motivation and engagement (and thus is addressed more in Meltzer and Hamann, [2004]), but it is raised here because of its relevance to effective modeling of academic English.

Explicit Strategy Instruction in Context

The research recommends that literacy skills and strategies be taught and used in the context of reading, writing, and learning rather than solely or primarily practiced in isolation. This is the direct opposite of the "skill and drill" worksheets often used for remediation (Langer, 2001; Schoenbach et al., 1999). The research does not show strong results for ELL or other students who learn skills in isolation and then are expected to apply or transfer those skills appropriately on their own. However, there is ample evidence that a number of particular literacy strategies, when explicitly taught, modeled, and practiced in context, enhance the ability of secondary school students to use reading and writing skills to learn throughout the content areas (Alvermann & Moore, 1991; Rosenshine, 1997; Rosenshine & Meister, 1994; Rosenshine et al., 1996; Schoenbach et al., 1999). The research emphasizes that reading comprehension can be greatly improved through regular use of certain strategies before, during, and after reading. Explicit teacher and student use of strategies that support the activation of prior knowledge, questioning, clarifying, visualizing, predicting, and summarizing in context leads to improved reading comprehension and content-area reading skills (e.g., Alfassi, 2004; Bakken et al., 1997; Langer, 1999; National Reading Panel, 2000; Palincsar & Brown, 1984; Ruddell & Unrau, 1996; Symons, Richards, & Greene, 1995; Wilhelm, 1995). Effective strategies recommended in the literature include the use of anticipation guides, KWL, reciprocal teaching, graphic organizers, question generating, directed reading-thinking activity (DRTA), think alouds, sensory imagery, drama, art, and structured note taking (Billmeyer & Barton, 1998; Buehl, 2001; Christen & Murphy, 1991). The research also supports efficacy of explicit instruction in the use of reading and literacy strategies to prepare students to take tests, a context students are finding to be increasingly consequential (Guthrie, 2002; Langer, 1999).

Relevance for ELLs

Montes (2002) describes the successful implementation of the Content Area Program Enhancement (CAPE) model based on the Cognitive Academic Language Learning Approach (CALLA) in one Texas district. Schools that fully implemented the model were more effective with ELLs, including those at risk of dropping out of school, in terms of student achievement outcomes. The model included intensive professional development for teacher teams and required teachers to change their classroom strategies to encourage more collaborative learning. The model also required teachers *to explicitly*

teach at least one CALLA strategy as applicable at each class session, "either cognitive (resourcing, grouping, note taking, elaboration of prior knowledge, summarizing, deduction, induction, imaginary or making inferences) or metacognitive (organization, planning selective attention, self-management, self-assessment)" (p. 699).

In her review of effective instructional practices for ELLs within the content areas, Anstrom (1997) notes the importance of having mainstream teachers make explicit their expectations for student work. Anstrom also notes the special importance for ELLs of learning from purposely varied instructional strategies. That is, ELLs, like many students, learn best when they have a mix of individual, small group, and whole class work. Within those formats, teachers can use direct instruction, guided discovery, cooperative learning, and computer-assisted instruction.

Curry (2004) stresses that effectively communicating requirements and expectations is critical for ELLs' success at the community college level as well. This communication should include the explicit teaching about the meaning of key words in essay questions, modeling and explaining how to approach essay writing, providing written directions and guiding questions for assignments, and explicitly teaching what she terms "contrastive awareness." Referring to Steinman's (2003) work, Curry discusses several strategies for explicit instruction in how disciplinary texts differ from one another, how broader genres (letters to the editor, laboratory reports, reflective essays) differ, and how students can be helped to understand how their first languages are similar and different from the discourses of each of the academic disciplines they are being asked to study.

In their review of effective practices for teaching reading to ESL students, Nurss and Hough (1992) conclude, as one of seven findings, that the research supports the need for teachers to "provide instruction in how to comprehend content materials and to acquire study and test taking skills" (p. 307). August and Pease-Alvarez (1996) propose that teachers can meet the needs of a wider variety of students through the use of multiple approaches. Walqui (2000b) also argues that, to serve ELLs well, teachers need a flexible curriculum, both in content (relevant to age, abilities, interests, students' cultural backgrounds) and in delivery (project-based, authentic, coherent).

Uses of Multiple Forms of Assessment

When teachers use multiple forms of assessment, it allows them to better modulate instruction to match students' literacy needs (Langer, 1999; Peterson et al., 2000). If assessment purpose and design are shared with students, multiple forms of assessment can help students understand their literacy strengths and areas of challenge, thereby empowering students to take better charge of their learning. Literacy assessment strategies include writing and presentation rubrics; self-assessment inventories; cloze passages; individualized reading inventories (IRI); teacher-created assignments; and, where appropriate or mandated, standardized or standards-based tests.

Ongoing formative assessment provides teacher and student alike with useful information about the student's literacy habits and skills and/or the student's content knowledge and is recognized throughout the literature as critical for improving academic literacy habits and skills (e.g., Biancarosa & Snow, 2004). Use of more than one form of assessment makes it easier for assessment to be responsive to student needs, learning styles, and strengths, greatly improving the chances that, over time, assessments will accurately reflect learning and alert teachers to additional areas for attention (Moore et al., 1999; Quenemoen, Thurlow, Moen, Thompson, & Morse, 2004; Solano-Flores & Trumbull, 2003). Examples of informal assessments that provide teachers with feedback about students' reading comprehension and concept development include quick writes, written and verbal summaries, completion of concept maps, and analytical graphic organizers. These are vehicles that can be used as assessment strategies and modeled as learning strategies for students to adopt (NCTE, 2004). Involving students in rubric development is another way to respond to students' need for voice and input as well as to learn what they value and respect in high quality written work or presentations.

This kind of formative assessment is different from that generated by large-scale, often high-stakes standardized tests. Whatever the merit of such tests, they do not provide the immediate, individualized, nuanced feedback (Sarroub & Pearson, 1998) that we wish to highlight here. Literacy assessment must be conducted in ways that reflect teachers' understandings of the languages spoken in students' homes and communities lest it incorrectly diagnose spoken and written abilities (see, e.g., Ball, 1998; Ball & Farr, 2003; Lincoln, 2003; Walqui, 2004). This is critical whether students speak "social or regional dialects (e.g., African American English, Appalachian English) or national languages (e.g., Spanish, Hmong)" (Lee, 2004, p.16) that differ from mainstream academic English. Teachers cannot provide appropriate feedback and scaffolding of learning without an understanding of what reading and writing assessments are telling them.

Relevance for ELLs

Assessment, like instruction, should be valid, responsive, and safe. That is not always easy with ELLs (Lucas, 1993; Solano-Flores & Trumbull, 2003). Content-area teachers need to remember that for ELLs, all tests are tests of language proficiency and that interpreting test results from ELLs requires separating language comprehension concerns from content-area comprehension issues (Abedi, 2004, 2005; Abedi, Hofstetter, & Lord, 2004; Jeannot, 2004; Valdés & Figueroa, 1994). For example, Greene (1998) found that bilingual programs resulted in significant achievement gains in math when measured in Spanish but that when students were tested in English, gains were insignificant. Solano-Flores and Trumbull found that ELLs' test performances vary by subject, in terms of the language in which they test better, reflecting perhaps differences in the language they were using for acquisition. It is misleading to presume that a Spanish-speaking ELL who tests better in math if the exam is in Spanish will necessarily do better on a social studies exam that is in Spanish instead of English. Also, the validity of a test in one

language of knowledge acquired through instruction in another is questionable (Abedi, 2005). In a study of high school students, Allen, Bernhardt, Berry, & Demel (1988) illustrated that the nature of the language used for a task may affect the difficulty of it because of the genres used for that task. Thus, students learning Spanish as a second language found recalling items from a magazine article the easiest in a comparison of four reading genres, but students learning French as a second language found recall from a magazine article to be the hardest.

Abedi (2005) raises a number of important validity and reliability questions about assessment and ELLs, all of which caution against the current trend of subjecting ELLs to high stakes content-area assessments presented in English. He notes that unnecessary linguistic complexity in content-area assessment can create construct-irrelevant variance among ELLs and between ELLs and other students. He adds that this problem is increasingly likely in advanced grades (i.e., secondary school) because the content being tested becomes more complex. Although he recommends that assessment of ELLs should include accommodation, he highlights a number of irrelevant accommodations (e.g., bigger type) that are offered to ELLs and notes that accommodations can raise their own hazards. How appropriate is it to assess ELLs in their native language on content they have been taught in English? How fair is it to compare ELLs' assessment outcomes on a test conducted in their native language (when instruction was in English) to L1 English-speaking classmates' test outcomes?

Teachers should note that assessments affect how students regard a classroom, a subject, and themselves as learners. It follows that assessment feedback needs to be provided thoughtfully: What is the learner hearing about his/her skill level and needed next steps and will the feedback encourage him/her to pursue the most appropriate next steps? Teachers need to recognize that adolescent ELLs often come to U.S. classrooms with preconceived understandings of schooling and assessment (Olsen & Jaramillo, 2000; Valdés, 2001). Jeannot (2004) notes that these understandings can include assumptions about appropriate ways to demonstrate knowledge on a formal assessment–for example, cultures and schooling systems differ in their embrace of the injunction "show your work." ELLs may need explicit instruction regarding both the teacher's expectations and how to meet those expectations.

However, the literature supports the notion that assessment, at least informal assessment, of ELLs should be frequent in order to provide appropriate and adequate support of ELLs' academic progress (Echevarria & Goldenberg, 1999). In content-area classes taught in English, ELLs are progressing along two dimensions–content knowledge and language acquisition. Thus, the maximally responsive teacher wants to know where a given ELL is on both of these dimensions. Moreover, although they are related, it does not follow that a given ELL's language acquisition and content knowledge acquisition will proceed at the same pace. Thus, over the course of a semester a teacher may need to respond to an ELL's varying struggles with language or content.

At the community college level, Curry (2004) notes that faculty need to be aware of the limitations of the diagnostic gatekeeping and placement decisions based upon the testing of ELLs' reading, writing, and grammar skills in English. She notes how ELLs' responses to multiple choice grammar tests may not provide accurate or useful information about students' abilities to write, yet are often used for ease of scoring. She suggests that unfamiliarity with topics, anxiety about time limits, and inauthentic testing conditions that do not reproduce real world social, academic, or professional contexts may also produce invalid information about ELLs' writing ability. Referencing Hall (1991), Curry comments that ELLs in these conditions often have time to produce only one draft, may focus on surface features instead of substance, and often do not have dictionaries and other resources to use. She advocates that portfolio assessments as well as tests should be used when testing ELLs' writing proficiency if the goal is to accurately understand students' skill levels.

In a paper on recommendations for what mainstream teachers can do with ELLs, Hamayan (1990) raises the notion of assessment as a collaborative teacher responsibility. She notes that ELLs (like secondary students generally) often have multiple teachers who independently assess how much a student knows and how that student is progressing. Hamayan suggests that these teachers confer with each other, sharing their assessments, and thus identifying and perhaps troubleshooting assessment discrepancies that may better reflect the limitations of the assessment instead of the limitations of the learner.

B. EMPHASIS ON READING AND WRITING

The second recommendation from the research is an increased emphasis on reading and writing instruction within the context of content-area learning. The research supports the common-sense notion that time spent reading and writing will improve those skills (Davidson & Koppenhaver, 1993; Duke & Pearson, 2002). For example, regularly scheduled time for sustained silent reading, when effectively implemented either school-wide or as a regular element of a course, has been linked to building a positive literacy culture. Sustained silent reading time supports reading practice, addresses the needs and interests of a variety of learners, and improves reading skills, including among ELL students (Flaspeter, 1995; Ivey & Broaddus, 2000; Mosher, 1999; Pilgreen, 2000; Schoenbach et al., 1999). Effective implementation seems to be a key qualifier, however, because there are some studies in this area that do not show consistent positive gains (e.g., Yoon, 2002).

Chances to practice are not enough; there is growing consensus that to support students' abilities to maximize learning from texts, content-area teachers need to provide content-area reading *instruction* as part of teaching in the content-focused classroom (e.g., Jacobs, 1999; Langer, 2002; Moore, Alvermann, & Hinchman, 2000; Vacca, 2002). Opportunity and expectations to read and write, while essential, will not by themselves ensure the development of academic literacy habits and skills.

Newer scholarship shows an increased understanding of the ways that reading and writing reinforce one another and contribute to content learning (e.g., Yore, Shymansky, Henriques, Chidsey, & Lewis, 1997). This represents a shift; traditionally, reading and writing have been conceptualized as related but sufficiently different that one could be engaged without conscious reference to the other. The literature differentiates between *writing instruction* and *writing to learn*, although both are acknowledged as inextricably related to reading, thinking, and content learning. There is a growing body of research emphasizing the efficacy of using writing to learn strategies. In conjunction with the use of written texts, there is evidence that writing to learn can contribute to improved reading comprehension and content learning (e.g., Boscolo & Mason, 2001; Pugalee, 2002; Spanier, 1992; TePaske, 1982). Thus, both discussion of texts and production of texts are seen as important to developing content-area literacy and learning.

Examples of writing to learn strategies that simultaneously increase content understanding and improve reading and writing skills include paired reading, quick writes, peer conferencing, creation of Reader's Theatre scripts, use of Jigsaw groups to discuss different short readings on the same topic, use of a Readers' Workshop approach, use of a Writers' Workshop approach, rereading assignments for a different purpose, rewriting text from other points of view, use of literature circles, dialogic journals, use of learning logs, and connecting text with other media using a critical literacy perspective. The literature suggests that before, during, and after reading comprehension strategies should be linked to provide scaffolding for struggling and average readers as they work with advanced texts.

Effective writing instruction gives students frequent opportunities to write, accompanied with feedback and opportunities to edit and revise, along with guidance in how to do so (Williams, 2003). However, in lower track high school classes that have more students needing to develop their literacy skills, instruction is much less likely to focus on advanced writing tasks (like revising text and writing based on multiple sources) that would enhance literacy. More likely is a focus on dictations, short answer activities, and other similar tasks that limit writing practice (Harklau et al., 1999; Oakes, 1985). In this context, Callahan's (2005) finding that track placement is a better predictor of ELLs' academic success than their measured English proficiency is not surprising.

Research suggests that opportunities to create, discuss, share, revise, and edit a variety of types of texts helps develop content-area understanding and familiarity with the types of texts found in a particular content area, as well as developing reading, writing, speaking, and listening skills. Encouraging students to pursue these opportunities improves written communication skills, thinking skills, and memory (Alvermann & Phelps, 1998; Cotton, 1991; Langer, 1999; Schoenbach et al., 1999). The literature, however, warns that in order to provide helpful feedback to students about their writing, teachers need to know their students' writing strengths and challenges and they need to have a plan for helping students develop academic writing skills. This may be especially

true for those students who speak non-standard varieties of English–for example, African American Vernacular English or Appalachian English (Ball, 1998; Ball & Farr, 2003; Baugh, 2002; Moore et al., 2000; Perry & Delpit, 1998).

Several researchers have identified essential components of the classroom that successfully supports increased reading and writing (e.g., Duke & Pearson, 2002; Ivey & Broaddus, 2000; Langer, 1999, 2002; Ruddell & Unrau, 1996). Some have provided explicit descriptions of good instruction that elicits quality reading and writing from reluctant readers and writers by engaging students in their own literacy development (e.g., Schoenbach et al., 1999) or building directly on the literacies that students bring with them to school (e.g., Lee, 2004). However, researchers who have studied the ecological interactions–that is, the combined environmental conditions and discourse patterns that characterize classrooms–note that developing and sustaining a classroom that truly fosters critical reading and writing habits is a far more complex endeavor than the lists of elements cited as part of effective reading and writing instruction would suggest (e.g., Nystrand & Graff, 2001).

Relevance for ELLs

In a review of 110 articles on reading English as a second language, Fitzgerald (1995b) found that reading instruction targeting specific student knowledge, such as vocabulary knowledge, background knowledge, and text-structure knowledge was generally effective. Au (2002) notes:

> Traditional approaches to teaching reading to students of diverse backgrounds have not been effective. Instead, these traditional approaches, such as grouping and tracking and a heavy emphasis on skill instruction, have formed systems or patterns that put students of diverse backgrounds at a continued disadvantage in learning to read. . . . The solution to the problem seems to be that we must put new systems or patterns in place. . . . We must make sure that students of diverse backgrounds have the opportunity to participate in literature-based instruction and the readers' workshop, following a continuum of teaching strategies that involves them in motivating, meaningful reading experiences. The continuum of strategies is supplemented with intensive instruction, as needed, in areas such as decoding and comprehension (p. 409).

Peregoy and Boyle (2000) note that with intermediate ELL readers, the deliberate and purposeful uses of *before* (e.g., purpose for reading, activating background knowledge, introduction of vocabulary), *during* (e.g., teacher and student co-reading, prediction, paired reading, student response logs, use of graphic organizers such as story maps), and *after* strategies (e.g., mapping, dramatization, creating a mural, writing reader's theatre scripts) are critical for supporting comprehension and content recall (p. 245-246).

Text itself emerges in the ELL literature as a key instructional aid for content-area learning. Scarcella (2002) identifies it as essential input for advanced literacy development. Harklau (2002) notes that the act of producing text (writing) in addition to speaking and listening activities seems to be more effective than lecture or discussion alone for enhancing content-area learning and academic literacy development. She also notes that the reviewability of text is a key and often preferred feature for ELLs. Unlike oral communication (which, unless recorded, disappears as fast as it is spoken), written text is available for ongoing examination, which allows ELLs (and other learners) to reread, to check emergent interpretive hypotheses, to compare to L1 literacy rules and conventions they may know, and to practice repeatedly.

Peregoy and Boyle (2000) note that "transfer of literacy ability from one language to another depends on the similarities and differences between their writing systems," including the unit of speech symbolized by each character, directionality, and spacing conventions. They suggest that "specific differences among writing systems must be explicitly addressed when teaching English reading to students who are literate in their primary language" (p. 241). At the very least, the fact that there are differences and what the conventions of print are in English need to be explicitly taught.

Schleppegrell (2004) finds that Silva's (1993) synthesis of 72 research reports comparing the composing processes and written text features of native versus second language adult writers of English and a number of reports on writing by speakers of English as a second language or dialect (i.e., Hinkel, 2002; Kutz, 1986; Schleppegrell, 1996; Shaugnessy, 1977; Whiteman, 1981) all raise an interesting point: In developing an "academic" style of writing, most ELLs rely heavily on oral language features in their writing. In adults, the writings of ELLs are less fluent (fewer words), less accurate (more errors), and less effective. They use longer clauses, more conjunctions as connectors, less noun modification, and fewer lexical ties–less sophistication and overall cohesion. L2 writers of English also rely more on personal anecdotes rather than on reasoned arguments in persuasive writing. Schleppegrell (2004) also notes that second language English writers tend to use "because" clauses more often than L1 English speakers. The use of "because" is often illogical, or makes the writing too informal or underdeveloped (p. 107). She posits that this likely reflects a transfer from oral language habits and notes that Goldman and Murray (1992) also found that second language writers overused causal connectors and similarly suggested that this was likely a transfer of habits developed in informal conversational contexts. Most importantly, Schleppegrell suggests that students who produce such sentences need explicit instruction and new strategies for introducing their judgments and assessments and that they need help recognizing that the forms they are using are less effective in academic writing than in informal interaction. They need to be shown how oral and written registers of English differ from each other. Writing in English often presents a major challenge for ELLs, even for those who have mastered academic writing in their first language. These challenges overlap with those faced by users of non-standard dialects of English. Supportive

explicit instruction helps these learners master the conventions of standard, academic language use (Delpit, 1995).

In another example, Schleppegrell (2004) references how ELLs' writing also can reflect common training and activities from ESL classes. For example, if in such settings students are often encouraged to write personal narratives, it follows that a first impulse in writing in any content area is to write as if the genre calls for a personal narrative (p. 150). She cites Hinkel's (2002) work to support this assertion, adding, "Teachers need to create opportunities for students to write different types of texts and help them focus on how those texts are most effectively constructed so that students can extend their repertoires and make register choices that realize new and more challenging genres" (p. 151).

C. EMPHASIS ON SPEAKING, LISTENING, AND VIEWING

Purposeful integration of speaking and listening skills into the content-area classroom improves reading comprehension and writing skills (Applebee, Langer, Nystrand, & Gamoran, 2003; Wilkinson & Silliman, 2000). Allowing for regular exchanges and use of spoken language, both interactional and transactional, supports the development and expansion of ideas and allows learners to articulate connections between their prior knowledge and the topic at hand. Frequent collaborative opportunities to test ideas for writing, including opportunities to brainstorm, organize, write, read, share, revise, and present work, can build multiple literacy skills. Speaking and listening strategies can also reinforce the apprenticeship framework of literacy learning and can assist with scaffolding, motivation, and drawing connections to texts (e.g., Greenleaf, Schoenbach, Cziko, & Mueller, 2001; Krogness, 1995; Langer, 1999; Schoenbach et al., 1999). Examples of the wide variety of ways in which speaking, listening, and viewing can be built into content-focused teaching and learning include book talks, book commercials, readers' theater presentations, debate, PowerPoint presentations, gallery walks, news briefs, story retelling and summarizing, compare/contrast activities of written texts and visual media, translation of written text to visual representation or vice versa, structured note taking while listening/viewing, website development, website critique, literature circles, peer editing, and pair shares.

The use of classroom talk in conjunction with learning from and creating texts may be particularly useful for supporting academic literacy development in struggling readers and second language learners, especially when opportunities to talk about text are structured as small group discussions (Alvermann & Phelps, 1998; Collins, Brown, & Newman, 1989; Tharp, 1999). Adolescents are generally cognizant of small group dynamics and how small group discussion helps them understand texts (Alvermann et al., 1996). Findings suggest that peer-led discussions produced richer and more complex interactions than did teacher-led discussions and resulted in the internalization of the cognitive processes associated with engaged reading (Almasi, 1995; Almasi & Gambrell, 1994; Almasi, McKeown, & Beck, 1996; Rutherford, 1999; Weir, 1998). Indeed, time to speak and listen is built directly into evidence-based small group

reading comprehension routines including QtA (Beck & McKeown, 2002; Sandora, Beck, & McKeown, 1999), Collaborative Strategy Instruction (Anderson & Roit, 1993), Collaborative Strategic Reading (Klingner & Vaughn, 1996; Klingner, Vaughn, & Schumm, 1998), and Reciprocal Teaching (Palincsar & Brown, 1984, 1989; Rosenshine & Meister, 1994).

Although students perceive that small group discussion assists them with text comprehension, Alvermann (2000) cautions that teachers still need to help students learn how to discuss text and conduct conversations that permit all voices to be heard. She also argues that teachers need to help students "view texts as offering them positions they can either take up or resist" (p. 136-7). Other scholars agree that it is the knowledge creation that comes through the discussion of text from a critical literacy perspective that develops key academic literacy skills: understanding point of view, argument, bias, and underlying assumptions within a text (e.g., Doherty et al., 2003; Schoenbach et al., 1999; Stevens & Bean, 2003). This promotes the authentic development of student voice while improving reading comprehension. There also seems to be a direct connection between speaking and writing. Students who have the opportunity to brainstorm, organize, plan, discuss, and peer edit during writing produce better written products than those who do not (e.g., Williams, 2003).

Helping students to apply these same critical literacy skills to the analysis and discussion of visual media, including political cartoons, graphic novels, films, photographs, and images found online and on television, is also important. In daily life, students are flooded with visual images and need strategies for analyzing and evaluating their meaning and value. Several researchers (e.g., Alvermann, 2003; Leu, 2002) studying the intersections of content-area literacy with "new" literacies, including online literacies, identify this need.

Despite the demonstrated benefits of the extensive use of speaking and listening/viewing in conjunction with reading, studies have found that such activity is still not common in most secondary classrooms. When it does happen, the discussion is generally teacher controlled and governed, occurring primarily in large groups with only a small proportion of students actively participating (e.g., Alvermann & Moore, 1991; Langer, 1999; Wood & Muth, 1991). About half of the students in grades 7 and 11 report never exchanging ideas in a group discussion after reading (Applebee et al., 2003). Williams (2003) comments on the paucity of student talk overall in today's middle school and high school classrooms, noting that even when teachers believe that they do not lecture, they often do. Referring to a 1997 study by Nystrand and colleagues, Williams recounts how their study of a large sample of eighth and ninth graders revealed that

> . . . teacher-talk dominated the classes they observed. Many participating teachers insisted that their classes were "discussion based," yet Nystrand et al. observed that discussions actually averaged less than *a minute per day per class*. In the few classes in

which teachers encouraged dialogic interactions and asked authentic questions rather than questions that served merely to test knowledge, there were higher levels of achievement. (p.105)

Bennett (1984) investigated whether teachers consciously and systematically provide a bridge between informal oral language and formal text language and found that proportionally little oral language instruction took place in the classrooms in conjunction with reading. Her conclusions still seem relevant more than 20 years later:

> (1) educators need to be convinced of students' need for instruction in written language and listening opportunities at all levels, (2) classrooms need reorganizing to encourage authentic discussions, and (3) teacher training needs overhauling to include emphasis on the importance of oral language. (1984, study abstract)

Relevance for ELLs

Nurss and Hough (1992) concur with many others that oral language is a key aspect of literacy development for ELLs: "Oral language competence is needed to actively participate in literacy instruction because most of the directions, explanations, and interactions that make up instruction in elementary and secondary classrooms are oral" (p. 281). They note that ELL students need frequent verbal interactions with teachers and with peers. Teachers provide the academic and content-related language that students need, as well as language related to the management of learning and the classroom. Peers can provide socially appropriate ways of using language for communication. Both are necessary in order for ELLs to develop oral language competence in English. These needs can be accommodated within classrooms where language is used for authentic purposes. Saunders and Goldenberg (1999), in a study of fourth and fifth graders, found that when teachers used both literature logs and instructional conversations, ELLs understood the literature being studied better. Fluent English speakers appeared to learn just as well if both or only one of these strategies were applied.

Henze and Lucas (1993) take this a step further, noting that oral explanation and use of text can be complemented by the expanded use of visual material, dramatization, and hands-on activities. Such additional routes to engage with content ease the double load of mastering new language and new content by giving students additional means to gain access to serious content and thus more energy for tackling the new language.

Verplaetse (2000b) notes four underlying reasons for the importance of classroom interaction for ELL students:

> First, the social and communicative strategies needed to gain access to the content are acquired simultaneously during the learning of the academic content (Mehan, 1978). As stated by Green and Harker, "curriculum...is tripartite in nature; it is composed of academic, social, and communicative demands" (1982, p. 183). In other words, students

learn how to communicate and how to express social relationships at the same time that they are learning course content. Second, interaction allows the student the opportunity to share in the co-construction of knowledge (Wertsch & Toma, 1990). Students who take part in the interaction take part in the construction of the knowledge. Third, with regard to higher level academic communicative skills, interaction provides a learner the repeated practice needed to develop this communicative competency (Hall, 1993; Snow, 1990). As an example, Rosebery, Warren, and Conant (1992) describe Haitian middle school students appropriating scientific discourse patterns through a highly interactive classroom practice called "collaborative inquiry." Fourth, with regard to social role definition, interaction determines the level of co-membership a student is to experience with the group (Zuengler, 1993). In other words, students establish social roles within the classroom community, in part, through their interactive roles. Consequently, limited interactive roles [limited in type or number] for LEP students could restrict the development of their social and academic communicative skills, limit their opportunities to co-construct knowledge, and simultaneously marginalize their social roles within the classroom community. (pp. 20-21)

Scarcella (2002) notes that ELLs' classroom interaction with speakers of Standard English contributes to the acquisition of advanced English literacy skills. Such interaction exposes ELL students to academically sanctioned forms of English and offers them the practice and feedback needed to develop phonology, lexicon, morphology, syntax, and pragmatics. Anderson and Berger (1975) describe a tutoring initiative in which 4th grade ELLs were paired with fourth grade native English speakers. Tutors used prepared lessons on basic English syntax, such as the verbs "to do" and "to have," combined with oral exercises and written worksheets. The project was deemed a success. Tutees enjoyed close interaction with peers who were native speakers. Tutors not only understood the written lesson they were given, they created their own techniques to reinforce material and help tutees complete objectives. Extra planning and supervision necessary for this type of teaching/learning was deemed reasonable compared to the end benefit to the students (Gaies, 1985).

Although Anderson and Berger's story provides an example of one-way peer interaction (i.e., toward ELLs' English language development), there is also a literature on two-way peer interactions for language and literacy learning. Some are conventionally between two students who speak different first languages–for example, an L1 Spanish speaking student can teach Spanish to an L1 English student and, reciprocally, learn English from that partner (e.g., August, 1982). Others are still more creative, such as the project described by Price and Dequine (1982) that paired learning-disabled native English speakers (students with attention challenges) with ELLs. In that instance, the tutoring task helped attention-challenged tutors stay sufficiently focused so they could learn organization and attention skills; improve their reading comprehension, sense of syntax, and general verbal ability; increase their self-esteem; and feel the satisfaction of developing a close peer relationship. Tutees improved their general English language skills.

Although this is a point addressed more thoroughly in the next section of the paper, such peer interaction also offers ELLs the chance to practice the vocabularies and genres specific to various content areas. Improving advanced English literacy skills is relevant to improving accomplishment in the content areas. However, if ELLs lack frequent opportunity to learn Standard English forms (from teachers, peers, and community), it is imperative that instruction explicitly correct this deficit (Scarcella, 2002). It should also be clarified that access to oral forms of academic English is likely to have the most influence on oral proficiency development and that the transfer of this learning to reading and writing can still require additional explicit instruction.

If much of the emphasis on speaking and listening can be accomplished at the level of the classroom, Sarroub, Pernicek, & Sweeney (under review) provide a useful reminder of just how individualized explicit speaking instruction must be. They describe a teacher helping a Yezidi Kurdish refugee high school student strategize about appropriate conversation patterns for the workplace, a topic highly relevant to the student who was looking for a job and who risked dropping out if the quest was unsuccessful.

D. EMPHASIS ON THINKING

The research strongly indicates positive correlations between adolescent literacy development and the deliberate and frequent use of cognitive and metacognitive strategies when reading and producing text (Alvermann & Moore, 1991; Collins, 1994; Duke & Pearson, 2002; Garner, 1992; Haller, Child, & Walberg, 1988; Langer, 1999; Paris, Lipson, & Wixson, 1994; Rosenshine et al., 1996; Ruddell & Unrau, 1996; Schoenbach et al., 1999; Weinstein & Mayer, 1986). As defined by Weinstein and Mayer, learning strategies include rehearsing, elaborating, organizing, and comprehension monitoring. There is substantive evidence that students' combined use of cognitive and metacognitive strategies enhances content-area learning, thereby contributing to student success. For example, teaching students to generate questions is generally effective in supporting improved reading comprehension and content-area learning (e.g., Ciardiello, 1993, 1998; Rosenshine et al., 1996). Good questioning skills need to be explicitly taught and modeled. When students develop these in conjunction with text and/or content, they combine cognitive and metacognitive skills in ways that advance their literacy development.

Anderson (2002) discusses the key role of metacognition in second language teaching and learning. He describes a five-part model of metacognition that combines thinking and reflective processes: (1) preparing and planning for learning, (2) selecting and using learning strategies, (3) monitoring strategy use, (4) orchestrating various strategies, and (5) evaluating strategy use and learning (p. 2-3). He stresses the interdependent nature of the model, its reliance on the use of cognition, and the importance of instruction to develop metacognitive skills for the second language learner. For the remainder of this section, however, we refer explicitly to the use of metacognitive and cognitive strategies in conjunction with content-area texts, that is, thinking strategies that improve students' abilities to use reading and writing to learn.

Collins, Dickson, Simmons, and Kameenue (2001) caution that the terms *cognitive* and *metacognitive* have been used interchangeably throughout the literature. They assert that in some cases, strategies that were formerly considered cognitive, such as activating prior knowledge, modifying reading due to variation in purpose, or compensating for failure to understand the text, are now regarded as metacognitive. Given that these are complex, interrelated constructs of invisible processes, it is not surprising that the distinctions in the literature are not readily clear or consistent. For the purposes of this paper, we have differentiated the terms as follows:

Cognitive strategy instruction: allows students to use higher-order thinking skills. Cognitive strategy research on developing higher-order thinking skills repeatedly refers to the use of reading, writing, speaking, and listening both to learn and to demonstrate learning (Fitzgerald, 1995a, 1995b; Graves, 2000a, 2000b; Rosenshine & Meister, 1994).

Metacognitive strategy instruction: allows students to effectively monitor their own comprehension and skill in reading, writing, speaking, and listening. Although stronger and weaker readers use different metacognitive strategies, the research shows that weaker readers can learn the metacognitive strategies that stronger readers use (Alvermann & Moore, 1991; Pressley, 2001; Weinstein & Mayer, 1986). These strategies help weaker readers improve reading comprehension and, therefore, content-area learning (Collins et al., 2001; Duke & Pearson, 2002; Graves & Graves, 1994; Palinscar & Brown, 1984, 1989).

Cognitive strategy instruction: Successful academic achievement and lifelong learning depend on a student's ability to effectively use language to analyze, synthesize, and evaluate. Meeting content-area standards requires students to:

- make judgments based on the evidence in texts, Web pages, TV shows, advertisements, film, and other media
- create analogies
- compare and contrast similar or dissimilar items, events, or points of view
- use creativity to develop new representations or extensions of concepts
- use critical thinking to analyze pros and cons
- present arguments using language that communicates well-reasoned opinion

These tasks all have a heavy cognitive load and rely on the effective development of reasoning abilities. In one study, reasoning abilities, as opposed to prior experience or courses taken, was the most reliable predictor of success in a college biology course (Johnson & Lawson, 1998).

Cognitive strategies are guided learning procedures for internalizing new information and performing higher level thinking operations (Rosenshine et al., 1996). These strategies must be taught, modeled, and practiced. The infusion of literacy strategies

into content-area instruction supports the development of higher-order thinking skills necessary for in-depth understanding of content (e.g., Bulgren, Deshler, Schumaker, & Lenz, 2000; Mastropieri et al., 1996; Moll & Allen, 1982). Further, the application of higher-order thinking skills to the process of reading improves reading comprehension. Strategies that help readers to question the text–such as QtA (Sandora et al., 1999)–or to dissect the text through use of analytical graphic organizers (Braselton & Decker, 2000) are examples of this.

Metacognitive strategy instruction: Beyond learning and using cognitive strategies, students must become aware of themselves as learners. "The really good, metacognitively sophisticated reader knows that high comprehension requires active reading: predicting, questioning, imagining, clarifying, and summarizing while reading" (Pressley, 2002, p. 305). By monitoring one's own comprehension and skill in reading, writing, speaking, and listening, one becomes a self-regulating learner. Several researchers have found that middle and high school students often "lack important metacognitive knowledge or use inefficient or technical approaches to strategy use" (Craig & Yore, 1992, p. 23-24). Teaching a variety of goal-setting, problem-solving, self-evaluation, and focusing strategies seems to support improved self-efficacy, reading comprehension, and quality of writing (Greenleaf & Mueller, 1997; Schunk & Zimmerman, 1997). Based on her review of the literature, Garner (1992, p. 236) recommends that teachers interview students about their understanding and memory of what they read, show students how to monitor their comprehension, and give direct instruction in some broadly applicable comprehension strategies. Deliberately teaching metacognitive strategies related to each literacy skill area and associated with different types of texts appears to benefit students, especially those who do not apply these strategies intuitively. Modeling and explicitly teaching desired literacy skills and behaviors provides students, who say they read but do not always understand, with important strategies to employ when comprehension breaks down (Greenleaf & Mueller, 1997; Schunk & Zimmerman, 1997).

Collins (1994) discusses reading to learn from a metacognitive perspective as it relates to four variables: texts, tasks, strategies, and learner characteristics. She notes the importance of understanding the cognitive and metacognitive skills involved with various reading tasks and texts. Examples of instructional strategies that support the development of metacognitive skills in the arena of reading to learn include reciprocal teaching; two-column note taking; visualization; use of graphic organizers; recognition of text features; assessing and addressing misconceptions; discussion of the reading process; study strategies such as outlining, coding, or underlining; concept mapping; structured questioning of the text; SMART (self-monitoring approach to reading); and use of rubrics (Collins, 1994; DiGisi & Yore, 1992; Greenleaf & Mueller, 1997; Underwood, 1997). Many of these strategies support cognitive development as well because they require embedded higher-order thinking tasks for their effective use. Greenleaf et al. (2001) describe the effectiveness and utility of using metacognitively

oriented conversations (i.e., conversations that explicitly draw learners' reflective attention to their learning strategies) with struggling readers, including ELLs:

> The metacognitive conversation occurs through many means–class discussions between teachers and students, small-group conversations, written private reflections and logs, and letters to the teacher or even to characters in books. Such conversations and reflections, if they become routine, offer students ongoing opportunities to consider what they are doing as they read–how they are trying to make sense of texts and how well their strategies and approaches are working for them (Borkowski, Carr, Rellinger, & Pressley, 1990; Kucan & Beck, 1997). These conversations about reading and reading processes *demystify* the invisible ways we read and make sense of texts, as well as generate them. Through the metacognitive conversation, readers' knowledge, strategies, and ways of reading particular kinds of texts become an explicit part of the secondary curriculum. (p. 9)

Corson (1997) makes a similar observation: "[When students talk about text, they engage in] a kind of discourse where learners can talk repeatedly about knowledge gained from texts using an acquired metalanguage set against a meaningful system used to interpret and extend understanding" (p. 684).

Relevance for ELLs

Garcia (1992) illustrates the importance of overt attention to higher-order thinking in effective education for ELLs in his description of the THEME project collaboration between the University of California-Santa Cruz and two seventh grade cohorts in the Pajaro, California district. He notes that because of the strategies employed, one of the cohorts outperformed the control group and the other, taught bilingually, matched the whole control group and outperformed the bilingual students in the control group. THEME had four core strategies:

Strategy #1: Use of thematic, integrated curriculum, such that academic objectives are achieved through content-integrated instruction

Strategy #2: Emphasis on small group activities incorporating heterogeneous language grouping and peer tutoring, and emphasizing higher-order linguistic and cognitive processes (in which learning proceeds from the concrete to the representational and then to the symbolic)

Strategy #3: Emphasis on literacy activities: interactive journals, silent reading followed by small group discussion, interactive literature study, individual and group-written literature, and mathematics logs

Strategy #4: Use of cooperative learning strategies, emphasizing the systematic participation of each student in processing curriculum materials

Describing the Cognitive Academic Language Learning Approach (CALLA) math and science interventions for middle school ELLs in one district, Chamot (1995) found that instructional activities promoting active student participation, such as hands-on experiences, cooperative learning, and higher level questioning, were key reasons for above average student performance in math.

Reasoning strategies can be culturally dependent, however, so the criteria that underlie reasoning must be made explicit. In Luria's classic experiment (1976 [originally 1932]), non-literate individuals (individuals who never had schooling) were shown four objects–hammer, saw, hatchet, and log–and asked to remove the one that did not belong. Instead of throwing out the log (as a non-tool), subjects usually kept the log and discarded one of the tools because it did not make sense to keep tools if one had nothing to build with (i.e., a log). Marshall (1998) has used the Luria example to illustrate how Hmong refugee students might respond differently to a story-writing assignment depending upon whether the teacher prompts students' background knowledge of traditional folktale conventions.

Describing effective reading and writing strategies as part of content instruction with ELLs, Carrasquillo and Rodríguez (2002) draw our attention back to a key long-term goal of schooling–creating independent, self-starting users of literacy. They note that ELLs need to be taught the skills and the will to monitor their own interpretation and generation of text. If all assignments are teacher driven, learners will not develop decision-making skills, including which skills to apply when, nor will they learn to view literacy as a vehicle for their own thinking and expressive interaction with the world. Carrasquillo and Rodríguez write:

> Teachers need to encourage students to take risks and to give personal written response when interpreting what they read or heard. Teachers should use questions such as: What did you notice in the story? How did the story make you feel? What does the story remind you of in your own life? (Kelly, 1990). Answers to these questions do not demand correct responses. This allows freedom to explore meaning and to express one's understanding of the text.… But LEP/ELL students need to be guided in writing answers to open-ended questions. They may be intimidated by the lack of vocabulary and language structures to express their thoughts. (p. 91)

This last point also reminds us that thinking as part of literacy is inseparable from some of its more tangible tasks such as vocabulary and language structure selection. Ultimately, this suggests a virtuous loop for learners schooled in metacognitive strategies; their explicit reflection on comprehension and production tasks motivates them to identify the appropriate vocabulary, text strategies, and even discourse features that will authentically convey their thoughts and understandings in a contextually appropriate manner. The teacher's role is first to assist this process and then to help learners continue to deploy it with increasing independence.

E. CREATING A LEARNER-CENTERED CLASSROOM

A learner-centered classroom is deliberately designed to maximize all students' chances for academic development. The creation of a learner-centered classroom is an important aspect of effective adolescent literacy development, particularly for diverse learners. In such classrooms, teachers expect all students to actively use speaking, listening, and thinking skills across contexts. Interactive discussions and experiential learning regularly occur. A learner-centered classroom builds upon students' background, interests, and experiences. Research suggests that this emphasis supports reading comprehension, student engagement and motivation, and the development of positive literacy identities. Again and again, the research refers to literacy learning as being best supported by the role of the teacher as facilitator, not lecturer (e.g., Langer, 1999, 2001; Wilhelm et al., 2001). Williams (2003), in describing the benefits of a student-centered or workshop approach to literacy instruction, notes:

> One result of the workshop approach is that it provides students with the means to assume a more active role in learning. Members of work groups are always busy talking, writing, thinking, researching. Unlike the traditional classroom, in which students assume a passive role as they listen to teacher-talk, the workshop requires teachers to say very little. This approach is referred to as *student-centered instruction*, and it is a central component of process pedagogy. (p.104)

A key component of a learner-centered classroom for adolescents that supports optimal literacy development is the effective use of collaborative learning experiences (Adams & Hamm, 1990; Alvermann, 2000; Alvermann & Phelps, 1998; Anderson & Roit, 1993; Biancarosa & Snow, 2004; Calhoon & Fuchs, 2003; Collins, 1994; Fuchs & Fuchs, 2000; Guthrie & Humenick, 2004; Kucan & Beck, 1997; Langer, 1999; McCombs & Barton, 1998; Tharp, 1999; Tierney & Pearson, 1981, 1992). Two other aspects of an effective learner-centered classroom referenced throughout the literature are flexible grouping (e.g., Reutzel, 2003) and a focus on inquiry-based learning (e.g., Wilhelm et al., 2001), with or without computer support (Waxman & Tellez, 2002). Used together, these three structures for learning enable teachers to be maximally responsive to students' literacy and learning needs.

Based on her review of the literature, Curtis (2002) summarizes:

> The types of classroom environments shown to promote literacy development include ones that use a variety of approaches to skills instruction, integrate test preparation into instruction, make overt connections among in-school and out-of-school applications, enable strategy use, engage students in uses of their knowledge and skills, and incorporate collaborative work. (p. 10)

(For additional description of classroom learning environments that support student motivation and engagement with academic literacy tasks, see Meltzer and Hamann, [2004].)

Relevance for ELLs

In her review of effective instructional practices for language minority students, Anstrom (1997) notes the appropriateness of cooperative learning practices for ELLs within the context of teaching and learning social studies:

> In a recent study concerning attributes of effective instruction for English language learners, the authors highlight the importance of providing opportunities for and encouraging interaction between English language learners and native English speakers (August & Pease-Alvarez, 1996). Cooperative learning offers language minority students the opportunity to interact with their native-speaking peers in such a manner and to communicate their thoughts and ideas in a supportive and non-threatening environment. When students work cooperatively to complete a task, language minority students receive instruction from their peers that is individually tailored to their language ability and academic needs. Working in structured groups increases the variety of ways information can be presented and related to what is already known. Furthermore, active listening and speaking in cooperative settings, provides a rich language environment for both comprehensible input and practice in speaking that students cannot get in a more traditional classroom environment (Olsen, 1992).

In a quasi-experimental study comparing two college-prep algebra classes with high ELL enrollments in southern California, Brenner (1998) found that in the classroom where students regularly engaged in small group discussions, there was more frequent communication about the subject and students were more comfortable when it came to participating in large-group discussions than in classrooms that did not employ small group work. Speaking about math was related to thinking about and doing math better as measured by performance outcomes. In a study that also looked at math instruction and achievement, Gutiérrez (2002) found that having students work in groups seemed to improve their achievement. This improvement may occur because explaining to peers how they derived an answer or approached a problem requires students to practice clearly explaining themselves and solicit feedback on those explanations. In another example, Davison and Pearce (1992) found that having many opportunities to listen to English language mathematics terms in context was useful for the Crow-speaking Native American students in their study.

In their summary of the literature on effective instruction for ELLs, Waxman and Tellez (2002) assert that collaborative learning emerges as both an important structure for supporting instructional conversations and as a delivery strategy for addressing principles of culturally responsive instruction, such as diversity. They claim that group tasks are crucial for language learning and conclude, "Other aspects of collaborative learning communities like debate and compromise can be developed through aspects of instructional conversation practice. Further, students' language development can be enhanced by having them collaborate while using technology" (p. 2).

Sarroub et al. (under review) describe a high school teacher in a "Midwestern City" who uses the public library to select individually appropriate texts for guided reading with her ELLs (texts she knows will interest her students because she has learned about their lives, interests, and circumstances). A university-based researcher, graduate students, a paraprofessional, and high school student helpers all assist with the program, supporting its individuation. The described class is called "ELL Literacy" and it targets adolescents (e.g., refugees) who have had limited and interrupted previous schooling. More generally, the Funds of Knowledge work at the University of Arizona (and replicated elsewhere) focuses on teacher education strategies that prepare teachers to know and be responsive to students' family and community backgrounds (e.g., Moll, Amanti, Neff, & Gonzalez, 1992).

IV. Research-Based Adolescent Literacy Teaching Strategies That Vary By Content Area

"The language of each discipline has evolved in ways that enable the construal of the kinds of meanings that the discipline requires. Engaging in the discourses of different disciplines requires that students draw on the register features that help them simultaneously realize ideational, interpersonal, and textual meanings in appropriate ways, construing the field, tenor, and mode anticipated by the genre assigned. Different register choices are more or less appropriate, or more or less effective, in the realization of particular stages of each genre. By analyzing the ways of using language that are valued in different disciplines, we can illuminate the key issues that face teachers and students in gaining control of disciplinary knowledge."

—Mary J. Schleppegrell (2002, p. 120)

The connections currently being made in the field of education between the importance of adolescent literacy development and academic success in the content areas are far reaching. First, a number of researchers note that adequate literacy habits and skills to succeed in meeting content-area standards lie at the center of the connection between literacy skills and content-area learning. This positions adequate academic literacy development as key to performing well on standardized tests (Biancarosa & Snow, 2004). Second, there is increased attention to the fact that different disciplines require very different literacy skills, including the reading and writing of different types of texts, different presentation formats, and different standards for evidence (NCTE, 2004). The popular idea promoted by the standards movement of how we want students to think like mathematicians, read like historians, and write like scientists requires us to teach students these ways of thinking, reading, and writing (Lee, 2004; Schoenbach et al., 1999). Third, concerns about adequate literacy skills is an issue that crosses all socioeconomic groups in this country and is relevant to a variety of stated societal goals, from democratic participation to preparing an adept workforce for the 21st century.

Research champions the explicit instruction of literacy skills in the context of content-area teaching and learning. In fact, the field of English as a second language (ESL) has long supported content-based instruction that integrates content and language as an effective strategy for improving the academic achievement of ELLs (Carrasquillo & Rodríguez, 2002; Enright & McCloskey, 1988; Thomas & Collier, 1997). Ample

evidence indicates the connection between increased use of reading and writing in the content areas and better student achievement across literacy levels and language (Mohan, 1990; Moore et al., 2000; Peterson et al., 2000; Reyhner & Davidson, 1992; Schoenbach et al., 1999).

As described in the previous section, there are two types of content-based literacy instruction strategies: (1) generic literacy strategies that can be applied in similar ways across the content areas, and (2) literacy strategies that differ greatly depending upon the particular subject. The second type of literacy strategy is the major focus of this section. However, it should be remembered that these two types of literacy strategies must be used in conjunction with one another to improve content-area reading and learning.

Discipline-specific literacy strategies are heavily dependent on the particular content being studied. To optimally support adolescent literacy development, content-area teachers must understand the reading and writing demands inherent in the study of their discipline. Content standards require that students know how to think like a scientist or a historian, to analyze literature, or to communicate mathematically. Lee (2004) points out, "Disciplinary literacy–the ability to understand, critique, and use knowledge from texts in content areas–is the primary conduit through which learning in the academic disciplines takes place" (p. 1). Langer (1992) adds:

> A good deal of recent writing research and theory has focused on the notion of disciplinary communities and the properties of language and thought that are sanctioned by one community versus another. (See, for example Bazerman, 1982; Berkenkotter, 1988; Herrington, 1985; Langer & Applebee, 1988; McCarthy, 1987; and North, 1986.) These studies affirm that there are patterns of differences in the types of evidence as well as in the ways of organizing discourse that mark "successful" entrance into and communication within particular fields. Thus, although such "critical thinking" behaviors as questioning and analyzing are invoked in science and in English classes, the reasons for invoking them, the ends to which they are put, and the ways they are engaged in differ in marked and identifiable ways. For example, in biology and physics classes, questions seem to be asked primarily for clarification of the unknown (for explication), while in English, questions are often used to explore possible interpretations (for investigation) (Langer & Applebee, 1988; Langer, 1990a; Langer, Confer, & Sawyer, in progress). (Introduction Section, ¶2)

In order to apprentice students into the disciplinary demands of a content area, teachers themselves must be cognizant of the literacy demands specific to their discipline and the range of strategies they might use to teach others to meet those demands. This section discusses three discipline-based practices that teachers can use to support content area reading and learning pursuant to particular disciplines:

- Recognizing and analyzing discipline-based discourse features
- Understanding text structures
- Developing vocabulary knowledge[4]

These three practices follow directly from one another; that is, content-area discourse refers to the speaking, listening/viewing, reading, writing and thinking habits, skills, conventions, and formats used by experts within a content area. Text structures reference the reading and writing conventions of content-area texts. Vocabulary refers to the essential words and concepts within a particular content area. Thus, each practice is an essential component of the practice discussed before it, though the unit of focus changes from community-wide literacy practices to text to words/concepts within a context. Explicit attention to each practice thus contributes to the simultaneous aims of academic literacy development and content-area learning.

Content courses taught in a second language (like mainstream teachers teaching ELLs) are not automatically effective environments for language or content learning. Mainstream teachers of adolescent ELLs need professional development generally in the areas of second language acquisition and literacy development, and specifically in how to most productively respond to ELLs as they gain proficiency with academic English (Grant & Wong, 2003). Such professional development might include studying how different first languages transfer to English with regard to alphabetic principles, syntax, and language structures; learning about types of language errors and what they indicate about first language and literacy development; and focusing on how to explicitly teach the text structures and discourse features of various content areas (Wong Fillmore & Snow, 2000). This type of professional development is not an "extra," nor is it irrelevant to content-area teaching and learning generally.

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[4] Some readers may wonder why "vocabulary development" was not included in the set of more generic strategies described in Section III. Although the literature describes some generic strategies for vocabulary development, such strategies are largely meaningless outside of the context of learning within a particular discipline. That is, the integral connections between words, text structures, and discourses serve as boundaries for discipline-specific teaching and learning. We do, however, find much in the literature related to the deliberate development of academic vocabulary within the context of learning and participating in a general academic discourse. Rather than split our discussion of vocabulary, including it in both sections of the paper, we have included our findings related to both academic vocabulary development and content-specific vocabulary learning in this section.

Part Two: Focus on Classroom Teaching and Learning Strategies
THE EDUCATION ALLIANCE at Brown University

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In a study of French immersion programs in which L1 English students were to learn content as well as French, Swain (1988) found that both goals could be missed if a teacher used an unmodified *teacher as lecturer* style. Such a style, which typically asks students to offer only brief oral answers during most classroom instruction, gives little opportunity for students to practice the complex and content-area specific use of language. Without the chance to develop such literacy skills, the students also lacked the productive capacities to illustrate any content-area learning.

This section of the paper does not provide specific descriptions of recommended practices to develop the advanced literacy of ELLs within the context of specific content areas. Figure 2 offers a few starting points for looking more closely at the literacy development literature particular to four core academic content areas. Readers might also be interested in Anstrom (1997) and Carrasquillo and Rodríguez (2002), who devote whole sections of their work to integrating language and social studies learning, science learning, and mathematics learning.

Figure 2: Some citations regarding integrating language and content area instruction for secondary ELLs

English: Clair, Adger, Short, & Millen (1998); Custodio & Sutton (1998); Ogulnik et al. (1998)

Math: Anstrom (1999a); Brenner (1998); Chamot (1995); Davison & Pearce (1992); Dwyer (1998); Gutiérrez (2002); Henderson & Landesman (1992); Reyes & Pazey (1999)

Science: Ballenger (1997); Chamot (1995); Dwyer (1998); Quiroz (2001); Rosebery, Warren, & Conant (1992)

Social Studies: Anstrom (1999b); Castaneda (1993); King, Fagan, Bratt, & Baer (1992); Short (1994)

A. RECOGNIZING AND ANALYZING DISCOURSE FEATURES

Discourse refers to the language used to discuss important concepts within a discipline. In a sense, different content areas represent different sub-cultures within the larger academic discourse (Zamel, 1998). How we "talk" science is different from how we "talk" history; how we write math is different from how we write poetry. There are a number of studies that examine how content-area discourses are defined by unique disciplinary-specific patterns for thinking, reading, writing, and speaking (e.g., Brown, 1992; Wineburg, 1991, 2001). Such academic communities have the power "to mold language, language behavior, and operational assumptions about reading,

writing, books, and schooling" (Blanton, 1998). According to Gee (1998, 2000, 2001), discourses govern how we talk, think, and interact as "in members" of a culture. He says, "A Discourse integrates ways of talking, listening, writing, reading, acting, interacting, believing, valuing, and feeling (and using various objects, symbols, images, tools, and technologies) in the service of enacting meaningful socially situated identities and activities" (2001, capital "D" in discourse in original). He defines literacy as "the control of secondary uses of language (i.e., uses of language in secondary discourses [that is, discourses beyond one's own family or cultural group])" (1998, p. 56). In some sense, then, the true performance assessment for effective content-area literacy development would be how well students can function within and use the discourses of each of the various academic disciplines.

This definition of literacy has particular implications for students trying to learn within the contexts of various subject areas. Zamel (1998) explains that students who want to be successful at learning within a content-area community

> . . . must take on its ways of knowing and its 'ways with words.'
> The idea of a culture suggests the kind of immersion, engagement, contextualization, [and] fullness of experience, that is necessary for someone to be initiated into and to be conversant in that culture, for someone to understand the ways in which that culture works. …Students need to act as if they were "members of the academy, or historians or anthropologists or economists." Elbow (1991), too, stresses this notion and points out that writing well within the disciplines requires not just using the "lingo" of the discipline but *doing* the discipline (p. 138). Doing academic discourse, in other words, involves far more than an academic exercise. (p. 188, italics in original)

By Zamel's definition, students who take a variety of content-area courses must navigate many subcultures in the course of a single day in order to be successful. Some or all of these subcultures may make little sense to them. Occasionally, however, there are teachers willing and able to actively support students so that they feel welcomed and assisted to be "part of the club."

Throughout the literature it is apparent that "breaking the code" (Schoenbach, Braunger, Greenleaf, & Litman, 2003) of how we read, write, talk, and think within a particular content area is substantial work. If we truly want students to be able to think like scientists and write like historians, teachers need to explicitly apprentice students into the discourse of their particular discipline (science, history, business, etc.). This requires teachers to model, make applicable strategies explicit, assess for understanding, and provide students with the tools to become active constructors of knowledge within each subject area. Delpit (1995) recommends specific instruction to speakers of non-standard varieties of English in the rules and customs of standard forms, so that students can recognize and generate such forms as appropriate.

Content-area discourse includes not only vocabulary development and understanding text structures, but also how the "big ideas" within a discipline are organized and connect; the kinds of resources, tools, and strategies used to think about that discipline; the spoken and written conventions of presentation in that discipline; and the understanding of how to carry out inquiry in that content area (e.g., Langer, 1992; Stevens & Bean, 2003).

The meanings of central concepts (e.g., research, graphic, argument, evidence, problem solving) differ in significant ways across disciplines. Accordingly, the conventions of discourse in each discipline also vary. Conventions include the formats used to discuss and present important information in different content areas (e.g., debate, presentation of a geometric proof, historical reenactment, scientific hypotheses). To read, write, or speak competently in a given content area, one needs to know specific information related to that discourse (e.g., the criteria for documentation, specificity, punctuation, format, and approaches to analysis).

Zamel (1998) cautions, however, that discourse communities are neither tidy nor constant. Rather, they are always evolving and cannot be reduced to mere forms and formats. "It is clear that becoming acculturated into a new academic community does not simply involve practicing the discipline-specific language, norms, and conventions that many textbooks on academic reading and writing seem to imply" (p. 189). Therefore providing instruction on language forms and formats will not, on its own, give students full access to the discourse community of science or history. Teachers and students must be jointly engaged in the *doing* of science and history within an apprenticeship context for such instruction to be meaningful. Zamel further asserts that students must be encouraged to use their interests, questions, and prior experiences as starting points to interact with and learn how to become part of the discourse community of that discipline.

Being able to recognize and analyze the discourse features of particular disciplines aids tremendously in content-area understanding and content-focused writing (Langer, 1992; Langer & Flihan, 2000; Schoenbach et al., 1999). One illustration of this in the classroom is the Strategic Literacy Initiative being implemented by WestEd. Leaders of that project work with middle and high school teachers to build literacy support into content-area teaching and learning, using a four-part Reading Apprenticeship framework, as Schoenbach et al. (2003) describe:

> In Reading Apprenticeship classrooms, teachers reconceptualize subject-area learning as an apprenticeship in discipline-based practices of thinking, talking, reading, and writing. In a Reading Apprenticeship classroom, then, the curriculum includes more than just *what we read*. It includes *how we read* and *why we read in the ways we do*.... The primary goal of Reading Apprenticeship is to increase academic opportunities for adolescents who do not see themselves as readers of rigorous texts. We see this increased access as a vital means of

working toward equity in academic achievement in secondary school and beyond. As teachers become more aware of the ways they and their disciplinary colleagues make sense of challenging texts—asking different kinds of questions in reading science, social studies, literature, or mathematics, for example—they are able to talk more descriptively and explicitly.… Making the invisible visible in this way lets students in on how reading works in different disciplines and enables them to "break the codes" of academic language. (The Reading Apprenticeship Framework section, ¶3)

Relevance for ELLs

Explicit teaching of the discourse features particular to specific content areas is especially important for ELLs and students with a limited background in the academic literacy expectations of schools (Heath, 1983; Mohan, 1990; Reyhner & Davidson, 1992; Spanos, 1992). Instruction that bridges and builds upon students' past literacy experiences, serving to advance their academic literacy habits and skills in the English language arts, can support student success (Lee, 2004; Maloney, 2003).

In her discussion of how to help language minority students acquire skills to function in the discourse community of science, Anstrom (1997) notes:

> Attempting to carry on a scientific discussion assists in developing the ability to ask questions, propose tentative answers, make predictions, and evaluate evidence. However, the acquisition of certain linguistic structures of argumentation is thought to be a prerequisite for the kind of advanced reasoning used in scientific communication. If language minority students do not have access to these linguistic skills, they will not be able to engage in the level of discussion essential to scientific inquiry, and will have difficulty with science reasoning. Certain linguistic structures, such as logical connectors, and specialized vocabulary, both science terminology and vocabulary that may have different meanings in a scientific context, are problematic for language minority students. Moreover, discourse patterns common to science such as compare/ contrast, cause/effect, and problem/solution require a high level of linguistic functioning. Thus, cognitive development in science is heavily dependent upon linguistic development (Fathman et al., 1992).

Anstrom (1997) goes on to say that teachers will need to help students acquire the linguistic structures and discourse patterns frequently used in science. She notes, "Mainstream science teachers must be aware of what students need to know linguistically in order to understand and express themselves in science activities and must be able to incorporate opportunities to learn the English language into their lessons."

There is a growing science education research literature that offers ideas and examples for how the discourse of science might be taught to ELLs. For example, there are several publications about the Cheche Konnen Project, a bilingual science initiative with L1 Haitian Creole speakers (e.g., Ballenger, 1997; Rosebery, Warren, & Conant, 1992;

Warren et al., 2001), and Quest for Knowledge (e.g., Quiroz, 2001). The Cheche Konnen Project explicitly attempted to bridge the gap between the students' home and community-based talk practices and the expected talk of science class (Lemke, 1990). Joking, storytelling, and other everyday types of talk were welcome as points of entry into the science content. As engagement with that content grew, teachers redirected student talk into discourse forms that were more characteristic of academic science discourse.

Anstrom (1997) makes a similar case for what needs to happen in the math classroom:

> With language minority students, teachers must attend not only to their cognitive development but also to the linguistic demands of mathematical language. The importance of language in mathematics instruction is often overlooked in the mistaken belief that mathematics is somehow independent of language proficiency.

She notes that particularly with the increased emphasis placed on problem solving, command of mathematical language plays an important role in the development of mathematical ability. Mathematics vocabulary, special syntactic structures, inferring mathematical meaning, and discourse patterns typical of written text all contribute to the difficulties many language minority students have when learning mathematics in English.

Curry (2004) also discusses the different discourses that ELL students must negotiate to successfully develop competence at essayist literacy, the primary type of writing required in college-level humanities and social science classes. This type of writing is highly linear and requires the author "[to advocate] a particular point of view, analysis, or course of action and support it with accepted types of evidence. In addition to understanding the linear and argumentative nature of much academic writing, ELLs must grapple with issues of voice and identity" (Essayist Literacy section, ¶1). She notes that although personal and narrative pieces forefront personal experience and voice, assigned essays "often require writers to take an objective stance toward the topic and the audience, a position that many students find uncomfortable" (p. 5). To be successful at writing in the latter style, Curry states that students need to be familiar with general academic discourse as well as the specific organization and discourse of the content being studied. For example, to be successful as essay writers, students must know how to craft a thesis, make claims, build arguments, and draw on appropriate evidence. Curry asserts that deliberate and purposeful instruction in word choice issues, sentence structure issues, content scope, text organization, and critical thinking skills, along with multiple opportunities to practice, can assist ELLs to master essay writing.

Although focusing on elementary school students, a study by Catherine Snow (1990) of both native and non-native English speaking students illustrates the importance of these opportunities to practice. Snow found a strong correlation between schooling *in English* and the ability to give formal definitions (both formal and informal

definition prove knowledge of a word, but the former better matches the academic genre preferred and rewarded in school). Snow concludes that the ability to practice definitions enables students to produce formal definitions. Considering Snow's study, however, Schleppegrell (2004) found that it also demonstrated the salience of student's recognition of social context. "Explaining what something <u>means</u> or <u>is</u> is a common occurrence in everyday language. But giving an effective definition at school requires different linguistic resources from those needed to define words in conversational interaction" (p. 37, underlining in original).

B. UNDERSTANDING TEXT STRUCTURES

In engaging with a variety of disciplines, students may encounter many different types of texts, some of which are specific to particular content areas (e.g., technical manuals, primary sources, short stories, and history textbooks). Understanding text structures is an important part of increasing students' comprehension and retention of demanding content (Berkowitz, 1986; Dickson, Simmons, & Kameenui, 1995a, 1995b; Pearson & Campernell, 1994; Pearson & Fielding, 1991). According to Dickson et al. (1995a, 1995b), students from non-mainstream backgrounds often lag behind their peers in reading comprehension and demonstrate difficulty recognizing patterns in text, discerning relevant information, and recalling information. As a result, they require instruction that enables them to independently access text for comprehension.

To help students learn more from texts, instructors should explicitly teach the "decoding" of discipline-specific text types (e.g., screenplay, scientific journal abstract, marketing plan, and mystery novel). Each piece of text contains structures and features that readers must know about in order to comprehend or create a specified type of text. Text *structures* include the forms and patterns of particular kinds of writing (e.g., narrative, persuasive, descriptive, compare/contrast, listing, chronology, summary, and problem/solution/effect) and establish the interrelations between ideas through well-organized patterns (Dickson et al., 1995a, 1995b). Taylor (1992) refers to text structures as the underlying building blocks that organize text patterns in predictable and understandable ways. Therefore, text structures can be important clues to the logic of the ideas being presented. If students know which text structures are likely to be present in a given type of text, they are more likely to be able to extract meaning from that text.

The physical aspects of text (e.g., bold or italicized print, graphics, indices, chapter headings, glossaries, hyperlinks, graphic organizers, chapter summaries, change in point of view, and bibliographies), also referred to as text *features*, are signposts. If readers know what they are and how to use them, text features can be important resources for making sense of a text. The knowledge of applicable structures and features is also helpful for decoding specialized text formats, such as flowcharts, citation rules, spreadsheets, etc. For students not familiar with a specific type of text, trying to read it as they would a more familiar form, or without understanding of relevant features, can be hazardous to comprehension. For example, imagine the

struggle of a student who tries to read a scientific journal article or math textbook as he or she did a magazine article or short story. For students whose academic literacy habits are not strong, this can result in frustration and confusion (Garner & Reis, 1981).

Understanding expository and narrative text structures specific to content areas can provide readers with a frame of reference when interpreting new information or determining how to approach academic writing tasks. Students can apply their knowledge and awareness of well-presented texts and text structure to various content areas, reading comprehension tasks, and written composition (Dickson et al., 1995a, 1995b).

Many researchers note that academic texts often are not well written or constructed and that textbooks, in particular, do not necessarily follow the conventions for a well-presented text. For example, the main idea of a paragraph may be stated late in the paragraph or be missing all together. Dickson et al. (1995a, 1995b) note that, in this case, students will likely need strategies to invent a main idea if necessary. Further, students need to experience teacher modeling, explicit teaching, and practice in order to successfully identify the structures and features of increasingly complex texts in the different content areas.

Strategies for unpacking text structures include using signals for predicting, mapping, teaching story grammar, inventing main ideas, making hierarchical summaries, translating the main ideas into visual frames or organizers, scaffolding by example from the teacher, and selecting assignments that require attention to structures and features (e.g., chapter previews, text scavenger hunts, and use of textual clues in the completion of summaries) and text queries (Dickson et al., 1995a, 1995b; Pearson & Fielding, 1991; Schoenbach et al., 1999; Symons, Richards, & Greene, 1995; Taylor, 1992).

Relevance for ELLs

In addition to students' need to understand *structures and features*, Scarcella (2002) identifies understanding *form* as another key element in ELLs' acquisition of advanced literacy. As she states:

> Learners who attend to the linguistic features of their texts are more likely to acquire these features and practice using them in their own communication. Learners can rely on many strategies that foster their ability to attend to form, including routinely analyzing texts for relationships, organization, word meanings, specific uses of words and idioms, and rhetorical effect. When they read, learners who attend to form ask themselves questions concerning the credibility of the author and the logic of the arguments presented. (p. 219)

She goes on to say, however, that most learners do not look at language forms. Indeed some use strategies that actually prevent attending to form, including: reading "for

the gist," reading for specific pieces of information (e.g., dates, names), using previous knowledge to guess at meaning without reading, listening "for the gist" from teachers' oral previews or summaries, and attending only to key discourse features (e.g., titles and headings). Each of these strategies may, most of the time, stave off complete ignorance on a topic, but they support only superficial (not advanced) understanding. Explicit and compelling instruction in how to attend to language form is likely to improve students' use of this skill.

Explicit instruction in text structure recognition has particular relevance for adolescent ELLs. Languages vary in the conventions they use for specific text genres (e.g., Eggington, 1987). Some conventions are straightforward and, as such, are relatively easy to decipher and highlight (e.g., the opposite use of commas and periods as place holders and decimal points in the rendering of numbers in English and Spanish). Others are more difficult to understand and require explicit instruction. Colombi (2002) offers an example of how typical complex nouns are constructed in two languages. In Spanish, a noun is typically followed by a prepositional phrase (e.g., *la pérdida del lenguaje*—the loss of language) while in English nouns can adjectively modify other nouns (e.g., language loss). Similarly, the use of hedges and indirect language, the placement and explicitness of topic sentences, and other conventions are sophisticated text structures that vary by language and dialect and thus are hazards to which ELLs must pay attention. (See also Gibbons, 1999.) Languages more diverse than English and Spanish often have even more complex convention differences. Just as with cognates, partial cognates, and false cognates, ELLs need explicit instruction about English genre rules so that for advanced literacy tasks they do not use literacy conventions from other languages. Communication of advanced concepts, like those from a college-level engineering class (Schleppegrell, 2002), can be undercut (with consequences for grades and academic motivation) by not knowing the expectations for linguistic expression in a given genre. Sarroub et al. (under review) describe a simple example of explicit teaching of recognition and pronunciation through rhyming and word play, in which a teacher helps an ELL student recognize and pronounce the word "swan" by noting how it is positioned in the text's rhyme scheme to rhyme with "on." Although this example pertains to a particular discipline (English language arts) and genre (poetry), it demonstrates how specific disciplines can have predictable genre features that may help students to decode language.

That said, a crucial caveat must be offered. Although first language literacy can interfere at a superficial level with the strategies chosen in a second language for communication (written and oral), first language literacy is overwhelmingly correlated with favorably contributing to the development of second language literacy (Bankston & Zhou, 1995; Connor, 1996; Cummins, 1979; Durgunoglu, Nagy, & Hancin-Bhatt, 1993; Fitzgerald, 1995a, 1995b; Garcia, 2002; Henze & Lucas, 1993; Scarcella, 2002). "Resilient" or successful ELLs in a large CREDE study reported using their first language (Spanish) more often with their parents and peers than did "non-resilient," less successful ELLs

(Padron, Waxman, Brown, & Powers, 2000). Explicit instruction can clean up word order mistakes, awkward word choices, and other first language influences. More important, in terms of predicting and encouraging the academic success of ELLs, is for teachers to help students recognize how conventions in their first language compare with the conventions of the second language. This kind of metalinguistic awareness is consistent with developing the thought processes related to literacy development that were referenced in Section III, Part D. That is, knowing and accounting for the slightly different text structure conventions between two languages are smaller and less difficult cognitive steps than knowing that there are structures and conventions at all.

C. VOCABULARY DEVELOPMENT

Vocabulary development is essential to content-area learning and is the key to learning from and creating meaningful written texts. Many studies show that explicit vocabulary instruction has a positive effect on reading comprehension (Allen, 1999; Baker & Brown, 1984; Baker, Simmons, & Kameenui, 1995; Blachowicz & Fisher, 2000; Curtis & Longo, 2001; Graves, 2000a, 2000b; Kamil, 2003, 2004; National Reading Panel, 2000; Stahl & Fairbanks, 1986; Smith, 1997). According to Allen, teachers in each content area should implement purposeful vocabulary instruction to: (1) increase reading comprehension, (2) develop knowledge of new concepts, (3) improve range and specificity in writing, (4) help students communicate more effectively, and (5) develop deeper understanding of words and concepts with which students are only nominally familiar. However, vocabulary instruction is not typically given a central role in today's high school classroom.

Learning academic content means, in large part, understanding the key concepts and the language of each discipline. At the middle and high school levels, students are confronted with a vast menu of challenging concepts as well as a diverse set of texts from which to learn about those concepts. Although reading is only one means through which to learn content, it is an important one. Students who are not strategic readers are handicapped in reaching the critical goal of becoming independent learners. Students need assistance with learning the key concepts and important terms of each unit of study as well as other relevant words they do not already know (Blachowicz & Fisher, 2000). To do this, students must be able to organize concepts and terms within their context, interact with the language of academic content in meaningful ways, and develop strategies to learn new words that may otherwise interrupt the fluency of their reading and, therefore, their reading comprehension.

Because written and spoken language form the basis of the communication of academic ideas, vocabulary and content should not be viewed as separate; nor is the first only a servant of the second. Instead, they must be seen as inextricably linked. For example, gaining an understanding of the word *photosynthesis* is not separate from developing biology content knowledge. Teachers must ask themselves: How will students in my classes become better speakers/writers/readers of math/social studies/science/business/

art as a result of being in my class? That is, for students in content-area classes to maximize learning, they must have and consistently be expected to use a variety of strategies through which they can build word knowledge, link concepts, and learn unfamiliar terms (e.g., Baker et al.,1995; Dole, Sloan, & Trathen, 1995; Greenleaf & Mueller, 1997; McKeown & Beck, 1988). These activities must occur both as a consequence of content-area study and as part of becoming an independent learner. Therefore, in order to effectively teach content, middle and high school teachers must help students activate what they already know about words to reinforce and extend concepts.

Some students have developed much larger vocabularies than others. Almost always, a large vocabulary is the result of wide reading coupled with a sophisticated array of strategies for learning new words (Nagy, 1988), including the access and use of informational resources (dictionaries, people, texts, the Internet). Many students, however, arrive in high school with little reading experience or genre-specific experience only (e.g., fix-it magazines, coming-of-age stories, fantasy books). Those students typically bring insufficient strategies for vocabulary development across the content areas. According to Shostak (2002),

> Research has shown that although reading is essential for vocabulary growth and development, it is not sufficient for most students because the meanings they take away from their readings will not be deep and enduring; nor does it help them gain strategies for becoming independent word learners. (p. 2)

Readers who are competent in one or more areas may struggle with written materials in other areas (an excellent English student may struggle with her science textbook, for example). Even our strongest students require vocabulary development (hence, SAT prep courses). There is general consensus that students who struggle with reading in one or more content areas, or who are reluctant readers and, therefore, inexperienced readers—in other words, most of the learners in today's high schools—need serious, sustained content-area vocabulary development to achieve challenging content-area standards. In a real sense, all such students are learners of English.

Vocabulary is greatly influenced by, differs by, and, indeed, helps define each content area. "Vocabulary is as unique to a content area as fingerprints are to a human being. A content area is distinguishable by its language, particularly the special and technical terms that label the concepts undergirding the subject matter" (Vacca & Vacca, 1999, p. 314). To effectively teach vocabulary, teachers need to know the big concepts and how they relate to other concepts already and yet to be learned (Blachowicz & Fisher, 2000). Educators must prioritize and select key vocabulary to teach before embarking on a unit of study or a significant piece of reading or writing (Allen, 1999). Finally, teachers should give their students strategies to learn vocabulary they do not know but will encounter within a given text (Baker et al., 1995; Shostak, 2002).

Effective vocabulary instruction requires learning environments in which students constantly use relevant vocabulary in their reading, writing, and speaking, both actively building word knowledge and deepening their understandings of the relationships among key terms (Allen, 1999; Blachowicz & Fisher, 2000; Curtis, 2002; McKeown, Beck, Omanson, & Pople, 1985). This is in contrast to the ineffective, but far more prevalent, "assign, define, and test" approach in which, after testing, the vocabulary is largely not used again (Allen, 1999). Based on their review of the research, Blachowicz and Fisher (2000) describe four principles that guide effective vocabulary instruction:

(1) That students should be active in developing their understanding of words and ways to learn them.

(2) That students should personalize word learning.

(3) That students should be immersed in words.

(4) That students should build on multiple sources of information to learn words through repeated exposures. (p. 504)

Students encounter three key vocabulary challenges on a daily basis in content-area classrooms: (1) *big concept* vocabulary that interrupts or derails reading comprehension if the reader does not grasp the concept; (2) texts with lots of technical or subject specific vocabulary; and (3) unknown academic words (Alvermann & Phelps, 1998; Graves, 2000a, 2000b). There is evidence that certain approaches to working with each type of vocabulary challenge are effective. For example, Frayer models, word sorts, concept maps, semantic feature analysis, and list-group-label are strategies teachers can use to develop students' understanding of vocabulary related to central concepts. Knowledge rating guides, vocabulary discussions, triple entry vocabulary journals, partner/small group pre-view activities, and vocabulary quick writes can help students learn important technical or specialized terms. Finally, context clues (typographic and syntactic/semantic), strategic dictionary use, and the study of word structures (roots, stems, prefixes, suffixes, compound words) can help build general academic vocabulary and assist students when they are faced with a word they do not know (Baker et al., 1995; Blachowicz & Fisher, 2000; Bos, Anders, Filip, & Jaffe, 1989; Goerss, Beck, & McKeown, 1999; Graves & Watts-Taffe, 2002; Jenkins, Pany, & Schreck, 1978; Nagy & Scott, 2000; Smith, 1997, 2002). There is little evidence, however, that direct vocabulary instruction through the use of a single strategy (e.g., using context clues) produces positive or transferable effects (e.g., Szymborski, 1995).

There is a split in the research community over vocabulary development with adolescents. Although there is agreement that effective ongoing content-area vocabulary instruction is important, some researchers cite evidence that explicit vocabulary instruction is needed to close the achievement gap (e.g., Marzano, 2003; McKeown & Beck, 1988; Shostak, 2002). Others make the point that any vocabulary instruction needs to be embedded in strategies to increase the amount of reading students do because most vocabulary is acquired through reading, not direct instruction (e.g., Allen,

1999; Graves, 2000a, 2000b; Nagy & Herman, 1984). Chall (1987) notes that along with direct training, students also need exposure to challenging reading materials in order to develop effective vocabularies, and that as students get older, the need to develop vocabularies for meaning necessarily takes precedence over developing vocabularies for recognition. Thus, reading is linked directly to vocabulary development, even as vocabulary development is linked to improved reading comprehension.

Relevance for ELLs

In a study of four high school classes where ELLs fared well academically, Henze and Lucas (1993) note that explicit vocabulary instruction consciously emphasized the meaning of language rather than the structure. That is, rather than having students memorize lists of vocabulary while doing little to practice their use, teachers had ELLs (and other students) participate in activities where new vocabulary was used in authentic ways, making new words not only more intelligible, but more memorable as well.

Carlo et al. (2004) reported on a vocabulary enhancement intervention with Anglo and Latino fifth graders that taught meanings of academically useful words together with strategies for using information from context, morphology, knowledge about multiple meanings, and cognates. They found that both groups showed greater growth than a comparison group on knowledge of words taught, depth of vocabulary knowledge, understanding of multiple meanings, and reading comprehension. They also found that the effects were as large for ELLs as for monolingual English speakers. Interestingly, one aspect of the intervention incorporated the idea that native Spanish speakers should have access to the text's meaning in Spanish.

Explicit vocabulary instruction with ELLs can be aided if teachers know how to take advantage of students' existing first language vocabularies. As Cummins (2001) has highlighted, many low-incidence English language words, like the technical vocabulary students encounter across the content-areas, come from Greek and Latin roots. Once native Spanish, Portuguese, French, Italian, and Haitian Creole speakers recognize that science and math words in their first language often have cognates in English, rapid acquisition of important vocabulary often follows easily. Teachers need to be ready to troubleshoot the limitations of bilingual dictionaries and the use of cognates, however. A Spanish-speaking student who looks up the translation of *solicit* will find the word *solicitar*, an appropriate translation if *solicit* is being used to represent negative or controversial acts—e.g., solicit sex, drugs, etc.—but a deeply misleading translation if the original English usage meant something optimistic or not controversial, like to *solicit an idea*. (See Nagy, García, Durgunoglu, & Hancin-Bhatt, 1993, and Nagy, McClure, & Mir 1997, for more regarding Spanish-English bilinguals' use of cognates.)

As noted in Section III, the mathematics intervention with Native American students described by Davison and Pearce (1992) included explicit instruction of English language math vocabulary. The authors also identified the failure of elementary

bilingual education to teach mathematics terminology in Crow as well as English (90% of the participants were L1 Crow speakers) as one reason that students were several years behind grade level when they were enrolled in middle school. The students participated in a literacy-oriented math intervention that helped many reduce the gap between their performance and grade-level expectations.

Loucky (1997) conducted a study that tested the English vocabulary and reading comprehension of about 1,500 Japanese college and university students. The study compared three different formats for teaching vocabulary in ESL classes. Loucky concluded that teachers can improve vocabulary instruction by: (1) having students practice with an intense concentrated quantity of new essential core vocabulary, met in a broad variety of new contexts; (2) stimulating activation of associative memory networks; (3) maximizing active student acquisition of new words and activating passive vocabulary through maximum productive or generative use; and (4) following a set pattern of steps in learning any new vocabulary.

V. Conclusion

"Culturally diverse students are empowered or disabled as a direct result of their interactions with educators in schools."

—Jim Cummins (cited in Verplaetse, 2000b, p. 19)

During the 1980s and early 1990s, researchers posed two core questions. Can literacy skills be taught? And, if so, does direct instruction of literacy strategies correlate with greater student achievement? Many teachers and administrators, hesitant to make the significant changes necessary for literacy support, have wanted definitive answers to these questions before dramatically shifting classroom and school practices. With so many strategies from which to choose, educators have needed guidance on how to select the strategies that will be most viable in their context. Frustrated with what has appeared to be contradictory evidence and claims by different companies and consultants about the best strategies, many secondary school educators have either selected strategies arbitrarily, or worse, eliminated deliberate literacy support in their content-focused classes all together. For example, absent some clear evidence that it would directly promote subject areas mastery, math and science teachers have been reluctant to devote time to writing as a means of learning content—usually seeing that as the domain of the English teacher (Langer & Applebee, 1988).

The fact remains that a substantial body of research points to promising reading comprehension strategies for adolescent learners. We know a lot about how to improve adolescents' content-area reading comprehension. We also know a variety of strategies that encourage successful literacy development within the context of content-area teaching and learning. Finally, we found that these recommended teaching and learning strategies strikingly overlap with those that are currently emphasized in the training of ESL and bilingual education teachers.

Researchers also concur about the necessary conditions for implementation: To make effective use of those cognitive and metacognitive strategies, students must learn the literacy strategies, be given time to practice and apply them to a variety of contexts, and use them to learn across the content areas. There is increasing recognition that all students bring a variety of literacy skills with them to school and that teachers need to intentionally build on these to help students develop academic literacy skills (e.g., Lee, 2004; Obidah, 1998; Walsh, 1999). Again we found congruence: Just as the adolescent literacy research strongly suggests the need for explicit literacy instruction to support

students' mastery of content, the research on content learning in a second language recommends direct attention to literacy skill development (e.g., Carrasquillo & Rodríguez, 2002; Mohan, 1990; Wong Fillmore & Snow, 2000).

The research reviewed here suggests that in classrooms where the eight described practices are used by content-area teachers, adolescent ELLs with some knowledge of English and some literacy skills (in their native language and/or English) will see improvement in their English skills and academic literacy throughout the content areas. Under this scenario, which follows Miramontes et al.'s (1997) assertion that serving ELLs is the responsibility of the whole school, adequately prepared content-area teachers can lead one part of the effort to successfully educate secondary school ELLs.

Our work demonstrates the profound need for increased attention to teacher preparation–specifically the careful and comprehensive training of teachers to be responsive to ELLs and, hence, effective literacy teachers for all learners. Citing teacher training policy changes in Georgia and California, Harklau (2005) recently described a "race to the bottom" due to states' relaxation of training expectations to qualify teachers to work with ELLs. This will obviously not help ELLs. We found that the adolescent literacy literature and the literature on promising practices with secondary ELLs both describe recommended teaching practices that are not common in today's middle schools and high schools. Our hope is that, through research reviews such as this one, these practices do become commonly taught and commonly employed because they are useful for working with ELLs, because they are helpful for supporting all students' development of advanced literacy across the content areas, or for both reasons. However, we recognize that effective implementation of the eight strategies described in this paper is a significant undertaking that will require many hours of professional development, teacher collaboration, and coaching to become routine core elements of teacher practice. August and Hakuta (1997) note that there is a stark mismatch between what we know regarding adequate professional development to help teachers work with ELLs and what is actually delivered. Nothing we found counters their interpretation or excuses the current lack of sufficient professional development.

If the eight practices described here (and the three practices described in Meltzer & Hamann, [2004]) are adopted, content-area teachers will have a much fuller set of skills and orientations for serving ELLs well. Indeed, their professional repertoire will then include many of the practices already included in the training of ESL and bilingual teachers. Our review of the research on ELLs suggests that these strategies are important for ELLs' success in the content-area classroom. We acknowledge, however, that this list of promising practices does not define all of the knowledge and skills teachers need to effectively support the content-area learning and literacy development of ELLs. The goal of this paper is to acknowledge overlap between the two literatures, not to offer a definitive statement on the strategies that will assure full responsiveness to ELLs and their related classroom success. Effective content-area classroom instruction

is necessarily a blend of research-grounded appropriate practices and context responsiveness. No single program is best for all students, nor for all ELLs (Genessee, 1999). However, even if particular tactics will vary by context, the underlying promising practices presented in this paper will enhance content-area learning and academic literacy development for diverse learners, including ELLs.

Implications for Teacher Professional Development

If, as student outcome data suggest, traditional approaches to content-area teaching and learning are not meeting the needs of many students, serious changes are in order. What may have "worked" for some in the past will not suffice as schools are charged with adequately preparing *all* young people to succeed. Given budget constraints and external pressure, it is important that any intervention be responsive to both ELLs and other learners not performing at grade level in the content areas. In other words, adapting mainstream classrooms in ways that make them more ELL responsive should also make them more responsive to under-served learners generally. Schools and their content-area teachers are faced with accountability requirements for the academic success of ELLs and other student subgroups (Abedi, 2005; Crawford, 2004). This context provides an impetus for professional development that is responsive to specific populations, while also addressing the needs of more than one population. Our findings suggest that helping teachers build their capacity to develop the literacy habits and skills of all students and reinforcing the expectation that this capacity is part of teachers' responsibilities may address some of the learning and literacy needs of ELLs enrolled in mainstream content-area classes.

Content-area teachers best know the demanding academic content that ELLs need to access (Colombi & Schleppegrell, 2002; Short, 1999; Walqui, 2000a), but we do not suggest that they are the only instructors who should work with ELLs. Organized bilingual or second language instruction by trained teachers must be part of the response to ELL's needs (Genessee, 1999) and collaborative teaching by content teachers and ESL/bilingual instructors should be more widely considered (e.g., Anstrom, 1997). Perhaps more than other students, ELLs need explicit support to develop academic literacy skills in English within each of the academic content areas. Intriguingly, the overlap we found across both literatures suggests that preparing teachers to strengthen academic literacy development within the context of content-area teaching and learning, vis-a-vis the eight practices reviewed in this document, will help prepare them to teach ELLs effectively. Indeed, schooling is unlikely to generate the intended outcomes of assisting adolescent ELLs to reach high content-area standards and academic language proficiency in English without these practices in place.

Final thoughts

For most learners, ELL and L1 English speakers alike, the development of advanced academic literacy skills across the content areas—necessary for full engagement with those content areas and the related intellectual development such engagement promises—is not something that transpires without explicit instructional support. According to the literature, both L1 English students whose literacy skills are on or below grade level and their ELL peers benefit from explicit instruction in the vocabulary, text structures, and discourse features of the various content areas. This explicit instruction can and should incorporate each of the domains of literacy—that is, reading, writing, speaking, listening, and thinking—because the most effective strategies for comprehension and communication in the content areas vary by learner, topic, task, etc. This explicit instruction should take place within responsive learner-centered environments where students work collaboratively on thoughtful inquiry and learning. Modeling viable literacy habits; providing responsive, timely and intelligible feedback; drawing explicit attention to content-area genres and conventions and to the ways they vary depending on whether the task is reading, writing, listening, speaking, and/ or thinking—these are all important practices for teachers. Our national educational goals include supporting adolescents to develop what Langer (2002) defines as "high literacy" and what Schleppegrell (2002) calls "advanced literacy." If this outcome is truly essential to the development of competent independent learners who can participate fully in our democratic system, then we need collectively to develop the will and resources to support teachers and schools to enact these practices effectively, regularly, and systemically.

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