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Preparing Teachers of English Language Learners: Empirical Evidence and Policy Implications

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Abstract: In this study, we examined the degree to which the requirements in each state's teacher education programs reflect current theory and practice for teachers of ELLs in their coursework, and how these requirements in turn are related to 4th grade Hispanic ELL's reading outcomes on the National Assessment of Educational Progress. We found that required coursework on English language development and assessment were positively related to Hispanic ELLs' reading outcomes. Moreover, states that require both specialist certification, and all teachers to have some level of training to meet the needs of ELLs, also tend to have higher levels of achievement than states that do not have these requirements.
Keywords: academic achievement; English language learners; teacher certification programs; NAEP; Latinos.

Preparación de Maestros para estudiantes que precisan aprender Inglés: evidencia empírica e implicaciones políticas
Resumen: En este estudio, se analizó el grado en que los requisitos de cada estado para los programas de formación de profesores reflejan las teorías y prácticas de los profesores de estudiantes que precisan aprender inglés en sus cursos, y cómo estos requisitos, a su vez, están relacionados con los resultados en lectura en la Evaluación Nacional del Progreso Educativo de los

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estudiantes de 4 º año hispanos que precisan aprender el Idioma Inglés. Se encontró que el desarrollo y la evaluación de los cursos requeridos para el idioma Inglés se relacionaron positivamente con los resultados en lectura estudiantes hispanos que precisan aprender inglés. Además, los estados que requieren certificación de especialista y al mismo tiempo que todos los docentes tienen algún nivel de formación que permitan satisfacer las necesidades de los estudiantes hispanos que precisan aprender inglés también tienden a tener niveles más altos de logro academico que los estados que no cuentan con estos requisitos.
Palabras clave: logro académico; estudiantes que precisan aprender inglés; programas de certificación de maestros; Evaluación Nacional del Progreso Educativo; Latinos.

Preparação de Professores de Aprendentes de Língua Inglesa: Evidência Empírica e Implicações Políticas

Resumo: Neste estudo, analisámos em que grau as exigências dos programas de cada estado para a formação de professores refletem a atual teoria e prática para professores de aprendentes de Língua Inglesa nos seus cursos, e como esses requisitos, por sua vez, estão relacionados com os resultados em leitura dos aprendentes de Língua Inglesa Hispânicos do 4º ano na Avaliação Nacional do Progresso Educativo. Descobrimos que o desenvolvimento e avaliação do curso exigido para língua inglesa se relacionavam positivamente com os resultados em leitura dos aprendentes de Língua Inglesa Hispânicos. Para além disso, estados que exigem certificação especialista e, simultaneamente, que todos os professores tenham algum nível de formação para atender às necessidades dos aprendentes de Língua Inglesa, também tendem a ter elevados níveis de realização do que estados que não têm esses requisitos.
Palavras-chave: realizações académicas; aprendentes de língua Inglesa; programas de certificação de professores; Avaliação Nacional do Progresso Educativo; Latinos.

Introduction[1]

The dramatic growth of culturally and linguistically diverse students over the past several decades is well documented (e.g., García & Frede, 2010). Approximately one in five students speak a language other than English at home (Shin & Kominski, 2010), with the majority concentrated in early elementary grades and approximately 70% speaking Spanish as their native language (García & Frede, 2010). As the English Language Learner (ELL) population grows, the achievement gap between these students and their White, English-proficient peers remains stubbornly stable across numerous indicators including achievement scores (NCES, 2010) and high school completion rates (Ballantyne, Sanderman, & Levy, 2008).

Although circumstances that disrupt education such as poverty and mobility pose barriers to academic success for ELLs that are difficult to ameliorate, the "inequitable access to appropriately trained teachers" with specialized training to meet the needs of ELLs presents obstacles that can be

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more readily addressed (Rumberger & Gándara, 2004, p. 2036). Nevertheless, ELLs are disproportionately taught by less qualified teachers (Ballantyne et. al., 2008; Darling-Hammond, 2010). Even newly certified teachers who meet criteria for "high quality" in their state often feel unprepared for this role (Herrera & Murry, 2006; Ruiz-de-Velasco & Fix, 2000). Among the impediments to adequately preparing educators to meet the needs of ELLs are "policy initiatives or legislative mandates" constraining or forbidding bilingual programs, "inadequate resources," and a lack of "institutional will" (Garcia, Jensen, & Scribner, 2009, p. 12).

Although many teachers may have not been compelled to consider the educational needs of ELLs, this is now a demographic imperative (NCES, 2004). To be in compliance with Titles I and III of the No Child Left Behind Act (NCLB, 2001), schools must demonstrate adequate yearly academic progress among ELLs using instruction that is supported empirically. Despite these policies, a vast majority of teachers—over 70%—lack the training to be effective with ELLs (Ballantyne et al., 2008). The lack of training is not only evident in reviewing required coursework, but also in the sentiment among surveyed teachers who "[identify] an inadequate background in appropriate strategies and techniques for instructing and assessing ELL students as the number one gap in their preparation for teaching" (Herrera & Murry, 2006, p. 201).

In consideration that "states, through policies and regulations, continue to exert significant influence on the preservice training teachers receive prior to entering the classroom as the teacher of record" (Loeb & Miller, 2006, p. 8), it is important to identify the teacher preparation policies that promote achievement for ELLs. To address this need, we examined the degree to which state requirements for teacher certification[2] (both mainstream and specialist[3]) reflect current empirically based theory and practice and how these requirements in turn are related to 4th grade Hispanic ELL's reading outcomes on the National Assessment of Educational Progress (NAEP). Although certification assessments have long been the measure for accountability of teacher preparation, there is evidence that teachers' grades in preservice teacher preparation programs are more strongly related to their students' success levels than the teacher certification exams that were designed to hold teacher preparation programs accountable (D'Agostino & Powers, 2009). Therefore, we focused explicitly on the content reflected in required coursework as specified by each state. The specific research questions we examined were: 1) How are state requirements on knowledge specialist certification teachers must demonstrate to be successful with ELLs related to ELLs' achievement? (2) How are state requirements on knowledge mainstream teachers must demonstrate to be successful with ELLs related to ELLs' achievement?

In the sections that follow, we briefly review the theoretical framework that undergirds the knowledge teachers must have to be successful with ELLs. We then review the literature reflecting theory and practice of effectively educating ELLs across the three different categories in the framework: (a) Methods, (b) Curriculum, and (c) Assessment. After presenting our results, we conclude by articulating policy implications for teacher preparation programs in the context of our findings.

Theoretical Framework

[2] We use the term certification although some states use the term endorsement.

[3] There is much variation in the way states label certifications/endorsements for teachers who will work explicitly with ELLs. Here we use *specialist* to refer to various certifications or endorsements including bilingual, English as a Second Language (ESL), Teaching English to Speakers of Other Languages (TESOL), among others.

Preparing Mainstream Teachers to Meet the Needs of ELLs

A body of literature has emerged describing how teacher preparation programs may better prepare "all teachers to teach ELLs" (see Lucas, Villegas, & Freedson-Gonzalez, 2008, p. 361-362). Most of this literature, however, "does not attempt to fully articulate the knowledge base incorporated into the approaches being discussed" (Lucas et al., p. 362). In contrast, Lucas et al. assert that a distinct body of literature has robust evidence describing effective teaching practices for ELLs (e.g., August & Hakuta, 1997; Collier & Thomas, 2004; Krashen, 1985, 1991, 1997; Wong-Fillmore & Snow, 2002). According to Lucas et al., this literature reflects six "essential understandings of second language learning for linguistically responsive teachers" (p. 363). These essential understandings include knowledge about the differences in conversational language and academic language, as well as contexts that promote development of both (Cummins, 1981, 2000, 2008). Lucas et al. also assert that all teachers need pedagogical expertise in

> familiarity with the students' linguistic and academic backgrounds; an understanding of the language demands inherent in the learning tasks that students are expected to carry out in class; and skills for using appropriate scaffolding so that ELLs can participate successfully in those tasks. (p. 366)

To ensure all teachers acquire the essential knowledge to be successful with ELLs, Lucas et al. (2008) suggest that teacher education programs require, at minimum, a one credit "course devoted to teaching ELLS and one that all preservice teachers are required to take" (p. 370). Notably, much of the literature Lucas et al. cite in their framework for mainstream teachers is central to bilingual and English as a Second Language (ESL) education (e.g., Krashen, 1991, 1997). As a result, the essential understandings and practices presented by Lucas et al. mirror some of the requisite knowledge reflected in the framework for preparing specialist teachers to meet the needs of ELLs presented by Menken and Antunez (2001).

Preparing Bilingual/ESL Teachers to Meet the Needs of ELLs

Menken and Antunez (2001) presented a *Matrix* with three distinct domains, each with various categories, reflecting what bilingual[4] teachers should know: *knowledge of pedagogy, knowledge of linguistics* and *knowledge of cultural and linguistic diversity*. Menken and Antunez created the discrete domains and their corresponding categories with

> input from experts at National Center for Bilingual Education, American Association of Colleges for Teacher Education (AACTE), the Center for Research on Education, Diversity, and Excellence, and the Teachers of English to Speakers of Other Languages Pre-K-12 Teacher Education ESL Standards Committee." (p. 14.)

Consequently, Menken and Atunez's Matrix reflects rigorous content validation by organizations dedicated to developing standards for teachers of ELLs. In the present study, however, we adapted this Matrix slightly and subsumed the categories reflected in knowledge of linguistics and knowledge of cultural and linguistic diversity domains into the various categories in knowledge of pedagogy. We explain our rationale in detail below.

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[4] Even though Menken and Antunez (2001) refer to the categories in the Matrix as "areas of knowledge that must be included in the preparation of bilingual teachers"(p. 10), they used "information provided from a quantitative study conducted by AACTE that offers a wide-scale overview of the types of programs that exist in IHEs to prepare teachers of ELLs." (p. 13) As such, the categories in the Matrix reflect knowledge required by states that offer other types of certification, including ESL and Teachers of English for Students of Other Languages (TESOL).

Like Menken and Antunez (2001), we examined each state's requirements for specialist teacher licensure (e.g., bilingual or English as a Second Language [ESL]) to verify each state's requirements for teachers seeking certification to work with ELLs. In doing so, we found that some states incorporated categories within the knowledge of linguistics and knowledge of cultural and linguistic diversity domains into standards reflecting knowledge of pedagogy. Although we concur with Menken and Antunez that knowledge of linguistics and knowledge of cultural and linguistic diversity are indeed distinct from knowledge of pedagogy, we had to account for the ways states delineate requirements.

One example of a state that incorporated categories across the different domains is Alabama. In their *literacy* standard, Alabama requires teachers to "model and actively teach their students the fundamentals of reading, writing, and oral communications across all content areas" (Alabama State Board of Education, Ch. 290-3-3, p. 261). Accordingly, this standard would clearly fall under knowledge of pedagogy (i.e., knowledge of *how* to teach). Within the literacy standard, however, teachers must also demonstrate "Knowledge of the impact of native language and linguistic background on language acquisition" (Alabama State Board of Education, Ch. 290-3-3, p. 261). Here, although the aim of the literacy standard is rooted in pedagogy, Alabama standards suggest that knowledge of linguistics is also a requisite to successful pedagogy for literacy. Another example is Alabama's *diversity* standard, which might appear to be consistent with Menken and Antunez's (2001) knowledge of cultural and linguistic diversity domain. In the diversity standard, however, Alabama states

> To improve the learning of all students, teachers differentiate instruction in ways that exhibit a deep understanding of how cultural, ethnic, and social background; second language learning; special needs; exceptionalities; and learning styles affect student motivation, cognitive processing, and academic performance." (Alabama State Board of Education, Ch. 290-3-3, p. 263).

By asserting that competence in differentiating instruction is necessary to address the diversity standard, the standard is once again consistent with the knowledge of pedagogy domain.

Another example of a state that aggregated the domains reflected in Menken and Antunez is Kansas. Standard #1 for a teacher seeking certification in English for Speakers of Other Languages (ESOL) reads, "The teacher of English for speakers of other languages understands the contributions of general and applied linguistics to second-language education, including the understanding of the sound system, forms, structures, and the lexicon of English" (Kansas State Department of Education, 91-1-203, p. 182). This standard is consistent with Menken and Antunez's knowledge of linguistics domain; however, the way in which the standard is assessed is in the way the teacher "develops and uses curricula" (p. 183), placing it in the knowledge of pedagogy domain. Hence, by adapting Menken and Atunez's Matrix to incorporate the knowledge of linguistics and knowledge of cultural and linguistic diversity categories into knowledge of pedagogy, we were able to reflect states' acknowledgement of the necessity that knowledge reflected in all three domains is critical for teachers of ELLs to be successful.

Another key factor in our decision to modify the Matrix is that some states either emphasize knowledge of pedagogy or aggregate the other two domains within knowledge of pedagogy when delineating their course requirements for preservice teachers. Connecticut, for example, emphasizes knowledge of pedagogy and requires course credit in

> Curriculum and methods of teaching, including a minimum of 15 semester hours of credit in the Teaching English to Speakers of Other Languages (TESOL), which shall include the following areas of preparation: (i) First and second language acquisition including language and literacy development; (ii) Methods of teaching developmental reading prekindergarten to Grade 12; (iii) Methods of teaching

> English as a second language, including content based instruction to English language learners; (iv) Methods of teaching writing process or advanced English composition; (v) Linguistic and academic assessment; and (vi) Course work incorporating competencies as provided in section 10-145d-808. (State of Connecticut Regulation of State Board of Education, Sec. 10-145d-857, p. 64)

South Dakota, however, aggregates the other domains within knowledge of pedagogy by asserting that teachers must demonstrate "the content, pedagogical, and professional knowledge and skills" reflected in the required 18 semester hours of coursework that includes linguistics and language and culture, among others (South Dakota Legislature, 24:15:06:25). Hence, our adaptation of the Matrix allowed us to include and compare states with diverse approaches to coursework requirements.

The categories Menken and Antunez used in the knowledge of pedagogy domain include *Teaching Methods, Curriculum,* and *Assessment*[5]. Within each of the three categories in the knowledge of pedagogy domain, there are several subcategories (see Table 1). These subcategories we used are a slight deviation from those presented in Menken and Antunez (2001), reflecting our review of the literature.

Review of the Literature

Teaching Methods

Theory and practice of effectively educating ELLs support specific knowledge and teaching methodologies that address ELLs' particular needs of developing content knowledge while simultaneously developing English proficiency. Both bilingual and English as a Second Language (ESL) methodologies[6] incorporate an understanding of the same knowledge base, which includes an understanding of native language literacy and English language development. Whereas bilingual methods address pedagogy that incorporates teachers' use of students' native language to varying extents, however, ESL methods articulate the specific pedagogy that excludes students' native language. Notably, bilingual education and ESL are not mutually exclusive, and can often be found to be implemented simultaneously and/or sequentially as ELLs transition out of bilingual classrooms into mainstream classrooms. Thus, although bilingual education methods often incorporate ESL methods, ESL methods do not necessarily incorporate bilingual education methods.

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[5] Menken and Antunez also included *Practicum* as a category and we present state requirements for this category in Table 1. Nevertheless, we excluded practicum from our framework and analysis. Although the literature is clear that effective teacher preparation includes extended clinical experiences integrated with coursework (Darling-Hammond, 2006), there is much debate about the kinds of student teaching experiences that enhance preservice teacher learning (Zeichner, 1992). Moreover, some scholars assert the importance of teachers developing a comprehensive understanding of the *contexts* of their teaching and their students' learning (e.g., Cochran-Smith & Lytle, 1998). Student teaching is an area that merits numerous additional considerations that are beyond the scope of our analysis.

[6] Other settings, such as those using Structured English Immersion (SEI), deviate markedly from the empirical knowledge base presented here. For a detailed review of the theoretical framework undergirding SEI (or lack thereof), see López and McEneaney (2012).

Native language literacy

The premise of bilingual education is that knowledge and skills developed in the first language will transfer to the other" (Hakuta, 1990, p. 50). Indeed, scholars have found that ELLs' ability to use his or her native language to process a second language, both in print and orally is "closely related to the development of word reading skills in English" (Genesee, Geva, Dressler, & Kamil, 2008, p. 72). Accordingly, teachers can positively influence children's language skills and academic outcomes by exposing them frequently to high quality language instruction and modeling approaches in their native language (August, Carlo, Dressler, & Snow, 2005). However, in their review of numerous studies as part of the National Literacy Panel on Language-Minority Children and Youth, Genesee et al. (2008) found that the benefits of native language literacy on English literacy appear to depend on the degree of correspondence between the first language and English. This research suggests that preparing teachers to meet the needs of ELLs must take into account not only a deep level of knowledge about how literacy develops (content that is typical of elementary teacher preparation programs), but also how the effects of native language literacy on English language development may differ across linguistic groups. To be successful with ELLs, this knowledge is not exclusive to teachers who speak students' native language (Lucas et al., 2008).

Bilingual methods and content in native language

In addition to understanding native language literacy, teachers need an understanding of *how* to deliver instruction founded on these principles. Despite the label, knowledge of bilingual methods is not exclusive to teachers seeking certification in bilingual education. Indeed, many states with ESL certification require an understanding of bilingual methods. For example, Tennessee requirements for a Teacher of English as a Second Language include "awareness of bilingual education methods and the role of a student's native language in the learning of English as a second language" (Tennessee State Board of Education Rule 0520-2-4-.01). In part, this reflects a key tenet of most bilingual education programs: ELLs require continued support as they transition into mainstream classrooms.

Although some researchers have expressed concern over the reduced exposure to English in bilingual settings—claiming that bilingual programs are deleterious to English language development (Rossell, 2005), a review of 15 methodologically-sound studies by the National Literacy Panel found that

> …children in the bilingual programs not only developed facility with English literacy to the same extent as their peers taught in English, but also developed literacy skills in their native language. Thus, they achieved the advantage of being bilingual and biliterate (August, Beck, Calderón, Francis, Lesaux, & Shanahan, 2008, p. 140).

The National Literacy Panel's findings are consistent with prior meta-analyses (e.g., Rolstad, Mahoney, & Glass, 2005) that tend to favor bilingual approaches to other methods.

Although state requirements distinguish between coursework requirements in bilingual methods and content in native language, the overlap is substantial. Whereas bilingual methods courses tend to provide preservice teachers empirically-supported ways to deliver instruction, and often include transitional bilingual, ESL, and dual language instructional models, courses on content delivery focus on pedagogy using students' native language. The literature examining the effectiveness of different language acquisition programs, however, tends to encompass content delivery in students' native language—albeit to different degrees.

Transitional bilingual education programs promote monolingualism (fluency in English) and target ELLs exclusively. There are two models of transitional bilingual education: early exit and late exit models. In the early exit model – the most common U.S. model – students are transitioned to all-English instruction by about third grade. In late exit models (also referred to as developmental

bilingual education) students may receive content and instruction in their native language through fifth or sixth grade. Both models start by introducing academic content in the children's native language, and concepts are expanded in English to promote English language development. Over time, more academic instruction is presented in English until children are transitioned to all-English instruction (Ramirez, Yuen, Ramey & Pasta, 1991; Tong, Irby, Lara-Alecio, & Mathes, 2008).

Dual language (also called two-way bilingual) programs promote bilingualism (fluency in native language as well as English). In contrast to transitional programs that serve children who speak the same native language, dual language programs seek to populate classrooms with equal numbers of native English speakers *and* speakers of other languages (most often Spanish) (Lindholm-Leary, 2001). Like transitional bilingual programs, there is variability in structure; the overarching goal is for two different linguistic groups of students to become bilingual in each other's language. These programs also pursue the goals of academic achievement and cross-cultural understanding among students by effectively integrating language learning and content instruction. In sum, all the programs reviewed here share the goal of promoting English fluency for ELLs by using both students' native language and English as the language of instruction. Dual language programs, however, promote *bilingualism*.

English as a second language and English language development.

Although often presented as distinct methods to address the needs of ELLs in the literature, ESL and bilingual education both reflect the same theoretical principle regarding English language development (ELD) for ELLs. Among the theoretical principles is the distinction between "conversational" (e.g., English used in the playground) and "academic" English (e.g., English used in instruction) first introduced by Cummins (1979). Indeed, scholars have found that whereas conversational English takes approximately two years to develop, it takes ELLs from five to seven years to develop academic English (see Hakuta, 2011).

In consideration that ELLs learn new content as they also develop English proficiency, teachers need an understanding of the kind of support and instruction that addresses both these needs. For bilingual programs, this requires not only a focus on instruction in students' native language, but also ESL methods comprising direct English instruction focusing on grammar and usage and *sheltered English* approaches (Krashen, 1985, 1991, 1997). ESL that includes sheltered English approaches emphasizes English acquisition via content with support provided for students as necessary (Echevarria & Graves, 2010; Ramirez, et al., 1991). According to Echevarria and Short (2004), teachers who are skilled in sheltered instruction

> modulate the level of English used with and among students and make the content comprehensible through techniques such as the use of visual aids, modeling, demonstrations, graphic organizers, vocabulary previews, predictions, adapted texts, cooperative learning, peer tutoring, multicultural content, and native language support. (p. 28)"

Additionally, teachers incorporate explicit language instruction and promote instructional conversations that develop students' English proficiency, and use "supplementary materials that support the academic text" (p. 28). The supplementary materials enhance student understanding of content as their academic English skills are developed.

Curriculum

The curriculum is "the place where learner and content meet" (Darling-Hammond, 2006, p. 82). As such, ensuring students understand curricular content is fundamental to effective instruction for all students (Bransford, Darling-Hammond, & LePage, 2005). A high quality curriculum

incorporates knowledge of child and adolescent development, sociocultural learning theory, and subject matter pedagogy to ensure that students who are ELL receive access to the *same* high-quality curricular content of their classmates who are native English speakers (Brisk, 2006). Menken and Antunez (2001) assert that teachers must "receive preparation in the development and use of curriculum and materials specific to bilingual education programs" and that the "curricula and materials *differ* in bilingual education settings" (p. 10, emphasis added). To clarify, although the extant literature is clear in affirming that students from culturally and linguistically diverse homes need access to the *same* curriculum as their classmates, it supports the notion that there are certain ways to *adapt* curricular materials to ensure equitable access to the curriculum. A teacher who delivers the same curriculum to ELLs as non-ELLs, without modifications, is in essence restricting ELLs' access to the curriculum. Thus, the apparent differences in the bilingual (or ESL) curriculum stem from accommodations made to ensure ELLs have access to the same curriculum provided to non-ELLs.

Alongside methodologies, the extant literature supports two key factors that ensure ELLs have access to the same curriculum as their non-ELL peers. The first is *materials adaptation* wherein teachers adapt materials to ameliorate linguistic obstacles that otherwise prevent students from accessing content and provide support as students develop proficiency in English. The second is the *bilingual curriculum*[7] that regards culture as central to accessing students' prior knowledge, which in turn facilitates the acquisition of new knowledge.

Materials adaptation

To improve learning outcomes for ELLs, teachers must understand how ELLs' "native-language ability— especially, their literacy skills—and their academic preparation in their native language" (Lucas et al., 2008, p. 364) require an adaptation of materials to make content accessible to students. The adaptation of materials is analogous to scaffolding, wherein students are assisted within their *zone of proximal development* (Vygotsky, 1978). Scaffolding provides students with an appropriate level of assistance that promotes learning, and is subsequently altered as the learning trajectory progresses.

Curricular materials should be adapted to reduce linguistic barriers to students who are ELL. Students who are ELL face the dual task of mastering second language skills while simultaneously learning the academic content (Gibbons, 2002). As Lucas and colleagues (2008) explain: "Language is the medium through which students gain access to the curriculum….Therefore, language cannot be separated from what is taught and learned in school" (p. 362). Ignoring this and simply approaching the teaching of students who are ELL as "good teaching" limits their access to the curriculum (Clayton, Barnhardt, & Brisk, 2008). Instead, content area teachers are simultaneously language teachers: "A major challenge of teaching English learners is the need to integrate academic content, language, and culture in every lesson" (Haas & Gort, 2009, p. 126). Importantly, students who are ELL need to be "taught through the use of challenging material that does not get "watered down" merely because students are not fluent in the language of instruction" (Gersten & Baker, 2000, p. 461). Hence, access to quality curriculum is sine qua non. Indeed, in schools where teachers report curricular coherence, ELLs experience higher learning outcomes (Williams, Perry, Oregon, Brazil, Hakuta, Haertel, et al., 2007).

[7] We used the terminology reflected in state requirements; however, a more appropriate term for the bilingual curriculum might be *culturally responsive* curriculum.

Bilingual curriculum

A teacher prepared to deliver a bilingual curriculum has knowledge about the importance of ensuring the curriculum considers students' culture so that students' prior knowledge is a conduit for new knowledge. Cultural differences are not inherent traits of individuals but rather an outgrowth of "variations in people's involvement in common practices of particular cultural communities" (Gutierrez & Rogoff, 2003, p. 21). Culturally responsive approaches emphasize adapting materials to build on what is familiar to students and stretch them beyond this (Villegas & Lucas, 2002). An effective curriculum for culturally and linguistically responsive learning communities integrates students' home culture and practices (Garcia, 2005). Moreover, Lee and Luykx (2005) describe the importance of "developing congruence not only between students' culturally based interactional norms and those of the classroom but also between academic disciplines and students' linguistic and cultural experiences" (p. 413). Lee (2010) emphasizes that "developing high quality curricula and making them accessible to ELLs and immigrant students require careful planning" (p. 459), bearing in mind locally situated aspects of culture, intracultural variations, and the importance of representing students' experiences and identities. Notably, content (e.g., math) of the bilingual curriculum should not be different from that of the monolingual curriculum. Rather, as described in the previous section, the methodology of delivering this content differs because teachers consider students' prior knowledge and its relationship to culture.

Assessment

Assessment of student learning is critical for improving achievement outcomes. Teachers who use formative assessments to determine the degree to which students have mastered a given skill can re-teach concepts that have not been mastered (Bloom, 1969). The degree to which teachers actually use assessments formatively, however, is dismal (Black & Wiliam, 1998). In part, the paucity of formative assessment practices in the classroom is likely because most teacher preparation programs do not require an educational measurement course (Stiggins, 2002). When teacher preparations do require coursework on assessment, they tend to focus on summative assessment that inform what was learned as opposed to formative assessment that can inform instruction on what remains to be learned (Stiggins, 1988).

Content in native language or English

One of the fundamental principles in assessment is the notion of validity and reliability: Does an assessment result in scores that reflect what we believe they reflect? Are the scores consistent? For ELLs, this can be especially problematic. For instance, when ELLs are assessed in math, does the score reflect their understanding of the content, or does it reflect (to some degree) their English proficiency? Often, the answer—at least for many ELLs in the earlier stages of English language development—is that content assessments may reflect the trajectory of second language acquisition rather than the level of understanding content (Butler & Stevens, 2001). To strengthen the validity of assessments for ELLs, accommodations can remove language as an obstacle to reflect more accurately what students know about mathematics or science, for example. Of the numerous accommodations examined, linguistic modifications tend to show the most promising reductions in bias (Abedi, Hofstetter, Baker, & Lord, 2001; Abedi, 2002). Developing assessments in students' native language that reflect the same content as assessments in English is a daunting endeavor (August & Hakuta, 1997), and the literature does not suggest that teachers of ELLs translate all assessments. It does, however, caution teachers to the kind of interpretations that can be made—and the kind of implications scores can have on ELLs' educational experiences.

Limited English Proficiency

States are required to determine whether students are ELLs. To that end, many states use language proficiency measures to determine not only English proficiency, but native language proficiency as well. One of the limitations with these assessments is that "they do not necessarily measure students' ability to use the language in real-life settings or for academic purposes" (García, McKoon, & August, 2008, p. 255). Some researchers have found these assessment practices to be more detrimental than helpful in promoting achievement among ELLs (MacSwan, 2000; MacSwan & Rolstad, 2006; Mahoney & MacSwan, 2005). MacSwan and Rolstad (2006), for example, presented native language proficiency rates of students assessed with various measures that were in stark contrast with the extant literature on language acquisition (p. 2320). They assert that these assessments reflect pervasive validity issues, and call for reforms in "language-testing policies and improvements in assessment quality" (p. 2325). The extant literature, however, does not reflect evidence on the validity of language proficiency measures in English, suggesting that both native and English language proficiency measures lack support to be promulgated as a requirement for teacher training.

The Present Study

Countless arguments describing the problems of teacher training have detailed the importance of connections between content knowledge and practice (e.g., Schulman, 1998), as well as the importance of pedagogical knowledge (Konold, Jablonski, Nottingham, Kessler, Byrd, Imig et al., 2008). There are additional considerations, however, that must be addressed by teacher education programs for all teachers to be prepared to respond to the needs of linguistically diverse students. We have outlined the literature describing effective theory and practice for preparing educators of ELLs (both specialist and mainstream). In many states, teachers who teach ELLs are required to hold bilingual or ESL certification. Others require that *all* teachers have some training to work with ELLs. To date, however, no study has examined how state requirements are related to ELLs' achievement. To address this limitation, we turn now to our analysis of the degree to which the coursework requirements for teachers of ELLs—both specialist and mainstream—are related to better reading outcomes on the NAEP for 4th grade Hispanic ELLs.

Methods

Sample

Our sample included all Hispanic ELL 4thgrade students who took the 2009 NAEP Reading assessment in all 50 states and D.C. and their teachers. We limited the sample to Hispanic ELLs given that an overwhelming majority of ELLs are Hispanic, representing approximately 75% of all ELLs who took the 2009 NAEP. Moreover, policies aimed at restricting the use of students' native language tends to be aimed at specific groups, with Hispanics a current target (e.g., Wiley & Wright, 2004). Although there is much variation among Hispanic ELLs, limiting the heterogeneity of the sample is key in understanding how teacher certification requirements may influence academic outcomes for particular groups of students.

Although NAEP is administered in 4th, 8th, and 12th grade, we limited our analysis to 4th grade. In consideration that the goal of most bilingual education programs is to transition students into mainstream classrooms by middle to late elementary school grades, we restricted the scope of the study to reflect the sample of students and teachers who would be most influenced by state

policies regarding bilingual education. For example, Texas Education Code §89.1205 states "A school district shall provide a bilingual education program by offering dual language instruction in prekindergarten through the elementary grades." In contrast, the code asserts

> All English language learners for whom a school district is not required to offer a bilingual education program shall be provided an English as a second language program…regardless of the students' grade levels and home language, and regardless of the number of such students.

The issue of meeting the needs of ELLs in middle and secondary school, however, is salient—but goes beyond the scope of the study.

There were approximately 15,000 Hispanic ELLs across 2,800 schools (weighted Ns) included in the analysis. In our inclusion criteria, we considered the varying criteria for reclassification from ELL to non-ELL across states (Gándara& Merino, 1992) and included both students who were classified as ELLs at the time of testing as well as those who had been classified as ELL ("formerly-ELL") prior to testing. Although this might introduce limitations given the differences in English proficiency among students (which would not be rectified by disaggregating ELL and formerly-ELL in consideration of the variation in the ways states reclassify students), we also included a control variable to account for the number of years ELLs had received English instruction (see below). Given our focus on state requirements for teacher certification and student outcomes, we excluded students whose teachers were not certified through a university-based teacher preparation program.

Level 1: NAEP Student-Level Variables

Dependent variable: Reading achievement. Our core data source was restricted-license data from the 2009 Grade 4 NAEP. First instituted in 1969, "NAEP is a congressionally authorized project of the National Center for Education Statistics (NCES, 2011a) within the Institute of Education Sciences of the U. S. Department of Education" (p. 2). Comprehensive data on teachers, schools, and students are collected on national and state-representative samples. Despite limitations, achievement outcomes on NAEP across multiple subjects collected in grades 4, 8, and 12 are considered "as precise and reliable as the current state of research… can make them" (Hombo, 2003, p. 62). NAEP data are obtained by complex stratified sampling at the levels of geographic area, schools, and students to provide information about student achievement. NAEP scores are reflected in The Nation's Report Card (NCES, 2011a). The 2009 NAEP assessment consisted of questions based on both literary and informational texts designed to assess the degree to which 4th grade students could locate and recall text information, integrate and interpret texts, and critique and evaluate the meaning conveyed; vocabulary meaning was also assessed within the context of passages (NCES, 2011b).

Control variable: Eligibility for free lunch (0-2). Given the lack of variables indicating socioeconomic status in NAEP, we included student's eligibility for the federal National School Lunch Program. This variable was coded on a scale of 0-2, with 0 = not eligible (12%), 1= eligible for reduced price lunch (6%), and 2= eligible for free lunch (82%).

Control variable: Gender (0-1). A dummy variable indicating whether the student was male (52%) was included in the analysis.

Control variable: Individualized education program (IEP) (0-1). A dummy variable was used to control for students having an IEP (14%).

Control variable: Years receiving instruction in English. NAEP provides the number of years students have received instruction in English. In the present study, the number of years ranged from 1 to 5 (M = 4.03, SD = 1.39).

Control variable: Amount of time students spend on various literacy activities. NAEP provides information regarding the amount of instructional time (reported as 1 = Never or hardly ever, 2 = Sometimes, 3 = Often, and 4 = Always or almost) students reported spending on literacy activities in class across 15 items. Examples of the activities included making presentations in class about something read, writing about what was read, working in groups to talk about something read, and explaining stories in students' own words. In the present study, the aggregate of the literacy activities ranged from 1.30 days to 4.00 days on average per week (M = 3.24, SD = .31) and coefficient alpha was .88.

Level 2: School Level Variables

Independent variable: State requirements for specialist teacher certification. We compiled information on state-level requirements for specialist teacher certification in the areas of methods, curriculum, assessment, and practicum based on the knowledge of pedagogy framework presented by Menken and Antunez (2001) (see Table 1). To ensure codes reflected current requirements, we obtained updated information from the National Clearinghouse for English Language Acquisition (NCELA) roundtable report (Ballantyne et al., 2008), as well as each state education agency. Codes for state level licensure requirements were verified with the Title III Office contact listed on the NCELA website for each state. The preservice teacher requirements for teachers of ELLs were coded as follows: 0 = not required, 1 = elective, 2 = demonstrated competence, 3 = required course topic, and 4 = required course. Our compilation of state certification requirements for teachers of ELLs was *not* centered on bilingual education per se, but rather on the kind of knowledge teachers must have if they are to work with ELLs. When states offered more than one type of certification (e.g., bilingual and ESL), we considered the criteria in both to determine the coding used in the analysis. Generally, states that have requirements for bilingual education have strikingly similar requirements for ESL or ESOL certification with differences in standards reflecting teachers' proficiency in teaching content in English and students' native language versus competence in teaching English as the other language.

Mainstream teachers. Menken and Antunez (2001) also presented information collected by AACTE on whether a course addressing working with ELLs is required of all certified teachers; however, "few preparation programs require that mainstream teacher candidates are prepared to teach ELLs" (p. 40). In the present study, we modified the categories to reflect the presence or absence of the requirement for all teachers as mandated by each state. This dimension was dummy coded as follows: 0 = States where there is no requirement that all teachers have expertise or training in working with ELLs, 1 = Knowledge of second language acquisition and strategies to support ELLs and/or strategies or accommodations for ELLs must be demonstrated via assessment or successful coursework completion.

State requirements. The last category was state licensure requirements, which reflects whether specialist certification that is specific to the education of ELLs (bilingual or ESL) is required (this included states where professional development leading to an additional endorsement is required or certification that is specific to the education of ELLs is required, but can be waived under certain circumstances). States with said requirements were coded "1" and states where there is no requirement were coded "0." We present the resulting codes across all 50 states and D. C. in Table 1; each school was assigned their respective state's numerical code, resulting in approximately 2,800 cases rather than 51.

Control variable: Percent Hispanic. NAEP provides a measure of percent of enrolled students who are Hispanic (0 – 100%); we included this variable in the analysis as a control (M = 14%; SD = 23%).

Analysis

Although there are approximately 150 NAEP Reading items, each student typically answers around 15% of them. To estimate student scores, item response theory (Lord, 1980), marginal maximum likelihood, and conditioning techniques are applied to NAEP responses. Five "plausible values" are generated, and represent an estimate of each student's reading achievement. To address the design effects inherent in complex sampling (Raudenbush & Bryk, 2001), we used SPSS version 19 to clean and manage the data, AM statistical software to calculate descriptive statistics, and HLM 6.08 to estimate the two-level models that included additional measures of state requirements for teacher certification. To address stratified sampling and nonresponse inherent in NAEP scores, we applied weighting at both the student and school level (Zwick, 1992).

In consideration of the five plausible values that result from complex sampling on NAEP scores, we estimated full maximum likelihood intercepts-as-outcomes models in HLM 6.08 with the student-level intercept varying across school-level variables and the slopes of control variables at both levels remaining fixed (Luke 2004, pp. 11-13). The following equation summarizes the full mixed model of reading achievement:

$$Y_{ij} = \gamma_{00} + \gamma_{01}TC + \sum_{1}^{k}\gamma_{0k}OSL + \sum_{2}^{m}\gamma_{m0}SL + u_{0j} + r_{ij}$$

Where Y_{ij} represents individual student reading achievement based on the five plausible values, with error terms u_{0j} showing error associated at the school-level in estimating the effect of teacher certification requirements and r_{ij} the error associated with individual student i at school j. Here, TC represents teacher certification requirements, OSL represents other school-level (level 2) variables, and SL represents student level variables.

Results

We used a proportional reduction of error approach to assess model fit (Hox, 2002). In this multi-level modeling approach, we first estimated a null model (model 1) that includes only the intercept. The null model results in a variance component that provides information about the amount of variance that remains to be explained, as well as an intra-class correlation (ICC) that explains the proportion of variance in the outcome (i.e., reading achievement) that was explained by the grouping structure (i.e., schools). Once the null model was established, each subsequent model was compared with the one prior. In the present study, the ICC was .16, exceeding the minimum criteria of .05 for the appropriateness of multi-level modeling (Hox, 2002). The variance component indicated a significant amount of variance in reading outcomes remained to be explained ($p < .01$).

A block of level 1 control variables were added (model 2) and compared to the null model, resulting in 22% reduction in error at the student level. All Level 1 controls were significant and in the expected direction (see model 2 in Table 2). Males scored on average 4.50 points lower (.13 *SD*) than females; students who were eligible for reduced lunch scored 2.59 (.07 *SD*) lower than their non-eligible peers (resulting in a .15 *SD* discrepancy between students who were eligible for free lunch and their non-reduced lunch peers); and students with an IEP scored on average 40.04 points (1.14 *SD*) lower than their peers without an IEP. The composite variable reflecting the amount of time students spent on literacy activities was substantial: for each increase in average hours per week spent on literacy, students gained 8.14 points. In classrooms with the most time spent on literacy, this translates to approximately a 1 *SD* gain in reading achievement.

School level variables were entered in one block (see model 3 in Table 2). The addition of school level variables resulted in 42% reduction of school level error. The proportion of Hispanic

students within a school was significant, with each percentage increase associated with an overall loss of 0.13 points in reading scores (i.e., higher density schools tend to have lower achievement overall when compared to lower density schools).

Variables related to state regulations on teacher certification requirements are divided into the three categories reviewed in the literature: methods, curriculum, and assessment. Consistent with the extant literature we reviewed, certain teaching methods and assessment practices are particularly salient in ameliorating achievement disparities among Hispanic ELLs.

We now turn to the results for the different categories of knowledge that specialist (bilingual or ESL) teachers should know.

Teaching Methods

For specialist certification, state requirements on knowledge of native language literacy are associated with a gain of 1.85 points per unit increase in the requirements, translating into a potential gain of .23 *SD* gain in reading for Hispanic ELLs when compared to their peers in states without such a requirement for specialist teachers. Training in ESL/ELD was also significant and positive, with a gain of 3.70 points per unit increase in requirements. Notably, this translates into approximately a .40 *SD* gain for Hispanic ELLs in states with stringent requirements compared to peers in states with the least stringent requirements. In contrast, the requirement regarding content delivery in students' native language was negatively associated with achievement. Requirements regarding bilingual education methods were not significant.

Curriculum

Whereas training in materials adaptation was not significant, training in bilingual curriculum was—but in a negative direction. For each unit increase in the stringency of states' requirements that preservice teachers seeking bilingual or ESL certification receive training in developing a bilingual curriculum, Hispanic ELLs lost on average 2.96 points.

Assessment

Two of the four variables related to standards regarding training in assessment were significant, but in opposing directions. States requiring training in native language or English content assessment for preservice teachers seeking bilingual or ESL certification gained on average 2.70 points per unit increase in the stringency of the requirement—translating to almost a 1/3 *SD* gain in states requiring an entire course devoted to the topic. States requiring training in Limited English Proficiency assessment were associated with a loss of approximately 2.37 points per unit increase the stringency of the requirement —a loss of almost 1/3 *SD* in states requiring an entire course devoted to Limited English Proficiency assessment. Training in assessment for literacy focusing only on native language or English was not significant.

Table 2

HLM Models of 2009 NAEP Reading Achievement for Hispanic ELL Students (≈15,000 students, 2,800 schools)

	Model 1: Null	Model 2: Level 1	Model 3: Level 2	Model 4: Final Model
Fixed Effects				
Intercept	192.51**	192.21**	193.70**	193.67**

	(0.71)	(1.13)	(0.99)	(1.00)
Level 1				
Male		-4.50**	-4.43**	-4.42**
		(1.21)	(1.18)	(1.18)
SES		-2.59**	-2.64**	-2.65**
		(0.84)	(0.82)	(0.82)
IEP		-40.04**	-39.57**	-39.58**
		(2.55)	(2.52)	(2.52)
Years of English Instruction		2.88**	2.77**	2.77**
		0.75	0.75	0.75
Time on Literacy Activities		8.14**	7.15**	7.22**
		(1.93)	(1.88)	(1.88)
Level 2				
Percent Hispanic			-0.13**	-0.13**
			(0.03)	(0.03)
Methods				
Native Language Literacy			1.85**	1.66**
			(0.69)	(0.67)
ESL/ELD			3.70**	2.82**
			(0.74)	(0.65)
Content in Native Language			-1.70*	-1.42
			(0.85)	(.82)
Bilingual Methods			-1.19	
			(0.68)	
Curriculum				
Materials Adaptation			-0.96	
			(0.74)	
Bilingual Curriculum			-2.96**	-3.23**
			(0.83)	(0.64)
Assessment				
Content in Native Language or English			2.70**	2.24**
			(0.95)	(0.80)
English Literacy			0.47	
			(0.74)	
Native Language Literacy			1.66	
			(1.58)	
Limited English Proficiency			-2.37**	-3.78**
			(0.82)	(0.52)
State Requirements				
All teachers must have training to			-1.85*	-1.47*

teach ELLs			(0.75)	(0.63)
Teachers who teach ELLs must have valid specialist (bilingual, ESL) certification			4.51**	4.49**
			(1.55)	(1.49)
All teachers must have training X teachers who teach ELLs must			3.86**	3.79**
have valid specialist certification			(1.33)	(1.11)
Random Effects				
Intercept (Variance between schools)	170.92	192.80	112.29	112.81
Level 1 (Variance within schools)	1095.02	857.10	857.03	857.07
Intraclass Correlation[b] (Proportion of variance between schools)[c]	0.16[b]	0.22[c]	0.13[c]	0.13[c]
Level-2 Proportional Reduction of Error (%)	NA	-0.13	0.42	0.34
Student-level Proportional Reduction of Error (%)	NA	0.22	0.00	0.22

*p<.05; **p<.01
Robust standard errors in parentheses

State Requirements

Notably, the categories in the theoretical framework that reflect essential knowledge for specialist teachers also reflect much of the essential knowledge Lucas et al. (2008) delineated as necessary for all teachers; however, few states require mainstream teachers to demonstrate competence to teach ELLs and those that do vary widely in terms of requirements (Ballantyne et al., 2008). Therefore, while our study examined how state requirements for specialist certification reflecting the knowledge of pedagogy framework are related to ELLs' achievement, we limited our examination of states' requirements for mainstream teachers to whether the requirement of any kind of training for working with ELLs is associated with ELLs' achievement.

Although scholars have affirmed the need for teacher preparation programs to ensure all teachers have at the minimum one course devoted to the specific needs of ELLs (e.g., Lucas et al., 2008), we found that states requiring that all teachers have training to teach ELLs were associated with a 1.85 decrease in Hispanic ELLs achievement. In contrast, states that require bilingual or ESL certification to teach ELLs are associated with a gain of 4.51 points. We also created an interaction term to determine the relationship for states with *both* requirements; these were associated with a gain of 3.86 points. The final model excluded all non-significant variables; no cross-level interactions were significant.

Discussion

Teaching Methods

Although requirements in content delivery in students' native language and bilingual education methods were not associated with higher achievement for Hispanic ELLs, it is worth noting that no states require *both* a course on content in native language and bilingual methods. Eight states require content delivery as a topic in another course and no states require a course devoted to content delivery alone (see Table A1). Often, bilingual methods and content delivery are covered in one course (i.e., the model of bilingual education and corresponding method) despite the distinction in Menken and Antunez (2001). We would also like to note that courses in native

language literacy and ESL/ELD are related to the material that would be covered in bilingual methodology courses; however, they may have a more specific focus on language that promotes ELLs' achievement. Therefore, our findings do not suggest that bilingual methods in general or a focus on content delivery in students' native language in particular fail to contribute to student achievement. Rather, they suggest that courses focused generally on bilingual methods may be insufficient to help teachers effectively serve ELLs when compared to courses focused specifically on evidence regarding *how* second language is acquired as would be the case in native language literacy and ESL/ELD courses (see Lucas et al., 2008).

Although the principle of transfer is fundamental to both courses in bilingual methods and content delivery in students' native language, the complexities associated with delivering content in students' native language should not be overlooked. For example, in an experimental study, Hakuta (1990) demonstrated that a holistic approach to first language development does transfer to English; however, a narrow focus on specific concepts in first language may not. Hakuta argues "against a myopic view of transfer, where each concept in the native language is taught aimed at its transfer to English" (p. 7). Our findings resonate with this literature, suggesting that teachers require a deep understanding about language development if they are to employ bilingual methods, and mere knowledge of methods is insufficient preparation. To that end, our findings support the assertions of both Krashen (1985, 1991, 1997) and Lucas et al. (2008) that to be successful with ELLs, bilingual and mainstream teachers must understand the time it takes to develop academic English and how it differs from conversational English, as well as know how to promote contexts that increase the development of both.

Curriculum

Although the finding that requiring knowledge of the bilingual curriculum was negatively related to ELLs' achievement may seem counterintuitive, we see in the literature a clear distinction between methods that are effective for Hispanic ELLs and a *separate* curriculum for these students. Notably, the content of the curriculum for ELLs should not be different from non-ELLs in terms of rigor and content. Delivery, however, becomes a culturally responsive methodology issue—one that to date, has been absent from state standards on teacher certification. That is, despite the breadth of literature focused culturally responsive pedagogy, the National Literacy Panel found that these studies tend to be "overwhelmingly based on case study approaches and ethnographic or other qualitative methods" (Goldenberg, Rueda, & August, 2008, p.107). Studies that omit an explicit link to student outcomes are unlikely to be reflected in policy in a way that informs practice. Therefore, state requirements may include a focus on the bilingual curriculum, but the content preservice teachers are exposed to in these courses is unknown. Is it a culturally responsive curriculum? Or a separate one? We do not imply that culturally responsive pedagogy is not important for ELLs' achievement; our review of the literature suggests the opposite. What is necessary is more information about the specific kinds of teacher behaviors that translate into achievement for policies to require teacher preparation programs to reflect these practices.

Assessment

The finding that native language/English content assessment is positively associated with ELLs' achievement supports the extant literature on the importance of all teachers having an understanding of student assessment (Black & Wiliam, 1998; Stiggins, 1988, 2002). Given the lack of requirements for training in assessment across mainstream teacher preparation programs, however, it should not be surprising that very few states require specialist teachers to have training in the assessment of content for ELLs. Nevertheless, the extant literature on the particular assessment needs among ELLs suggests that state requirements need a substantial overhaul to produce teachers

that are "high quality." Namely, although student assessment is an area that is pervasively weak across teacher education programs, it is especially detrimental for ELLs. For specialist teacher to lack foundational knowledge on assessing student understanding only limits their ability to scaffold instruction appropriately.

In contrast to content assessment, states requiring training in Limited English Proficiency assessment were negatively associated with achievement. This finding is consistent with the extant literature we reviewed (e.g., Mahoney & MacSwan, 2005), suggesting that assessments with pervasive issues may be promulgating discrepancy views of achievement among ELLs.

State Requirements

States requiring ESL or bilingual certification were associated with markedly higher achievement for Hispanic ELLs. For many states lacking specialist certification requirements, the issue is salient given that several have witnessed surges in the number of ELLs they serve. Alabama, Arkansas, Kentucky, South Carolina, and Tennessee, for example, are all states with growth in their ELL populations ranging from approximately 300 to 700% over the past decade (see Heilig, López, & Torre, in press). None of these states, however, require specialist certification. The difficulty of effectively preparing teachers of ELLs is not only that many states do not require specialized certification for teachers of ELLs (see Table 1) and would thus be unlikely to have requirements stipulating bilingual or ESL methods in schools, but also that states vary markedly in the ways they address the educational needs of ELLs. For states with growing populations of ELLs, this is an especially urgent issue.

Although there was a negative relationship between requiring all teachers to have some training in the needs of ELLs and achievement, this finding underscores that context is critical in interpreting the results. States that require all teachers to have training in meeting the needs of ELLs tend to be states that do not require teachers of ELLs to hold specialist certification in ESL or bilingual education. Thus, the requirement is often an artifact of having to meet federal guidelines regarding the needs of ELLs (López & McEneaney, 2012). Thus, the findings presented here demonstrate that in comparison to states that require specialist certification, states that do not—and instead require all teachers to have some kind of training—are not setting the standards high enough to help ameliorate achievement disparities within this population.

In contrast to states that require all teachers to have some kind of training but do not require specialist certification or states that require specialist certification but not training for all teachers, states that have both requirements have markedly higher achievement. In part, requiring all teachers to have some level of training may be much more effective in terms of ensuring ELLs' needs are met across their English acquisition trajectory (e.g., once ELLs are in mainstream English classrooms). Thus, we agree with Lucas et al. (2008) that all teachers should have at minimum one course covering essential knowledge to help them be successful with ELLs considering that they are highly likely to have ELLs (whether presently labeled or further along the English language development trajectory) in their classrooms. We assert, however, that state policies must be more stringent in what they deem as "highly qualified" to teach ELLs. One course simply is not sufficient to meet the needs of *all* ELLs.

Conclusion

NCLB's focus on compliance has created a discrepancy between the espoused goal of improving teacher quality and appraisals of teachers. In the case of teachers of ELLs, this discrepancy is particularly salient, as Cadiero-Kaplan and Rodriquez (2008) capture:

> …compliance assures that teachers possess a certificate (demonstrating content knowledge) rather than possessing the unique knowledge, skills, and abilities to teach

> students with English-language needs. For example, a teacher may possess a certificate to teach mathematics and is therefore compliant with NCLB's "highly qualified" teacher definition, but the same teacher may not possess the skills, experience, or pedagogical practices to teach students whose native language is not English (p. 376).

Our findings and the extant literature suggest, however, that there is evidence to support a theory of action for effectively preparing teachers of ELLs. First, in consideration of our findings, we assert that states should require both (1) specialist certification (bilingual or ESL) and (2) at least one course for mainstream teachers. We are not arguing that *all* teachers should be bilingual or ESL certified, but that states should attempt to meet the needs of ELLs with specialist teachers. For mainstream teachers, we concur with Lucas et al. (2008) that there is a need to require at the very least one course to prepare teachers to be successful with ELLs. We deviate slightly from Lucas et al.'s recommendations, however, in consideration of our findings.

In addition to recommendation that states should require specialist certification as well as at least one course for teachers seeking mainstream licensure, we assert the following essential knowledge categories should be required of *both* specialist and mainstream teachers: (1) Native language literacy; (2) ESL/ELD; and (3) Native language and/or English content assessment. Although discrete categories, native language literacy, ESL/ELD; and native language and/or English content assessment are closely related and supported by the extant literature.

First, although bilingual certification may not be feasible in all settings, it is imperative that both specialist and mainstream teachers have foundational knowledge regarding the role of students' native language on their English literacy. This includes understanding how the use of students' native language at home, for instance, can promote their English literacy as opposed to hindering it. In consideration that states tend to require teachers to be trained in literacy—often requiring several courses at the elementary level—it stands to reason that incorporating this requirement in all teacher preparation programs is not only quite feasible, but a demographic imperative. All teachers should know that students' who speak a language other than English at home have literacy skills on which they can build.

Requiring training in ESL/ELD also had a marked effect on ELLs' achievement, underscoring the importance of the essential knowledge presented in Lucas et al., (2008) and Menken and Antunez (2001). All teachers, not just specialist teachers, should understand the developmental trajectory of ELLs' English proficiency as well as how to nurture and support it. As reviewed earlier, this includes knowledge about explicit English instruction and creating opportunities for students to express themselves, as well as modifying the level of English used to make content comprehensible. Supplementing teaching with visual aids, vocabulary instruction, and graphic organizers, for example, are all ways teachers can help ELLs be successful. Requiring teachers to have knowledge about ESL/ELD can ameliorate the lack of preparation often felt by teachers (Herrera & Murry, 2006; Ruiz-de-Velasco & Fix, 2000) while promoting achievement for ELLs.

Finally, all teachers should know how to assess their students' formatively. With an accurate understanding of students' content knowledge, teachers can adjust instruction and attend to gaps in learning. Certainly, this recommendation is not limited to teachers who work with ELLs (Stiggins, 1988, 2002) but for teachers of ELLs, formative assessment is essential if they are implementing strategies resulting from their knowledge of ESL/ELD.

Harper and de Jong (2009) note that agencies (e.g., National Council of Accreditation of Teacher Education, Teachers of English to Speakers of Other Languages) help improve teacher quality by holding "teacher education units accountable for meeting high standards of quality for

their ESL programs along with all other areas of teacher preparation" (p. 139). These standards have legitimized ESL and provided a benchmark for improving teacher preparation for teaching ELLs. It is time that state standards reflect the research demonstrating the ways teacher preparation can promote equitable educational outcomes for ELLs and hold teacher education units accountable for preparing teachers in these areas.

Limitations

Although we presented our rationale for aggregating the knowledge of linguistics and knowledge of cultural and linguistic diversity domains into the knowledge of pedagogy domain, we must note that this came at a cost. Some states did not aggregate their requirements, and as such, their requirements were not captured in our framework (see Table 1). For example, Wisconsin requires a course on linguistics for bilingual and ESL programs, and a separate course requirement on methods. Nevertheless, the variation in the way states detail requirements made it necessary to compromise specificity for generalizability.

One of the strengths of using NAEP in analyses to attempt to determine the relationships between state policies and student achievement is that it is the *only* large-scale data that permits comparisons among states. NAEP is the only achievement data that is state- and nationally-representative, and provides information at the student, teacher, and school level. Nevertheless, the data are not without limitations—some potentially quite egregious. First, NAEP currently lacks several variables that permit a more nuanced examination of how teacher certification requirements are related to achievement. For example, information about proficiency in students' first language, the number of years in school prior to emigrating to the U.S., and parent's education levels are important variables to consider, but not currently collected by NAEP. In the analysis presented here, we extend the descriptive information provided by Menken and Antunez (2001) and Ballantyne et al. (2008) to the only existing examination of the relationships between state requirements and Hispanic ELL achievement. With the available information, however, we are unable to examine more direct effects between teacher certification and student achievement. Given that NAEP already provides details about whether teachers are "highly qualified" (i.e., certified), alternatively certified or university-program certified, which we included in the analysis, as well as whether teachers' undergraduate and/or graduate degrees are in mathematics, science, or reading, it would seem that expanding the kind of teacher-level information collected by NAEP would in turn only strengthen the kind of information that can be provided by NAEP. To date, however, the data do not provide details about the specificity of coursework or certification related to ELLs, despite the pervasive achievement disparities. Thus, despite its current limitation, evidence suggests the need to include such details to examine the degree to which states are meeting the needs of ELLs.

Future Research

The present study examined how state requirements for teachers seeking specialist and mainstream certification are related to Hispanic ELLs' achievement, providing information that is currently missing from the literature. Although one of the strengths of the present study is that it provides information about policies and achievement in all 50 states and DC, to understand better how the different categories of knowledge might influence teacher effectiveness, it is necessary to determine the degree to which what is included in policy is actually addressed in teacher preparation programs. Moreover, future studies should also examine the ways different courses, in terms of their requirements, are associated with ELLs' achievement. We do agree with Menken and Antunez's (2001) assertion that "state licensure requirements are currently the primary gatekeeper to ensure the quality of new teachers for English language learners in our public schools" (p. 5), but future studies examining the degree to which teacher preparation programs and policies align are necessary.

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Appendix

Table A1.

State requirements for teacher certification

	Specialist Teachers Working Explicitly with ELLs[a]												All Teachers[b]	State Requires Specialist Certification[c]
	Methods				Curriculum			Assessment			Practicum			
	Native Language Literacy	ESL[8] ELD	Content in Native Language	Bilingual Methods	Materials Adaptation	Bilingual Curriculum	Content in Native Language or English	English Literacy	Native Language Literacy	Limited English Proficient	CLD[9] Setting	Bilingual Education Setting		
M	1.44	2.44	0.69	1.00	1.09	0.50	0.33	0.64	0.10	1.43	0.47	0.61		
SD	1.43	1.39	1.10	1.60	1.28	1.05	0.97	1.24	0.40	1.42	0.50	0.49		
AL	0	2	0	0	2	0	0	2	0	2	3	0	1	0
AK	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR	0	2	0	0	2	0	0	0	0	2	0	0	0	0
AZ	3	4	0	4	3	3	0	0	0	3	0	4	1	0
CA	2	2	2	0	2	0	0	2	0	2	0	0	1	1
CO	2	2	2	2	0	2	0	2	2	2	0	0	1	1
CT	0	4	0	4	3	4	0	0	0	3	4	0	0	1
DE	0	4	2	0	0	0	0	4	0	4	0	0	0	1
DC	2	4	0	4	0	0	0	0	0	4	4	0	0	0

[a]Preservice teacher requirements for specialist teachers of ELLs: 0 = not required, 1 = elective, 2 = demonstrated competence, 3 = required course topic, and 4 = required course.

[b]All teachers: 0 = States where there is no requirement that all teachers have expertise or training in working with ELLs, 1 = Knowledge of second language acquisition and strategies to support ELLs and/or strategies or accommodations for ELLs must be demonstrated via assessment or successful coursework completion.

[c]State licensure requirements: certification that is specific to the education of ELLs is not required = 0, certification that is specific to the education of ELLs is required = 1.

[8]English as a Second Language (ESL)/English Language Development (ELD)

[9] Culturally and Linguistically Diverse (CLD)

Table A1. (Cont.'d)

State requirements for teacher certification

	Specialist Teachers Working Explicitly with ELLs[a]												All Teachers[b]	State Requires Specialist Certification[c]
	Methods				Curriculum			Assessment			Practicum			
	Native Language Literacy	ESL ELD	Content in Native Language	Bilingual Methods	Materials Adaptation	Bilingual Curriculum	Content in Native Language or English	English Literacy	Native Language Literacy	Limited English Proficient	CLD Setting	Bilingual Education Setting		
M	1.44	2.44	0.69	1.00	1.09	0.50	0.33	0.64	0.10	1.43	0.47	0.61		
SD	1.43	1.39	1.10	1.60	1.28	1.05	0.97	1.24	0.40	1.42	0.50	0.49		
FL	4	4	0	4	0	0	4	4	0	0	0	4	1	0
GA	3	3	0	3	3	3	0	3	0	3	0	0	0	0
HI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ID	0	4	0	4	0	0	0	0	0	4	0	4	1	0
IA	4	4	0	4	4	0	0	4	0	4	0	0	1	0
IL	2	4	0	4	3	0	0	0	0	4	0	4	1	1
IN	3	3	3	3	0	0	0	0	0	3	0	0	0	1
KS	2	2	0	0	2	0	2	0	0	2	0	0	0	1
KY	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LA	0	4	0	0	4	0	0	0	0	0	0	0	1	0
MA	0	3	0	0	0	0	0	0	0	0	0	0	1	1
MD	2	2	2	2	2	2	0	0	2	0	2	2	1	1
MI	0	3	0	0	0	0	0	0	0	0	0	0	1	0
MN	2	3	0	3	3	3	3	0	0	3	0	0	1	1
MS	2	0	0	0	0	0	0	0	0	0	0	0	0	0
MO	0	4	0	1	4	1	0	0	0	4	4	0	0	0
MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NH	2	2	0	0	2	0	0	0	0	2	0	0	0	1

Table A1. (Cont.'d)

State requirements for teacher certification

	Specialist Teachers Working Explicitly with ELLs												All Teachers[b]	State Requires Specialist Certification[c]
	Methods				Curriculum		Assessment				Practicum			
	Native Language Literacy	ESL ELD	Content in Native Language	Bilingual Methods	Materials Adaptation	Bilingual Curriculum	Content in Native Language or English	English Literacy	Native Language Literacy	Limited English Proficient	CLD Setting	Bilingual Education Setting		
M	1.44	2.44	0.69	1.00	1.09	0.50	0.33	0.64	0.10	1.43	0.47	0.61		
SD	1.43	1.39	1.10	1.60	1.28	1.05	0.97	1.24	0.40	1.42	0.50	0.49		
NV	1	0	1	0	1	1	1	0	1	1	1	1	1	1
NC	0	3	0	0	0	0	0	0	0	0	0	0	0	1
ND	0	0	0	0	0	0	0	0	0	0	0	0	1	0
NJ	0	3	0	0	0	0	0	0	0	0	0	0	1	1
NM	0	2	0	0	2	0	0	0	0	2	0	0	0	0
NY	4	3	0	0	0	3	0	0	0	0	0	0	1	1
OH	2	2	2	2	2	2	0	0	2	0	2	2	0	1
OK	0	2	0	0	2	0	0	0	0	2	0	0	0	0
OR	2	3	0	0	3	0	0	0	0	3	4	0	0	0
PA	0	3	0	0	3	0	0	0	0	3	0	0	0	0
RI	2	4	0	0	0	0	0	0	0	4	0	0	1	0
SC	4	4	0	0	1	0	0	0	0	1	1	0	0	0
SD	0	4	0	0	0	0	0	0	0	4	0	0	0	0
TN	2	2	3	2	2	2	0	0	0	2	4	0	0	0
TX	3	3	3	0	0	0	0	0	0	0	0	3	0	1
UT	0	0	0	0	0	0	0	0	0	0	0	0	0	1
VT	0	0	3	3	3	3	0	0	0	0	3	0	1	0

VA	0	4	0	0	0	1	0	0	0	1	0	0	1	1
WA	4	4	4	4	4	0	0	0	0	4	0	0	0	1

Table A1. (Cont.'d)*State requirements for teacher certification*

	Specialist Teachers Working Explicitly with ELLs												**All Teachersb**	**State Requires Specialist Certificationc**
	Methods				**Curriculum**			**Assessment**			**Practicum**			
	Native Language Literacy	ESL ELD	Content in Native Language	Bilingual Methods	Materials Adaptation	Bilingual Curriculum	Content in Native Language or English	English Literacy	Native Language Literacy	Limited English Proficient	CLD Setting	Bilingual Education Setting		
M	1.44	2.44	0.69	1.00	1.09	0.50	0.33	0.64	0.10	1.43	0.47	0.61		
SD	1.43	1.39	1.10	1.60	1.28	1.05	0.97	1.24	0.40	1.42	0.50	0.49		
WV	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WI	0	3	3	0	0	0	0	0	0	0	3	3	0	1
WY	2	2	2	2	0	0	0	0	0	2	0	0	0	0

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