Curriculum 2.0 Manual & User Guide

PROJECT SOL

The Civil Rights Project

Proyecto Derechos Civiles

www.civilrightsproject.ucla.edu

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1. Introduction / Background

By Patricia Gándara

Why a bilingual, Common Core standards-aligned, open access, secondary math curriculum?

Project SOL (Secondary Online Learning) began as an attempt to provide a means by which high school immigrant students with limited English could continue their education in the United States, and more specifically in California, while they learned English, and had a viable chance at graduating high school and preparing for college. Our research over a number of years **(**Gándara, et al., 2003; Gándara & Rumberger, 2008; Gándara & Rumberger, 2009) had shown that many young people who enter the U.S. as adolescents without strong English skills languish in schools that are not prepared to serve them, and too often simply drop out.

Across the nation about 10 percent of all K-12 students are English Learners (ELs), representing almost 5 million students (Migration Policy Institute, 2015. At least three-quarters of them are Spanish speakers (Batlova & McHugh, 2010). These students have been designated by their schools as lacking sufficient English ability to participate meaningfully in the regular academic instruction provided in English without some form of additional support. The numbers remain an estimate, as there is considerable variation state by state in how these students are identified and how they are exited (or "redesignated") from the category (Ragan & Lesaux, 2006). Altogether, the EL population of the United States is roughly the same in size as the Special Education population, however the former students generally receive far less attention and far fewer resources to address their unique needs.

California accounts for about one-fourth of all EL students in the U.S. or about 1.5 million English Learners (Migration Policy Institute, 2015). An even higher percentage of the EL students in California speak Spanish as their primary language –about 84 percent (CDE, 2014). This fact is important because it suggests that, while many languages are spoken in the state, the overwhelming majority speaks only one language, and so programs and interventions can be developed for large numbers and concentrations of students. ELs represent almost one-fourth (23.4%) of all the K-12 students in the state, yet only .015 percent of teachers hold a bilingual credential and teach in a setting in which they use the primary language of the students. Very few of these teachers are located at the secondary level, as there are virtually no bilingual programs at that level. Twenty nine percent of EL students are enrolled in the secondary schools of the state (CDE, 2013). Many, perhaps most, of these ELs are capable of taking a core college preparatory course in English if provided sufficient scaffolding. However, it was estimated at the beginning of this project that at least 120,000 students could profit by taking such demanding college preparatory courses at least partially in their primary language. In other words, they could profit from bilingual courses. Not only would this allow the students to better understand the instruction, but it also would lead to more of these students being eligible to take these key courses. A number of studies have shown that students designated as EL are routinely excluded from taking rigorous college preparatory courses (Callahan, 2005;

Kanno & Kangas, 2014). But California is not prepared to provide this coursework in the primary language of the students, and almost no high schools in the state report doing so for more than one or two classes (Stevens & Castellanos, 2012). Given that at the least many hundreds of thousands more of these secondary EL students are spread across the country, in states that have even fewer teachers qualified to support their learning bilingually, we perceived a great need, in California and across the nation, for an easily accessible online curriculum that these students take and pass, keeping them engaged in high school and on the way to successful graduation. The need for a bilingual curriculum is even greater when the course is taught by a teacher who is not fully bilingual.

In general, English Learners in California's and the nation's secondary schools fare very poorly and as a consequence are at substantial risk for poor social and educational outcomes. Many will drop out of high school. Nationally, the Pew Hispanic Center estimates that 40% of 16-19 year old Latinos educated at least partially outside of the U.S. drop out of high school. Based on our analyses of Los Angeles Unified School district data, it appears that little more than a quarter of students who are classified as English Learners in the 9th grade are likely to graduate with a diploma from that school system four years later (LAUSD, 2008). Moreover, there is evidence that the relatively small percentage of Latino immigrants who are English Learners during their high school years and who do manage to graduate will not be adequately prepared for postsecondary education. In one northern California study of 350 secondary English Learners enrolled in a medium-sized high school, on average the students did not complete even half of the minimum requirements for college eligibility, and only one senior in the graduating cohort went on to a four year university (Callahan & Gándara, 2004). Secondary English Learners who are still dominant in Spanish often find themselves in US high schools taking courses that will lead neither to postsecondary preparation nor to high school graduation. A typical program for these students, in the worst cases, can include three hours daily of English as a Second Language –usually no more than one of which counts as credit toward graduation—and a potpourri of whatever is available at the school that requires little use of language. This often will include physical education, remedial math, art, or vocational courses that may or may not even count for high school graduation, especially when they are taken over and over again (Callahan & Gándara, 2004). Even when EL students are given access to college preparatory math and science, they tend to have a very high failure rate due to the language issues.

Helping Students to Realize their Potential

It is important, however, to stress that many of the EL students in our schools have tremendous academic potential and in fact represent an important resource to the state and the nation in their biculturalism and their biliteracy. Recent research suggests that they may, in fact, have significant advantages over monolingual Latinos and others both in the labor market and in college going (Callahan & Gándara, 2014). Of course, when students are better educated, they also make important contributions to the economy and society—the society is richer in many ways as a result of the investment in these youth. It is critical to nurture this promise, and so Project SOL 2.0 takes the perspective that these students are an important resource to be invested in, and that a bi-national partnership is an important way to do this.

Our Mexican collaborators at the University of Guadalajara share this perspective and have worked alongside us, with little formal recognition, to design an online curriculum that can also be useful in Mexico and Central America where hundreds of thousands of returning students, many US citizens, confront similar challenges in those school systems (Del Valle, 2014). Lack of curricula alignment, clear expectations, and mutual understanding results in those students who move from one country to another losing years of schooling, being placed back one and two years, and not given credit for the coursework they have taken and passed. Project SOL 2.0 is an effort to address this situation.

While the challenge of educating many of these students to high school graduation and preparation for college is significant, it is not insurmountable, especially given the human resources of the state of California, where the project was developed and tested, and the possibilities for partnership with our southern neighbors. About a decade ago, the University of California Office of the President, through its UC College Preparatory Online Learning program (or UCCP), began collaborating with the Mexican Secretariat of Education to develop a California standards aligned on-line program of math and science college preparatory courses that students could take in the US and receive high school graduation and college preparatory credit. However, the initial work of the alignments was never brought to fruition in terms of offering the courses widely to students in need as the administration for the program was dismantled and the University faced difficult financial cutbacks. At UCLA, the Civil Rights Project realized the potential for the use of such a curriculum, particularly as it aligned with decades of research we had conducted and reviewed. We were fortunate to be able to convince some very significant supporters to invest in our dream. The Irvine Foundation, first through Jorge Ruiz de Velasco and then through Anne Stanton, signed on to help fund a demonstration project; then the Gates Foundation, with the support of Melissa Chabran, and the Carnegie Foundation, with Andrés Henríquez, agreed to also fund Project SOL 1.0 in 2008 and supported a 4 year demonstration. The last data were collected on that study at the end of the academic year 2012. This study, also known at Project SOL 2.0 builds on what was learned from the first iteration. The fundamental differences between Project SOL 1.0 and 2.0 are: 2.0 is explicitly aligned with CCSS, allowing it to be used in most of the US; it is also aligned with University of Guadalajara *preparatoria* curricula, which makes it truly bi-national; it is bilingual, whereas the earlier version was in Spanish only; and it is in open access format, so that any school can use it without incurring costs. 2.0 is also re-thought from the ground up, with a very different format, utilizing modules that can be interchanged (making it especially adaptable to different teaching situations; it can be used in integrated math settings as well as in traditional, Algebra 1, 2 and Geometry classrooms.) It also has many ancillary materials to support students at different levels of understanding, and links to preparatory materials for those students who need review before taking on another lesson.

The Critical Role of the Teacher

The curriculum materials *can* be used in a variety of settings, and Mexico has had particularly strong interest in the "online only" mode because of their still developing infrastructure at the secondary (preparatoria) level – students accessing the materials on their own and taking exams online to demonstrate successful completion of the curriculum, sometimes referred to as “competency based.” However, Project SOL researchers have had a strong preference for in classroom use, with concomitant support for teachers to use the materials in their classrooms. This can be done with a whole class model, where all students are using the online materials at their own pace, or it can be used for only with those students who want and need bilingual support. The materials can also be used in a supervised setting for credit recovery, or with students who are in secondary level bilingual programs where the focus is on developing strong academic competencies in two languages. Our years of experience with English learners and migrant students have taught us that these students usually need support, encouragement, and scaffolding of instruction, as they are attempting to not only learn a new subject matter, but also a new language and a new set of expectations. EL and migrant students are often reluctant to let it be known they do not understand something, and so without the intervention of a teacher to help guide them through the curriculum, they can become demoralized. (However, we do believe that in some cases the materials can be used independently, particularly by highly motivated students.) For these reasons, whenever possible, we encourage the use of these materials in the classroom, under a teacher’s supervision who is familiar with the materials. This is the primary purpose of this manual.

This manual focuses on the use of the Algebra 1 curriculum. It will be modified as the Geometry and Algebra 2 curricula come online. We are also hopeful to add the basic sciences to this body of work in the near future.

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2. Open Educational Resources in K-12 Education: The Lay of the Land (or the big picture in K-12 online education)

By David Wiley

Acceptance and Capacity

Online learning is rapidly growing in acceptance in the K-12 space, as demonstrated by a number of key statistics.

- Half of all US states have state virtual schools operating in 2013-2014, and 29 states have statewide full-time online schools operating in 2013-14 (Watson et al., 2013).
- The National Center for Education Statistics estimates there were over 1,800,000 enrollments in distance-education courses in K-12 school districts in 2009-2010, almost all of which were online courses. 74% of these enrollments were in high schools. Online courses with the highest level of enrollment fall under the categories of credit recovery (62%), dual enrollment (47%), and advanced placement (29%) (Queen & Lewis, 2011.
- This enrollment estimate does not include students attending most full-time online schools — approximately 200,000 full-time students in 2009-2010. As of 2012-2013, the number of students has grown to 310,000 (Watson et al., 2013).
- The top cited reasons school districts make online courses available to their students are (a) to offer courses not otherwise available and (b) provide opportunities for students to recover course credits. Credit recovery is especially important in urban environments where 81% of schools indicate this is an issue (Queen & Lewis, 2013).
- In April 2006, Michigan became the first state to require online learning for high school graduation. Since that time Alabama, Arkansas, Florida, and Virginia have added requirements. Georgia, New Mexico, and West Virginia recommend students experience online learning before graduation, however, it is not required (iNACOL, 2013).

There is also evidence that a growing number of students are capable of engaging in online learning from their homes, though this capacity varies according to families' socioeconomic situation.

- The U.S. Department of Commerce reported that as of October 2010, more than 68% of households used broadband Internet access service, and over 77% of households had a computer (Economics & Statistics Administration, 2011).

- 45% of households with an annual income of under $30K, 67% of households between $30K and $49.9K, 79% of households between $50K and $74.9K, and 87% of households over $75K have access to broadband (Horrigan, 2010; Smith, 2010).

- "Nearly three out of four (72%) 0 to 8-year olds have a computer at home, but access ranges from 48% among those from low-income families (less than $30,000 a year) to 91% among higher-income families (more than $75,000)" (Rideout, 2011).

This diversity of evidence indicates that online learning is no longer "on the horizon" in terms of its acceptance among students, teachers, parents, administrators, and policy makers. Online learning can safely be considered mainstream in the K-12 space.

Important Trends

Three deeply entangled concepts are driving much of the conversation about where online education is heading in K-12 (and higher education). These concepts are personalized learning, blended learning, and competency-based education. While there is significant and messy overlap in these concepts, they may be differentiated from one another as follows:

- In *competency-based education* models, students progress through a course as quickly (or slowly) as they are able to demonstrate mastery. Rather than holding time constant and allowing learning to vary, CBE models hold learning constant and allow time to vary.

- In *personalized* models, each student learns in ways that are interesting and engaging to them individually.

- In *blended learning* models, students spend part of their time learning through in-person delivery of instruction and part of their time learning through online delivery of instruction.

Much of the published literature about these three models explicitly confounds their definitions, even when it has the stated goal of clarifying the differences between them (e.g, Patrick, Kennedy, and Powell, 2013).

By definition, blended learning requires technologies like computers and the Internet. Competency-based education and personalized models can be implemented without technology for very small groups of students, e.g., a full-time tutor working with 1-3 students (Bloom, 1984). However, both competency-based and personalized models require technology in order to be implemented at scale across a group of learners the size of a typical classroom or larger. The use of technology to mediate the learning process allows a single teacher to capture, aggregate, and interpret the massive amounts of data necessary to track competency (mastery) and engagement for dozens of learners.

Definitions

Open educational resources, or OER, are "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others" (Hewlett Foundation, 2014). More specifically, open educational resources are any materials to which:

1. The general public has free and unfettered access, meaning there is no monetary payment or surrender of information (e.g., email address) required before an individual can access the material, and

2. The general public is explicitly granted permission to engage in the "5R" activities:

    a. Retain - the right to make, own, and control copies of the content (e.g., download, duplicate, store, and manage)
    b. Reuse - the right to use the content in a wide range of ways (e.g., in a class, in a study group, on a website, in a video)
    c. Revise - the right to adapt, adjust, modify, or alter the content itself (e.g., translate the content into another language)
    d. Remix - the right to combine the original or revised content with other open content to create something new (e.g., incorporate the content into a mashup)
    e. Redistribute - the right to share copies of the original content, your revisions, or your remixes with others (e.g., give a copy of the content to a friend) (Wiley, 2014).

In practice, open educational resources are any resources licensed under a Creative Commons license. In almost every case, with very, *very* few exceptions, the best Creative Commons license to use for your OER initiative is the Creative Commons Attribution license. See https://creativecommons.org/licenses/by/4.0/ for additional details.

Major OER initiatives focused on K-12

Energy and momentum around the idea of open educational resources in K-12 lag behind the energy and momentum in higher education. For example, hundreds of institutions belong to the Open Education Consortium (http://www.openedconsortium.org/) but fewer than five are focused primarily on the K-12 space. A listing of major OER initiatives focused on K-12 follows.

OER STEM initiatives

- CK-12 (http://ck12.org/). The CK-12 Foundation creates a comprehensive collection of original, open textbooks in the sciences and mathematics, with a limited collection of materials in other disciplines. The site also offers online interactive math practice as well as offline assessments and activities.

- Siyavula (http://www.siyavula.com/). Publishes open textbooks and online practice in science and math for middle and high school students.

- Khan Academy (http://khanacademy.org/). Khan Academy creates short videos on a range of topics, primarily focused on math and sciences. The site also has an extensive online math practice system.

- Mathematics Vision Project (http://www.mathematicsvisionproject.org/). MVP creates a series of open mathematics textbooks focused on supporting the integrated pathway through the Common Core State Standards for grades 9-11.

- Utah Middle School Math (http://utahmiddleschoolmath.org/). UMSM is producing open, Common Core-aligned math textbooks for grades 6-8.

- Utah Open Science Textbooks (http://www.schools.utah.gov/CURR/science/OER.aspx). The Utah State Office of Education annually updates its open science textbooks. Books for grades 3-12 have been created for the 2014-2015 academic year.

- MIT OCW Highlights for High School (http://ocw.mit.edu/high-school/). HSH provides an index of introductory MIT courses in a range of topics, as well as a small number of "high school courses developed by MIT students."

OER Language Arts initiatives

- Engage NY (http://www.engageny.org/). Engage NY provides access to Common Core State Standards-aligned ELA and mathematics curriculum.

- FreeReading (http://www.freereading.net/). A high-quality free reading intervention program addressing literacy development for grades K-3. Includes a complete, research-based 40-week program for K-1 students.

School or State-based initiatives

- Georgia Virtual Learning (http://www.gavirtuallearning.org/Resources/SharedLandingPage.aspx). GVA provides access to OER in a wide range of disciplines, and is a project of the Georgia Department of Education.

- WA OER Review (https://digitallearning.k12.wa.us/oer/library/). The Washington State Digital Learning Department has conducted and published a thorough, multi-point review of dozens of open educational resources.

- Mountain Heights Academy (http://mountainheightsacademy.org/). MHA (formerly the Open High School of Utah) is an online, public charter school whose founding documents commit it to using OER across all courses in its curriculum. After they have been developed, taught, and revised, the open courses are published online at http://openhighschoolcourses.org/.

Publishing OER versus using OER

Of special note is the *nature* of the major K-12 OER initiatives described above. With a single exception, the primary focus of these initiatives is *creating or packaging* OER for use by others. Only the MHA initiative is focused primarily on *using* OER in the classroom, with sharing OER as a secondary mission. While some initiatives have a secondary goal of explicitly supporting classroom use through teacher professional development and other mechanisms (e.g., Utah Middle School Math, Mathematics Vision Project, and Utah Open Science Textbooks), far more is understood about creating and publishing OER for K-12 audiences than is understood about effectively using OER in the K-12 classroom.

Additionally, it is worth noting that these materials are rarely created in other languages (with the exception of ck-12 and Khan Academy). While some focus their efforts towards English language learners, this fails to meet the needs of students learning in two languages or in two countries.

Primary issues to consider for an initiative focused on using OER in the K-12 classroom

There is a wide range of issues which must be considered and planned for in order for an initiative focused on using OER in the K-12 classroom to succeed. This section outlines those considerations and provides a suggested pathway through the issues.

Selecting and preparing OER for use

The first step in the process of using OER in the K-12 classroom is identifying the OER to be used. While seemingly simple, this process actually requires a wide range of expertise, including experts in OER curation (OER Librarians), Subject Matter Experts (SMEs), experts in Creative Commons Licensing (CCs), and Instructional Design Experts (IDs). The selection and preparation process proceeds roughly as follows.

1. SMEs begin the process by a back-to-basics review of their state standards and learning outcomes, independent of any textbook or other curricular materials. The standards and outcomes provide the backbone of the entire process.

2. OER Librarians, who are familiar with the location and availability of high-quality OER within their discipline, aggregate an initial collection of relevant, high quality OER for the project.

3. SMEs analyze the initial aggregation of OER for elements that will effectively support learning of each standard and learning outcome.

4. CCs review the licensing of each OER selected for use by SMEs in order to assure (1) all OER are in fact appropriately openly licensed, and (2) there are no legal conflicts between the license terms of the various OER that will prevent them from being legal reused or remixed in the final collection of OER that will support the course.

5. IDs perform the actual assembly of individuals OERs into larger units, chapters, and courses. They insure that harmful pedagogical aids like “Key Takeaways” sections do not sneak into the material (Gurung, 2003) and that effective instructional strategies like spaced review are built into the final collection of OER.

6. SMEs provide a final quality review, checking for outcomes alignment and comprehensiveness of coverage.

7. CCs provide a final quality review, checking that the legal attribution requirements have been met for each OER used.

Whether or not a project has individual team members who specialize in each of these areas, each of these issues (finding, aligning, designing, attributing, etc.) must be dealt with by any project hoping to support OER adoption in a K-12 setting.

Technical infrastructure for providing access

Students must have a way to access the final collection of OER (hereafter, “the OER” for brevity’s sake) in order to use it in support of their learning. This access may or may not be technology mediated.

- Providing access via electronic devices

There are two ways students can access the OER via electronic devices: online and offline.

- Providing online access

If students will access the OER online, the OER must be hosted on a server. The OER may all be a series of static web pages that students access via the network, or the OER may be placed inside a more complex, feature-rich learning management system (LMS). Either way, the team must have the technical talent necessary to place the OER online and prepare it for student use. The school must then see to issues like bandwidth, security, number of wireless routers, and number of electrical outlets for mid-day device recharging in order to insure that students will have continuous access to the OER throughout the day. Project Red (http://www.projectred.org/) provides excellent information about what to consider before rolling out any major technology-based initiative in schools.

- Providing offline access

Offline access can be provided via electronic devices. For example, the OER can be pre-loaded onto devices like tablets before tablets are loaned to students. Students would then have access to the OER even though they may not have access to the Internet. While students will have access to the OER in this model, faculty will not have access to data that provide insights into how students are using them.

- Providing access via print-on-demand

In cases where students cannot be provided with electronic devices, print-on-demand can be an extremely cost effective option for providing students with access to the OER. For example, the Utah Open Science Textbooks project provides schools with print-on-demand secondary science textbooks for between $4 and $6 per book. See http://www.schools.utah.gov/CURR/science/OER.aspx for additional information.

Preparing teachers to succeed with OER

There is no better way to guarantee the failure of an educational innovation than to fail to prepare teachers to understand and use it effectively. OER are no exception to this rule. Someone on the team must design and carry out effective professional development (e.g., Garet et al., 2001) with teachers to help them understand what the OER and the technology hosting the OER can and cannot do in the service of student learning. Providing teachers with ongoing access to support and answers will help create a climate of trust and willingness to experiment with the unknown.

Public messaging

Curriculum choices can be highly political, and many curriculum choices made in conjunction with a state's adoption of the Common Core State Standards are extra controversial. Because the idea of open educational resources is not well known among the general public, an initiative focused on supporting the adoption of OER would do well to get ahead of public sentiment with proactive, positive messages about the instructional effectiveness, cost effectiveness, and increased local control provided by open educational resources. If OER are being adopted in the context of the Common Core State Standards, messaging about increased local control and cost effectiveness may be particularly powerful given popular rhetoric about the CCSS, which runs the other direction.

Ongoing funding and sustainability

Most OER-related initiatives begin with one-time, short-term grant funding. Consequently, most OER-related initiatives enjoy a brief, brilliant life and then end the day after the grant ends. This can be disastrous in a number of ways. For example, if a district on a ten-year adoption cycle chooses the OER in place of a traditional textbook but only budgets three years of professional development around use of the OER and its supporting technologies, seven years' worth of new hires will be completely unsupported in their use of the OER. This may lead to poorer learning outcomes, which will be mistakenly attributed to the OER ("I told you, you get what you pay for. We need to go back to expensive publisher materials.")

Many incredible opportunities will be also missed if there is not a sustainable plan around the support of the OER. For example, teachers can revise the OER each year based on their classroom experience and student results on the previous year's standardized tests. This process can result in better, higher quality materials each year. However, without a plan for sustaining this type of activity it will remain an unfulfilled potentiality.

The likelihood of finding new long-term sources of funding for new initiatives in K-12 is typically very low. Therefore, to ensure long-term funding of an OER-related project, it will likely have to demonstrate that it either (1) creates greater savings than it costs, or (2) improves the effectiveness of existing activities and processes without increasing their costs.

- If a district of 35,000 students switches from purchasing $80 textbooks every eight years ($10 / year) to providing new print-on-demand books to students each year ($5 / year), that creates a savings of $175,000 per year that can be used to fund the ongoing staffing and operation of the OER team. In this way, the cost savings of using OER could defray some or all of the costs of continuing to actively engage with OER.

- Imagine a district that conducts professional development on science education, built around making effective use of publisher materials. If this professional development is converted into an opportunity for teachers to engage more directly with state science standards and then review, recommend, revise, and remix science OER, this active learning may both produce better outcomes and produce new and improved OER that can be used throughout the district (and beyond). In this way, an existing expenditure is repurposed to be more effective for its primary purpose (improving science teaching) and also results in the creation and vetting of new OER.

Conclusion

Online learning is rapidly gaining ground in K-12. The deployment of the necessary device and network infrastructure for the transition to online learning creates a related opportunity for open educational resources to help schools decrease costs, improve learning outcomes, and increase local control. While many K-12-focused initiatives are publishing OER, few are actively promoting and supporting the use of OER. Regardless of the size of the team supporting the OER effort (even if it's only one person), there is a core set of issues that must be addressed in any project that aspires to support the use of OER at scale.

References and Attribution

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For an overview of spaced review, see the Wikipedia article https://en.wikipedia.org/wiki/Spaced_repetition

Karen Fasimpaur's site and blog (http://www.k12opened.com/) are excellent resources for tracking the latest developments in K-12 OER.

3. Description of the Prototype/ Curriculum

By: Patrick Callahan, Marty Romero and Ursula Aldana

Introduction

The Project Sol 2.0 Mathematics modules are resources for teachers implementing a bilingual (English/Spanish) mathematics program for students who are developing English speaking skills while maintaining their first language. They may also be used by students in Spanish speaking contexts whose English is actually stronger than their Spanish, such as in the case of students partially educated in the U.S. attempting to complete their secondary education in a Spanish speaking country. Finally, the materials may be used in fully bilingual settings such as in International Baccalaureate programs where the focus is on learning in two languages. The modules are aligned to the Common Core State Standards (CCSS), both in the content and mathematical practice standards. The materials used for the modules come from publicly accessible curriculum projects and teacher created resources emphasizing the CCSS. In addition to the CCSS guiding our work, the goal of each module is to provide students with learning opportunities best envisioned via NCTM's (2000) concept of Learning for Understanding:

> Students confidently engage in complex mathematical tasks chosen carefully by teachers. They draw on knowledge from a wide variety of mathematical topics, sometimes approaching the same problem from different mathematical perspectives or representing the mathematics in different ways until they find methods that enable them to make progress. Teachers help students make, refine, and explore conjectures on the basis of evidence and use a variety of reasoning and proof techniques to confirm or disprove those conjectures. Students are flexible and resourceful problem solvers. Alone or in groups and with access to technology, they work productively and reflectively, with the skilled guidance of their teachers. Orally and in writing, students communicate their ideas and results effectively. They value mathematics and engage actively in learning it. (NCTM, pg. 3)

When sequenced appropriately, the modules may be used as a sole resource for a course. The modules may also be slotted within an existing course to substitute for classroom textbook/materials. More likely, teachers using the modules will pick and choose from the bilingual resources to supplement their current mathematics program.

The structure of each module provides teachers with a coherent sequence of lessons engaging students with learning opportunities to develop their mathematical proficiency: conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition. (*Adding It Up,* p. 5).

Notably, the curriculum is an open educational resource (OER) allowing teachers to use the modules and share with students at no cost to schools or students. It is housed within an online platform that is open access, which allows teachers to adapt the curriculum to their students and pedagogy and includes the following:

- Textbook explanations of major concepts that can be translated from English to Spanish;
- Outline of suggested sequence of activities;
- Bilingual learning activities, conceptual tasks and assessments
- Additional online resources in Spanish and English
- Associated objectives and pre-requisites; and
- Alignment to CCSS-M.

The core instructional content, textbook-like features including examples and exercises, of each module comes from multi-lingual CK-12 open-source math content and technology tools. CK-12 is a nonprofit organization that aims to make educational resources free and available to any student. Choosing CK-12 as a main multi-lingual resource provides free access to "high-quality, customizable educational content in **multiple modalities** suited to multiple student learning styles and levels" (www.ck12.org). With the adoption of the CCSS, the CCSS aligned CK-12 helps reduce the impact of educational resources needed by schools and teachers. Additional CCSS resources being used to supplement the CK-12 material were accumulated from Illustrative Mathematics (http://www.illustrativemathematics.org), the Mathematics Assessment Project (http://map.mathshell.org/materials/index.php), and the Mathematics Vision Project (http://www.mathematicsvisionproject.org).

Along with other resources included in the modules, some materials may be used as formative and summative assessments, exploratory and introductory tasks, or as concept builders allowing students to explore, conjecture, and solidify their mathematical understandings. A key element of these resources is to provide students with learning opportunities beyond procedural levels of engagement. The main objectives are to help students confront engaging problem situations, grapple with the math ideas involved in the situation, and persevere in the process of seeking and finding an appropriate solution. These process-oriented goals are in sync the CCSS mathematical practices.

Development of the Curriculum

Project SOL 2.0 has developed a series of instructional modules ("Flexbooks") that can be utilized by secondary math teachers teaching Algebra I and Geometry. The bilingual curriculum (Spanish-English) is aligned to the math Common Core State Standards (CCSS-M) and was developed in partnership with the Universidad de Guadalajara to address similar themes from the Mexican educational national standards. The rigor and content of their mathematics materials maps onto both the CCSS content standards and mathematical practices. Using these materials assured that we could provide high-level Spanish materials for schools and teachers immediately available for classroom use.

A Note on the Importance of Primary Language Materials

Our effort to develop a bilingual curriculum is prompted by a language ideology that regards students' primary language (i.e. Spanish) *as a resource* (Ruiz 1984). Bilingual education programs have resulted in successful academic outcomes for language minority students (both dual immersion and bilingual education) versus English only structured immersion programs Genesee et al, 2006; Martinez-Wenzl et al, 2012; Umansky & Reardon, 2014). Rather than approach the Spanish abilities of these students as problems, we view both Spanish and English as necessary tools for instruction. Project SOL 2.0 promotes an additive language approach to teaching that asks teachers to build upon the home languages of the Spanish speaking students (Garcia, 2009). As we developed the curriculum, our intention was to provide a package of linguistic tools and resources to teachers that could assist students in their learning of the content. We expect that both bilingual and monolingual teachers can make use of the curriculum given the option to translate the CK-12 textbook and the variety of bilingual resources.

Creating a Binational Curriculum

For Project SOL 2.0 it is a critical component of the work to ensure that the materials align to the Common Core State Standards in Mathematics (CCSS-M) and the Mexican National Standards. A challenge of constructing a binational mathematics curriculum is that it must align to both sets of standards. However, the development of the Project SOL 2.0 curriculum allowed curriculum developers to find similar themes and approaches between the two countries' educators.

A major advantage to aligning the CCSS-M with the Mexican standards is that the Mexican standards and curricula are more integrated in the sense that they connect the various domains of mathematics, such as algebra and geometry, rather than keep them as isolated components. Project SOL 2.0 leverages its binational partnership to draw resources and insight from teachers in Mexico who have almost a decade of experience working with integrated math. Furthermore, the Mexican curriculum has more emphasis on justification and proof than the traditional US curricula. This aligns better with the CCSS-M focus on constructing viable arguments and communicating reasoning.

Many publishers and groups in the United States are naturally trying to make use of their existing curricular materials rather than start from scratch. This often results in a "check-list" approach wherein the standards in CCSS-M are matched up in a topic-by-topic way. This approach at alignment completely misses the larger structural shifts and overarching student expectations in the CCSS-M. In the next section, we explain the alignment process to the CCSS-M and how these structural shifts impact Algebra and Geometry courses.

Creating a Common Core Standards-Aligned Curriculum

California is among the forty-five states, the District of Columbia, four territories, and the Department of Defense Education Activity, which have all adopted the Common Core State Standards. In doing so, these states have committed themselves to providing students with the skills they will need in postsecondary education and the workforce. In response, the Project SOL 2.0 Algebra I and Geometry curriculum is aligned to the Common Core Mathematical standards for Algebra and Geometry. The CCSS-M imply a number of structural shifts in the teaching of Algebra I and Geometry, which influenced the development of the Project SOL 2.0 curriculum. We describe these below.

Shifts in Algebra

A CCSS-M Algebra Course weaves together three conceptual domains from the Standards: Numbers and Quantities, Algebra, and Functions. There are several shifts from the previous California Standards and the Common Core Standards for Mathematics.

1. Starting in Grade 8 and throughout High School, *functions* serve as an important unifying tool. This contrasts with the previous California Standards, which was much more *equations based*. This means that instead of focusing on solving equations, it is now also important for students to understand how quantities (or variables) are related in situation or context, and how to express these relationships as functions (for example a car's speed as a function of time).

2. The amount of emphasis on procedural fluency of symbolic manipulation is balanced against applications. In the previous California standards, a great deal of time was spent having students solve and manipulate algebraic equations and expressions by hand, like factoring and dividing high degree polynomials. The Common Core places emphasis on linear, quadratic, and exponential equations, and de-emphasizes the higher order polynomial, rational, trigonometric, and logarithmic equations and functions. When situations arise where such equations or functions are needed, students are expected to use tools strategically (such as Computer Algebra Systems, or graphing calculators).

3. A big shift in Algebra from the California Standards to the Common Core is the focus on *applications* and *modeling*. The California Standards had very little emphasis on real-world applications. The Common Core not only has a high school conceptual domain devoted to mathematical modeling, but there is also a Standard for Mathematical Practice focused on mathematical modeling at every grade level. The Common Core standards across the Algebra course consistently insist that student use math (algebra) to solve real-life problems.

Shifts in Geometry

As with the Algebra, there are significant shifts in the Common Core Geometry course from the previous California course.

1. The CCSS-M takes a *transformational approach* to geometry. That means that the fundamental notion of geometric equivalence, or congruence, is defined in terms of rigid motions (translations, reflections, and rotations). This is more general that the traditional approach and provides more coherence across the proofs of various geometric theorems. Geometric transformations are functions of the plane to itself. This highlights an important connection between geometry and algebra through the use of functions.

2. Trigonometry is approached in two significant ways: similarity invariants of right triangles (i.e. ratios of lengths of sides in similar right triangles) and in terms of periodic functions arising from circular motion. This means more emphasis on problem solving and mathematical modeling and a de-emphasis on formal trigonometric identities.

3. The traditional "two-column" proofs are subsumed in the larger CCSS-M practice of "constructing viable arguments". This means that two-column proofs are not an end goal, but

rather one of many ways of representing and communicating rigorous mathematical arguments.

4. There is an increase in connections to algebra. In addition to the more synthetic approaches, students are expected to use coordinates to prove geometric properties algebraically. This analytic approach also is important in applying geometric ideas to model and solve real-life problems.

Alignment to CCSS-M

Project SOL 2.0's alignment review includes internal oversight led by Patrick Callahan, Co-Director of the California Mathematics Project Statewide Office based at UCLA. Callahan and the SOL team's math specialists collaborated on the development of units and selection of lessons and activities throughout the development process. This ongoing oversight and collaboration tracked on the two major structural components of the Common Core State Standards for Mathematics: the *Standards for Mathematical Practice* and the *Content Standards*. Curriculum specialists specified the CCSS alignment for each module/chapter. After the modules were completed, Callahan then conducted a review to evaluate alignment, but the design did not use a formal *external* review to post facto evaluate alignment.

Criteria for CCSS-M Alignment

Alignment for the Standard of Mathematical Practice:

The Standards for Mathematical Practice (SMP) are the same eight standards for every grade:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

These define what proficient students should *do* mathematically. These mathematical practices have been missing or underrepresented in most existing curricula.

Project SOL 2.0 built into its curriculum an alignment to the SMP by ensuring that there were opportunities for students to engage in each of these practices throughout the course and generally *at least once per module*. Many practices appear frequently across many lessons, but it is counterproductive to attempt or claim to attempt to address every practice in every lesson or activity. The attempt to do everything all of the time inevitably results in watering down the significance of the SMPs.

Alignment for the Content Standards:

Achieve, an independent nonpartisan education reform organization, released the EQUIP rubric[1] for evaluating the extent that lessons and units were aligned to the Common Core. They identify three key elements: focus, coherence, and rigor. They describe these as:

- *Focus:* Lessons and units targeting the major work of the grade provide an especially in-depth treatment, with especially high expectations. Lessons and units targeting supporting work of the grade have visible connection to the major work of the grade and are sufficiently brief. Lessons and units do not hold students responsible for material from later grades.
- *Coherence:* The content develops through reasoning about the new concepts on the basis of previous understandings. Where appropriate, provides opportunities for students to connect knowledge and skills within or across clusters, domains and learning progressions.
- *Rigor:* Requires students to engage with and demonstrate challenging mathematics with appropriate balance among the following:

  – *Application*: Provides opportunities for students to independently apply mathematical concepts in real-world situations and solve challenging problems with persistence, choosing and applying an appropriate model or strategy to new situations.

  – *Conceptual Understanding*: Develops students' conceptual understanding through tasks, brief problems, questions, multiple representations and opportunities for students to write and speak about their understanding.

  – *Procedural Skill and Fluency*: Expects, supports and provides guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the standards for the grade) to be performed quickly and accurately.

Content Selection

Project SOL 2.0 carefully selected existing content material under Creative Commons license to construct units that would meet these criteria. Patrick Callahan served to oversee the selections of lessons and activities and to ensure that the units were constructed in alignment with the key elements of focus, coherence, and rigor.

CK-12

We selected CK-12, an online curricular resource as a platform to house the Project SOL 2.0 curriculum, at least initially. During the development of our prototype, we sought advice from experts in the field of mathematics and open access and were led to CK-12 for its vision and commitment to open access resources. Three elements unique to CK-12 motivated our use of their online resources and platform: open access, translation capabilities and their alignment to Common Core.

First, CK12 offers open source content in math and science to educators. To this end, CK-12 uses a creative common non-commercial share alike and attribution license, which means that

[1] http://www.achieve.org/files/EQuIPmathrubric-06-17-13_1.pdf

any user can take and share the content in any way they like so long as it stays in the same or similar license, attribution is given to CK-12 and there can be no charge for the content. In this manner, the content CK-12 provides can be modified and adapted via their online "Flexbooks." The Flexbooks provide a source of content in specific subject areas but can be easily modified online using the CK-12 platform. Given our prior research with bilingual teachers, we know teachers need to be able to modify the resources they often receive to better meet the needs of language minority students.

Since we have used CK-12, their technological developments have made working with their materials easier but have also impacted our work. When we began the process for developing a protocol to create this curriculum, we initially used the Algebra I and Geometry Flexbooks that were in Spanish. Months into our work, CK-12 added a translation tool on their website that allows their material to be translated into Spanish with the click of one button. Although this technology is not perfect in its translation capabilities, it provides near perfect translations and occasional teaching moments when a word is not translated appropriately given the range of regional lexicon in Spanish.

CK-12 Flexbooks also provide a basic textbook explanation and some assignments that are aligned to the CCSS-M. We used the Spanish Algebra I standard Flexbook alongside a document that aligned the course to the Common Core Standards. We replicated this process with the Geometry alignments, when we discovered that CK-12 had developed two new Flexbooks in Algebra I and Geometry that were inspired by the Common Core. Given this development as well as the Spanish translation tool, we decided to use these materials and edit our prior work to include these Common Core inspired Flexbooks.

Ancillary Learning Materials and Resources

Despite the capacity of CK-12 as an online curriculum, our experience working with teachers of bilingual and immigrant students has found that students need more than an online textbook or Spanish content. Our team of experts understands the diversity of student prior knowledge and, as such, wanted to ensure that the curriculum included useful resources for teachers and students. Although the Flexbooks provide curriculum in the form of text and images, some audio and video, quizzes and interactivity, we found that the curriculum lacked sufficient scaffolds for our target student groups. Research maintains that emergent bilinguals and Spanish-dominant students in the U.S. require additional scaffolds during instruction to ensure their success in these courses. Furthermore, from our own experience with Project SOL 1.0[2], we found that teachers, in particular, needed more resources for their students in the form of concept tasks, videos, interactive images and online learning simulations in Spanish and English to meet the diverse learning needs of their students and build on the assets of these Spanish-dominant students. In this manner, we used the CK-12 as a starting point for the online resources and tools we wanted to provide to teachers and students.

[2] Project SOL was initiated in the fall of 2007. For more information, see: http://civilrightsproject.ucla.edu/resources/projects/project-sol/project-sol-home.

Therefore, the Project SOL 2.0 curriculum contains prerequisite skills, concept tasks, assignments, videos and other resources that would be helpful in the instruction of diverse learners. Our team ensured that each added resource was aligned with the already identified Common Core standards or would help students meet these standards. Our process included an initial collection of resources by our math teacher consultants in the US and Mexico. Our team of math experts developed and reviewed the resources to ensure they are not only Common Core-aligned but also relevant to the prior knowledge and lived experiences of bilingual and immigrant youth. The final step included a review by our team's Common Core math expert, Patrick Callahan. Next, we outline the major components of the curriculum.

Elements of the Curriculum

The mathematics content for each module is aligned to the mathematics CCSS and specifically designed using proposed units of study found in Appendix A of the CCSS (http://www.corestandards.org/assets/CCSSI_Mathematics_Appendix_A.pdf).

Each module contains a coherent sequence of lessons spanning multiple days. Furthermore, each lesson within a module may also span 1-3 days.

A teacher using these resources will find an online instructional guide outlining suggested use of the materials and an approximate instructional timeline for traditional and block schedules. The online instructional guide also contains a detailed outline that includes guidance for a teacher who chooses to use the content as a stand-alone course for their students. The guidance includes a **Plan the Lesson** section, a **Teach the Lesson** section, and a **Teacher Resources** section.

The **Plan the Lesson** section contains the Common Core Standards in English and Spanish, learning objectives in English and Spanish, and materials and resources needed for each lesson. The **Teach the Lesson** section includes an introduction to the lesson, a lesson opening, a lesson plan for the body of the lesson, a closing for the lesson, and lesson assignments and assessments. The **Teacher Resources** section identifies key vocabulary students need to know in order to develop a conceptual understanding of the content, effective ELL instructional strategies aligned, and links to intervention and enrichment resources.

Given that the users of these materials will have increased populations of English Language Learners, our goal is to provide instructional strategies and resources helping teachers establish a classroom climate that welcomes and supports the mathematics and language development of English language learners. This is done through the quality of bilingual resources available to teacher and student, and with our lesson structure in each module. This structure, found within the **Teach the Lesson** section, is an amalgamation of Problem-Based Learning, Guided Inquiry, and direct instruction. These choices are predicated on our goals of students developing mathematical proficiency: conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition, (Adding *It Up,* p. 5).

Instructional Strategies

This section provides an overview of general instructional strategies that research has identified as being effective for supporting academic development of English Language Learners. For specific strategies associated with each section in the chapter, please see the **Teacher Resources** found in the instructional guide for that respective section.

Instructional Modifications for English Learners (Goldenberg, 2008)

1. Predictable and consistent classroom management routines, aided by diagrams, lists, and easy-to-read schedules on the board or on charts, to which the teacher refers frequently;

2. Graphic organizers that make content and the relationships among concepts and different lesson elements visually explicit;

3. Additional time and opportunities for practice, either during the school day, after school, or for homework;

4. Redundant key information, e.g., visual cues, pictures, and physical gestures about lesson content and classroom procedures;

5. Identifying, highlighting, and clarifying difficult words and passages within texts to facilitate comprehension, and more generally greatly emphasizing vocabulary development;

6. Helping students consolidate text knowledge by having the teacher, other students, and ELLs themselves summarize and paraphrase;

7. Giving students extra practice in reading words, sentences, and stories in order to build automaticity and fluency;

8. Providing opportunities for extended interactions with teacher and peers;

9. Adjusting instruction (teacher vocabulary, rate of speech, sentence complexity, and expectations for student language production) according to students' oral English proficiency and,

10. Targeting both content and English language objectives in every lesson.

Real World Mathematics and Making Math Relevant

It is important to note that connecting math to the real world for students should deepen their content knowledge as well as provide them the opportunity to apply mathematics in a real world setting. This should include the traditional connections to science, technology and engineering but also recognize that students whose home language is not primarily English will probably have diverse home lives. This recognition calls for the "creation and maintenance of collective understandings about mathematics that involves intricate connections to community/cultural knowledge" (Aguirre, 2012). When possible, students should be asked to analyze the mathematics within the community context and how the mathematics helps them understand that context.

A goal of connecting mathematics to students lives is to have them begin to see mathematics as a powerful and relevant tool for understanding complicated, real-world phenomena rather than a series of disconnected, rote rules to be memorized and regurgitated. Students can learn that mathematics is an essential analytical tool to understand and potentially change the world (Gutstein and Peterson, 2005).

Suggestions for real world connections can be found in the **Teacher Resources** section found in each section's instructional guide.

Assessments

Given our belief that teaching and learning is highly dependent on the context of each individual classroom, our assessments should be considered as a suggestion for the skills and problem types students can navigate as a result of experiencing the content of each module. As result, we do expect individual teachers to design their own summative assessments using knowledge of their own students.

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4. Using the Curriculum and its Application in Schools

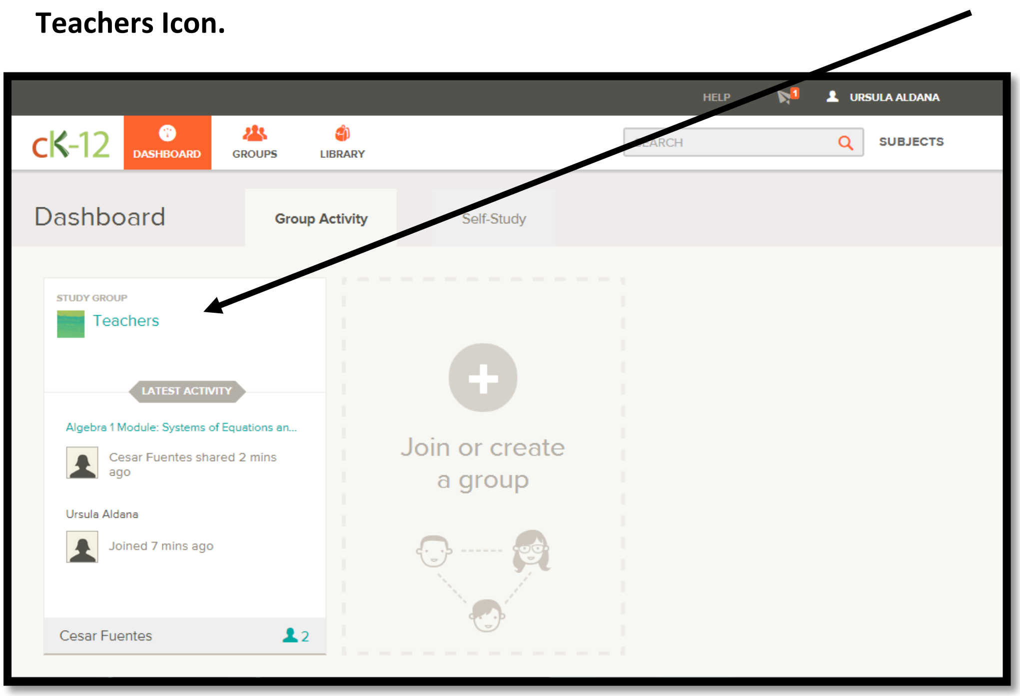
By Ursula Aldana

Access to the Curriculum

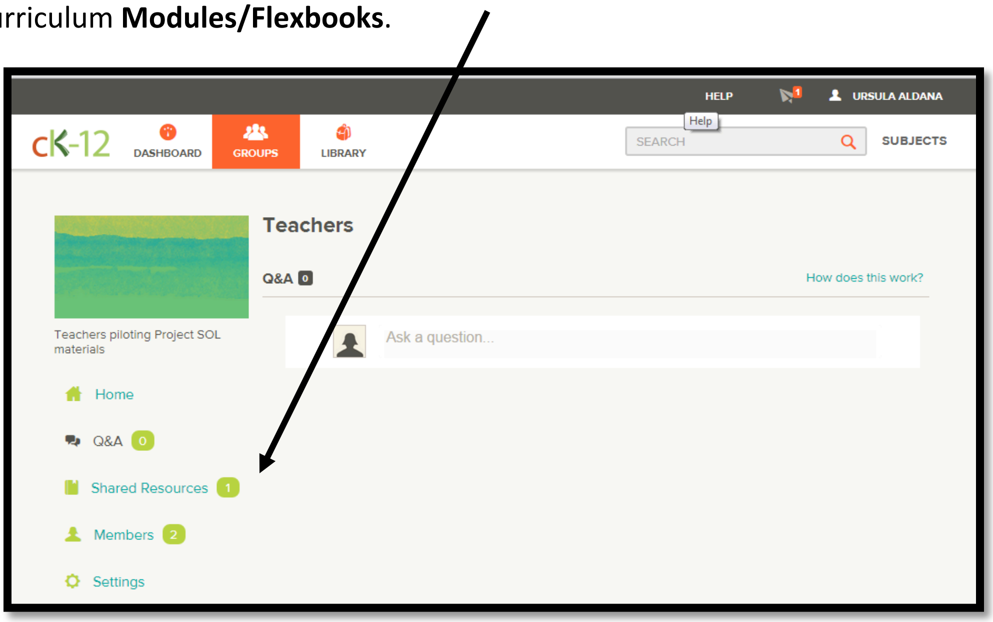
In order to access the Project SOL 2.0 curriculum, teachers need to 1) create a CK12 account (www.ck12.org) and 2) receive a specific code for the Project Sol Teachers Group. Note the CK12 account is free to create and gives educators access to the Project SOL 2.0 Flexbooks as well as to the plethora of CK12 resources.

Instructions:

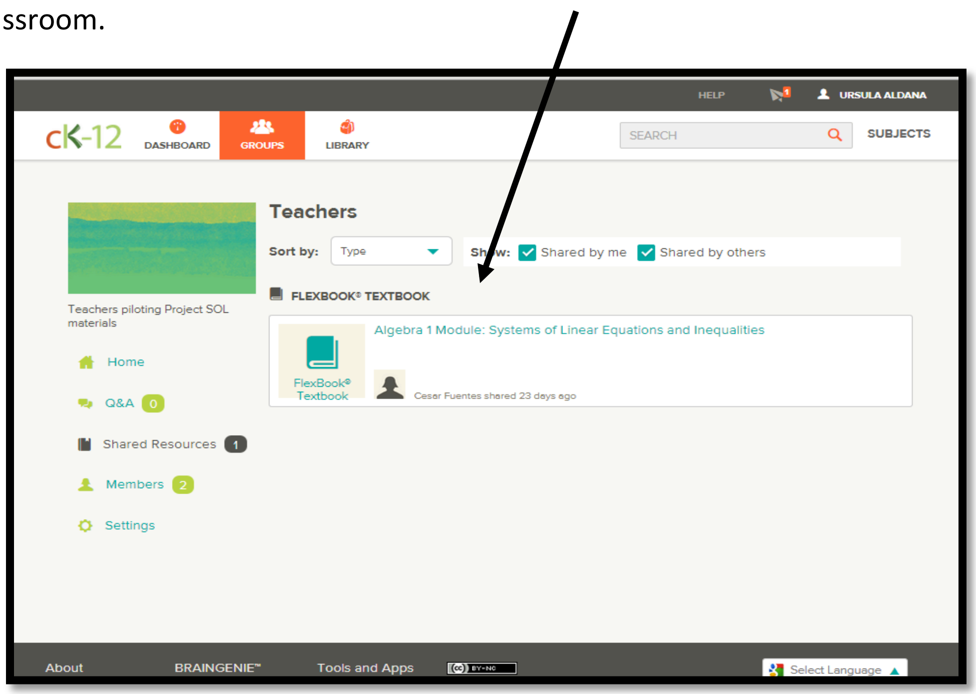
1. Teachers will be given access to the specific **Flexbooks** via an **email invitation** to join a "Teachers Group." The email will include the CK12 website address (www.ck12.org).
2. **An email will be sent to teachers and will include the code to join the Teachers group.**
3. Teachers should next **create a CK-12 account as a teacher user** and **enter the teacher Group invitation code** they received in the email.
4. Teachers have access to three Tabs: Dashboard, Groups, and Library.
   - The **Dashboard** tab shows recent activity that has taken place in groups.
   - The **Dashboard** and **Groups** Tabs include access to the Teachers Group. **Click on the Teachers Icon.**



4. The **Teachers group** screen (below) includes a list of Menu options on the left side of the screen: Home, Q&A, Shared Resources, Members and Settings page.
5. The **Q&A page** provides teachers a space where they can leave a question for the Project SOL 2.0 curriculum specialists.
6. Teachers should click on the **Shared Resources** icon to access the Project SOL 2.0 curriculum **Modules/Flexbooks**.

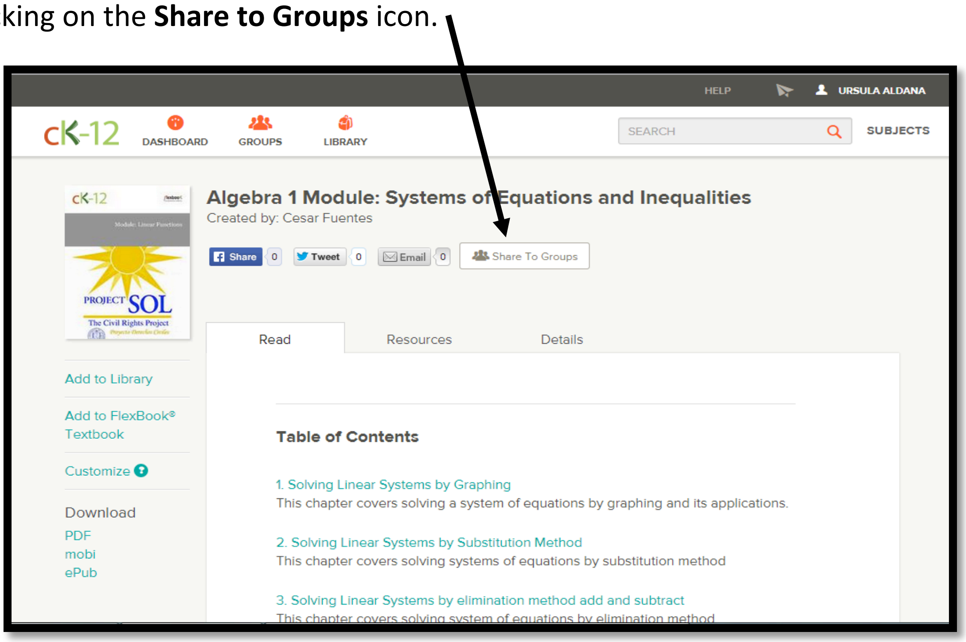


7. Teachers should next select the particular **Module/Flexbook** they will use in their classroom.



Elements of the Curriculum

1. Every module in the Project SOL 2.0 curriculum includes **content items (or chapters)** listed in the **Table of Contents**.
2. **Key Terms and other resources for all units** can be found in the module, "Teacher Guide and Resources for all Units."
3. On the left side of the screen, teachers are able to
   - Customize the Flexbook, and/or
   - Download the Module/Flexbook.
4. Teachers also have the option to share a **Module/Flexbook** with their students by clicking on the **Share to Groups** icon.

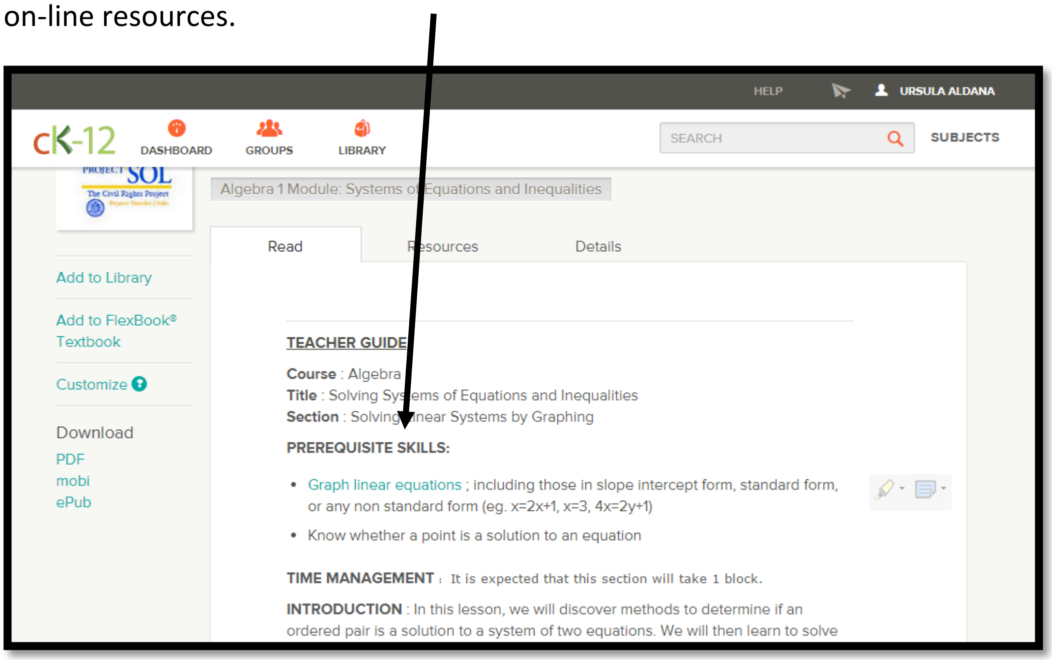


5. Teachers should click on a specific **Chapter** within the Module/Flexbook.
6. Each **Chapter** includes three tabs: Read, Resources and Details. We describe the contents of each of these Tabs in the next sections.

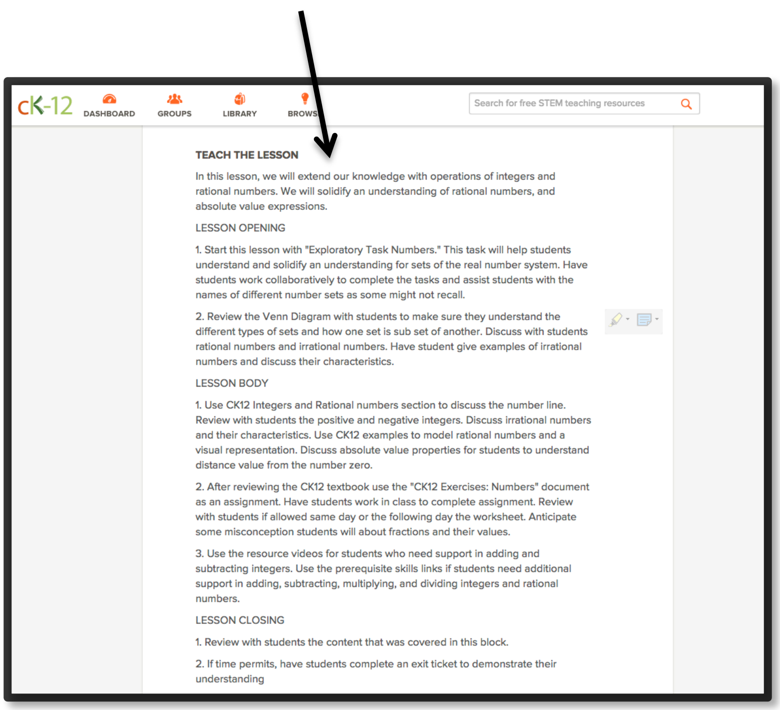
Read

1. Under the **Read Tab**, teachers will find a **Teacher Guide** (see below). Each Teacher Guide includes an organization of information and materials, such as the course name and titles of the module and section.

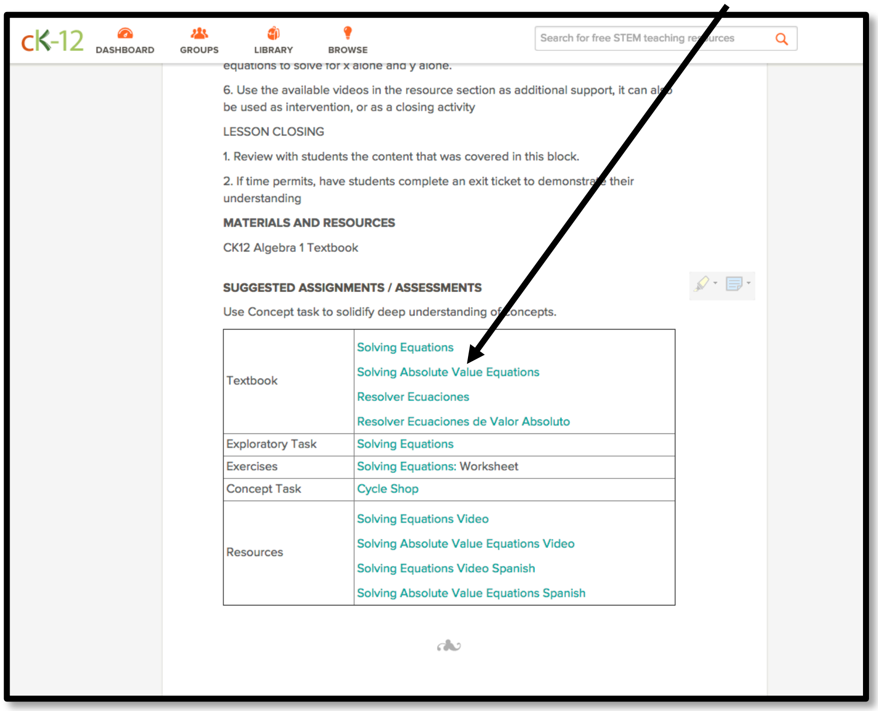
2. The **Read Tab** also includes **Prerequisite skills** that identify the skills students should have already mastered in order to work on this content lesson. In some cases, the prerequisite skills include a hyperlink that allows students to explore and review related on-line resources.



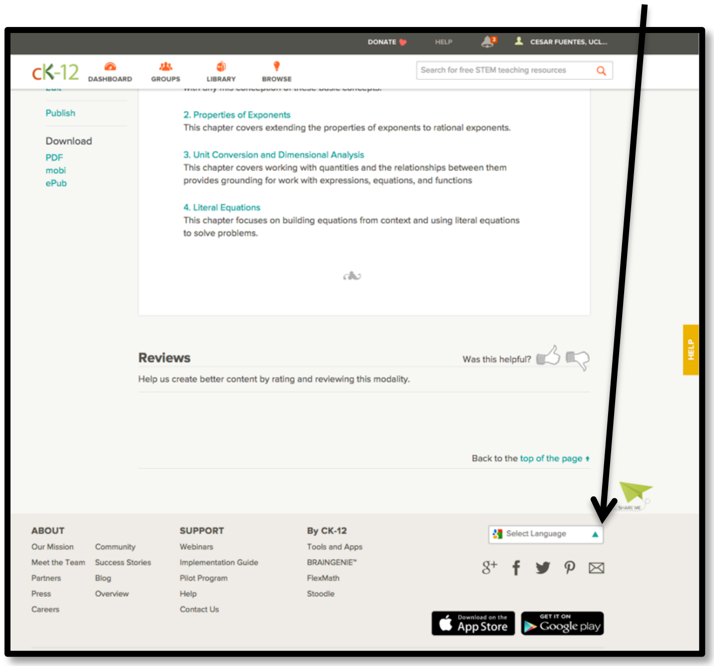
3. After the Prerequisite Skills, the general lesson plan includes suggestions for **Time Management**, and a **Teach the Lesson** summary. Activities are named within the lesson body.



4. The **Read Tab** also includes a table of resources (below) that provides direct links to the **CK12 Textbook, Exploratory Tasks, Exercises, Concept Tasks**, and other **Resources** (like videos). Worksheets are provided in both **English and Spanish** on the same PDF document. Simply **click on the document** you would like to view.

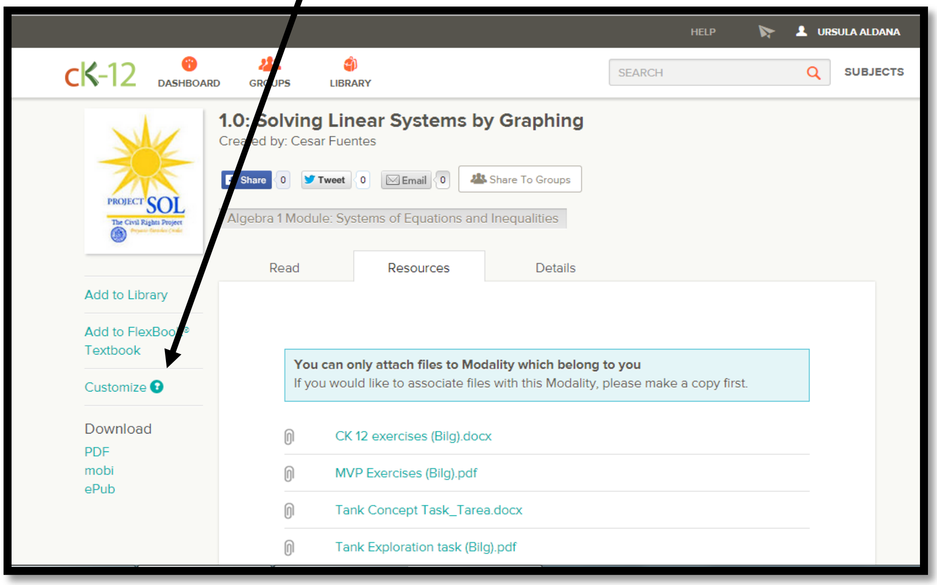


5. **Textbook hyperlinks** direct the user (teacher) to the CK-12 Textbook that is in English, which can be translated to Spanish using the CK12 **translation tool**.



Resources

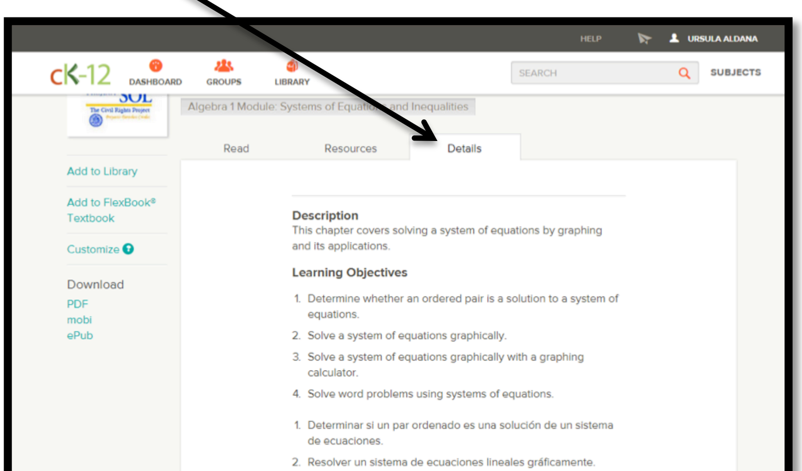
1. The **Resources Tab** provides a list of resources found in the Lesson. These resources are the same ones found under the Read Tab.
2. Teachers should click on the **Customize** icon if they want to edit and/or add to the lesson content.



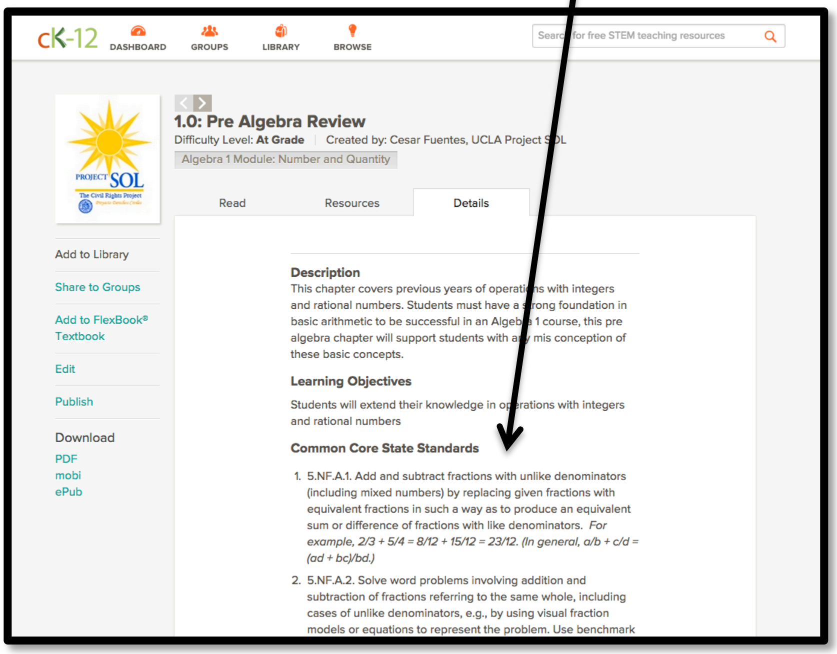
3. To modify or customize Project SOL content, teachers must first make a copy of the Flexbook in their personal CK12 account. Instructions on customizing the Flexbook are at: https://ck12support.zendesk.com/hc/en-us/articles/200448244.

Details

1. The **Details** tab provides teachers with helpful lesson planning information and contains Learning Objectives.



2. Teachers will also find the aligned **Common Core State Standards** and hyperlinks to enrichment resources within the Details tab.



Project SOL 2.0 in Schools

Given the range of technical expertise and skills teachers already have, the online course platform can be utilized in a myriad of ways **in the classroom**. Our experience with Project SOL 1.0 revealed a few ways teachers might benefit from using the courses. We outline these approaches below, which depend on classroom Internet availability and teacher preference.

Students Using Individual Computers:
Ideally, students would be able to access the online courses on individual computers/devices at school, in a computer lab, using iPads or laptop computers. Teachers can easily share the Module/Flexbook with students and guide them towards a specific lesson by using the "Create a Group" feature in CK12.

When students use an individual Internet device, they are able to actively engage in the curriculum at their own pace and explore the online courses at their own speed and/or direction from their teacher. Teachers will have to ensure they adequately prepare students to log in and enter the courses, and then check-in with students as they continue to work on the website.

Students Sharing Computers
If there is a shortage of computers at the school, teachers can also utilize the online course resources by selecting specific resources and/or assignments for students to work on in small groups. In this case, students can work in pairs or triads to view resources or work on specific assignments.

Projecting the Curriculum
In classrooms where student access to computers is not possible, teachers can use the online courses in their classrooms by projecting them onto a screen via a projector. In this case, we suggest that teachers select activities and online videos that students would benefit from viewing and listening on large screen/speakers.

In all cases, teachers can provide students with documents printed from CK-12 modules as a supplement to or substitute for the on-line versions.

Employing a bilingual curriculum

Educators serving a diverse student body should consider the many uses of Project SOL 2.0. Given the characteristics of the curriculum (bilingual, online, free, adaptable, teacher-friendly), school leaders might consider the curriculum as a stand-alone CCSS aligned curriculum for secondary math teachers. Additionally, the curriculum can be helpful for teachers looking to supplement their official curriculum with critical resources in Spanish that can facilitate the learning for Spanish-dominant students.

School leaders of bilingual schools, dual-language and International Baccalaureate programs at the secondary level might also be interested in utilizing the Spanish-language math curriculum since these bilingual schools often lack content-specific materials in a foreign language. Math courses taught in Spanish could allow students to maintain learning in a foreign language across disciplines, while providing more flexibility in their schedule. Teachers who might not feel adept at teaching math in Spanish can rely on the fact that materials are provided in both English and Spanish.

In the next section, we provide district and school leaders current demographic information on the rapid rise of Latino and foreign-born individuals who are under the age of 18 and increasingly enrolled in schools across the U.S.

Educational Video on Project SOL 2.0

In this short video, Teacher-Specialist Cesar Fuentes demonstrates how he utilizes the Project SOL bilingual materials in his Algebra 1 high school classroom. The video can be viewed at: http://civilrightsproject.ucla.edu/resources/projects/project-sol/project-sol-2.0

5. Target Audience: The Geography of Language, by State and County

By Kfir Mordechay

Once considered a population that was found only in a few states, the Latino[3] population is growing across the country. Between 2000 and 2010, the group's growth accounted for more than half of the nation's total population growth (Passel, Cohn, & Lopez, 2011). In cities and towns across the nation, from traditional immigrant hubs such as Metropolitan Los Angeles and across California to small rural towns in Tennessee, there are Spanish-speaking restaurants, retailers and annual festivals, reflecting a demographic transformation. In the Deep South, which was quite literally a black and white world only a generation or two ago, the implications for this demographic change are dramatic. While the immigrant adults and their children learn a new language and culture to become part of the mainstream, the established communities must learn to adapt services and skills to these newcomers. As policymakers, school district administrators, and educators recognize the changing demographics of the K–12-student population, new strategies will have to be put in place to ensure a high quality education in these concentrated and emerging English-learner communities. Until now, many districts have made few preparations to address the needs of students from different linguistic and cultural backgrounds. We provide this demographic portrait in order to show the places in the U.S. that might want to be thinking about the use of a curriculum such as provided by Project Sol 2.0. Especially in the newly immigrant areas shown below, there are often few resources to meet the needs of the new population, and Project SOL was created in part with these places in mind.

This statistical profile provides a summary of the key data examining the geographic distribution and demographic characteristics of the U.S. Spanish-speaking school-aged population in the 50 states and the District of Columbia, and the nation's more than 3,000 counties. The data for this report are derived from the 2007-2011 American Community Survey (1% IPUMS), the 2000 Census (5% IPUMS), and U.S. Census Bureau county population datasets. First we describe the demographic changes occurring in schools and communities across the nation. We then provide a summary with maps of the latest data on the growth of traditional Latino settlement areas. Next we describe and present maps on the group's rapid growth across the Southern United States and summarize the data on foreign-born Latino youth across the nation. Finally, we offer our conclusions on the implications of the nation's ongoing demographic transformation.

The Geography of Spanish-Speaking School-Aged Children

This demographic chapter provides a visual and descriptive layout describing the demographic changes occurring in schools and communities across the nation. Maps 1 and 2 below show the increase and spread from 2000 to 2011 of Spanish-speaking school-aged children across the nation, which are not evenly distributed. Some areas have high percentages of Spanish-

[3] The terms "Latino" and "Hispanic" are used interchangeably in this report.

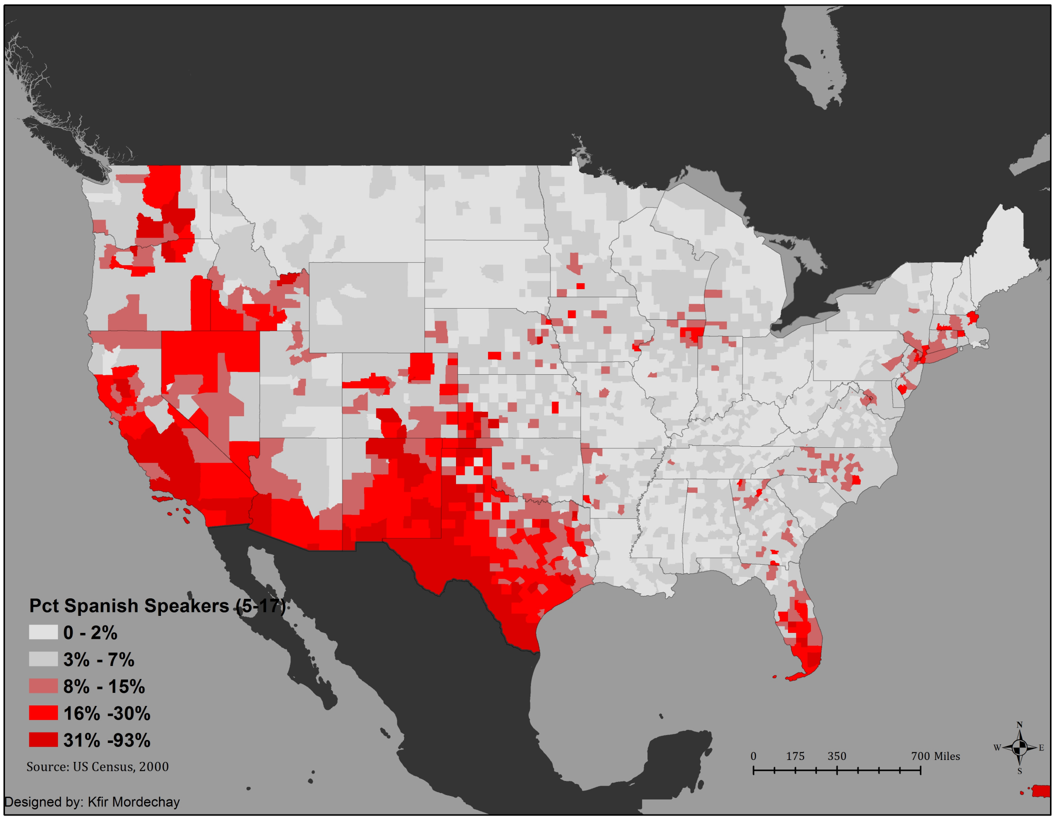
speakers, while others have low levels. California, Texas, New Mexico, Arizona, and Florida (Maps A-1 to A-9), which are traditional immigrant destinations due to their close proximity to the Mexican border, continue to show steady growth. In addition, other states have become popular destinations for Latino immigrants. In the South, Georgia and North Carolina have experienced the most growth by total number of Spanish-speaking children, albeit from a small base, while Tennessee and Arkansas have certainly experienced an increase in this population as well. Between 2000 and 2011, the growth rate of Tennessee's Spanish-speaking school-aged population of children was one of the most rapid in the nation, and many places across Tennessee now have a sizeable Latino population where they were barely noticeable just a decade ago (Map B-4).

About the data

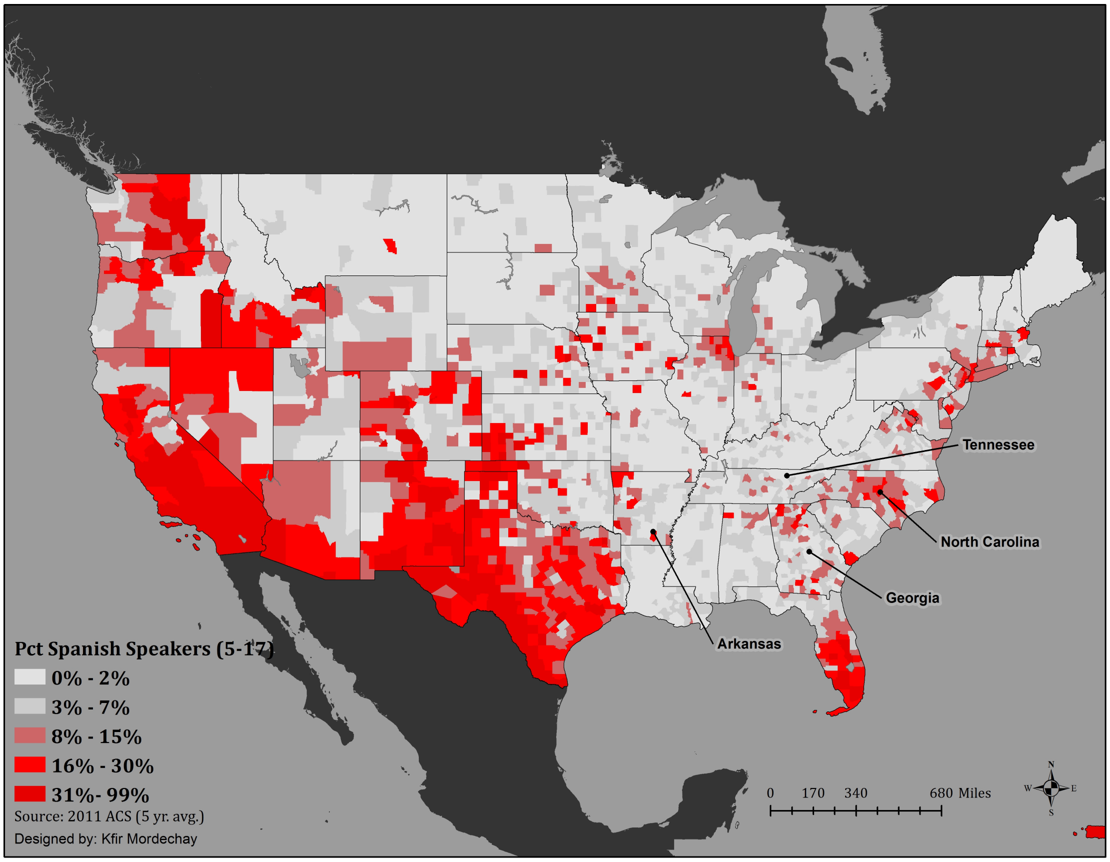
Most of the data in this chapter are based on the author's calculations of federal data. The most common source of data is the 2007-2011 (five year moving average) from the American Community Survey (ACS). The ACS replaced the "Long Form" of the federally mandated Decennial Census. At least one limitation of the data is that sample sizes are smaller than previous decennial census samples since the data is collected from continuous monthly surveys of the population instead of every 10 years. Therefore, the smaller monthly samples are combined to provide more reliable estimates, creating a moving average. The much smaller sample sizes produce larger sampling errors. Hence, an average across five years of data is less than ideal, but it is necessary to obtain highly reliable estimates. Multiyear estimates cannot be used to describe any one particular year, only what is the average value over the full five-year time period. Despite this limitation, prior to the availability of the ACS, researchers had to wait 10 years for the availability of comparable data from the Census Long Form. Other sources of data used are the 2000 Decennial Census, which is a complete enumeration of all persons and individuals in the United States. Comparing the Decennial Census data to the ACS data only allowed for the tracking of increases and/or decreases of populations. Therefore no causal connection can be identified. Tables for all state- and county-level data can be found in the appendices A and B of the report.

The mapping component of the project drew upon Census TIGER/line shapefiles, a geographic data format that provides spatial information for use in mapping software. Housing population trends were mapped using Census TIGER/line shape files from the 2000 and 2010 Census boundary lines. The variable displayed in all the maps and charts used in both the ACS and the Decennial Census are for Spanish speakers that are 5-17 years old. On each map, the graduated colors reflect five classes that divided the data into quartiles.

Map 1: Percent Spanish-speaking school-aged children in the United States, 2000



Map 2: Percent Spanish-speaking school-aged children in the United States, 2007-2011



The Growth of Traditional Settlements

California is by far the most populous state for Spanish speaking youth with well over 2 million children (2,389,976). The Golden State is followed by Texas (1,540,102), Florida (618,183), New York (492, 805), and Illinois (391,850). These five states contain two-thirds of the nation's Spanish-speaking youth population. Just as Spanish-speaking children are dispersed unevenly across the fifty states, the largest numbers are concentrated in a few of the nation's largest metropolitan areas. In California, Los Angeles County alone contains close to 846,700, or 35% of the state's Spanish-speaking youth, far exceeding any other county in the United States (Table 1 below). This demographic makes up close to half of LA County's total youth population (Appendix A). They are also a dominant presence in many counties in the border states of Arizona, California, and Texas. Chicago's Cook County has also seen a large increase in its Spanish-speaking youth population since 2000, with the latest data showing that over a quarter of the county's youth population speak Spanish at home. Of the counties with the largest concentration of Spanish-speaking youth, Miami-Dade in Florida has the highest percentage of Spanish-speaking youth at 58.9%.

Table 1: US Counties with Largest Spanish-Speaking Youth Population

County	Total Pop.	Spanish Spk.	Pct Span Spk.
Los Angeles County, CA	1773554	846700	47.7%
Harris County, TX	796656	311408	39.1%
Cook County, IL	893335	238507	26.7%
Miami-Dade County, FL	394168	232148	58.9%
Maricopa County, AZ	718918	192177	26.7%
Dallas County, TX	456110	190316	41.7%
Orange County, CA	543908	185082	34.0%
Riverside County, CA	453849	175457	38.7%
San Diego County, CA	517583	170343	32.9%
San Bernardino County, CA	438051	162347	37.1%

Note: All calculations are for populations 5-17 years old.

Although L.A. County has the largest number of Spanish-speaking youth in California, the county has seen a decrease of 67,712 since 2000, a far larger decline than any other county across the nation. After L.A. County, the next largest population declines occurred in Kings (19,877), New York (18, 663), Bronx (16,132) and Queens (14,022), all counties of the larger New York City metropolitan area. Table 2 below shows the ten counties with the largest increase in Spanish-speaking youth. Harris County, TX saw an increase of over 80,000 since 2000, while San Bernardino and Riverside, the Inland Empire Counties of California, saw a combined increase of over 100,000 Spanish-speaking youth fueled in large part by the area's spectacular housing boom.

Table 2: Counties with Largest Change between 2000-2011

County	2000-2011 Change
Harris County, TX	81802
Riverside County, CA	62164
Maricopa County, AZ	52680
Dallas County, TX	51748
Clark County, NV	43988
San Bern. County, CA	39942
Tarrant County, TX	35425
Hidalgo County, TX	33703
Gwinnett, GA	21249
Kern County, CA	21018

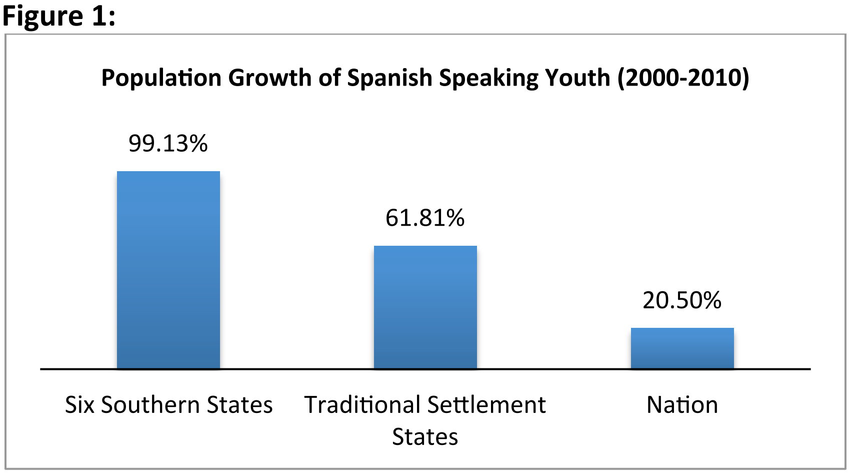
The Latino South

The Hispanic population is growing faster in much of the South than anywhere else in the United States. The growth of Spanish-speaking children across the South has not just occurred in large metropolitan areas that are growing robustly; many small towns across the South have seen dramatic growth as well. This trend is evident in Appendix B maps (B-1 to B-4) showing the states with the most rapid growth, which include Arkansas, Tennessee, North Carolina, and Georgia. The counties with the highest proportional growth within these states are rural and incorporate small towns, largely driven by the employment hiring strategies of large firms, especially in food processing industries and agriculture (Nagle & Gustafson, 2012). Mainly driven by the proliferation of construction jobs before the Great Recession, the counties with the most growth by total numbers remain, however, the large metro areas, which include the urban core and the peripheral suburban areas.

While significant demographic shifts have changed the landscape of this nation over the last several decades, the changes occurred at varying paces and affected each state at different times. The growth over the last decade has been most pronounced in the South. Many of the regions experiencing rapid growth of young Spanish-speakers started from a small base. Figure 1 below illustrates the stark growth since 2000 throughout the South, compared to traditional Latino settlement states and the nation as a whole. From 2000-2011, the South's Spanish-speaking youth grew by almost 100%, compared to 61% in the seven combined traditional settlement states, and 20.5% across the nation as a whole (Figure 1). Once a thin presence in the South, Hispanics are now a rapidly growing and increasingly visible player in the region's demographic context.

The group's rapid growth from a small base constitutes a distinct demographic phenomenon that differs in significant ways from the slower buildup of larger Hispanic populations evident in states such as Texas, California, Nevada, and Illinois. A slower build up tends to be stable, as the native population is usually less hostile to the demographic changes; whereas, the sudden growth and influx of a racial or ethnic group can be dramatic, causing racial tension and often times popular anti-immigrant sentiments. Nonetheless, rapid change is not evenly distributed across the South but concentrated in a few states and, in particular, a few dozen counties within those states. For example, Davidson County (part of Nashville) and Shelby County (home to Memphis), both central counties in Tennessee's two largest metros, have experienced a 125% and 88% growth in their Spanish-speaking school-aged children, respectively. Pulaski County, Arkansas, a suburban area of Little Rock and by far the largest county in the state, has seen this demographic group increase by a dramatic 145%. The story is similar in North Carolina, where Mecklenburg County, which includes much of Metropolitan Charlotte and also Wake County (a central county in Metropolitan Raleigh), has seen this population grow by 94% and 80% respectively. In Fulton County, Georgia, home to Atlanta, there has been a growth rate of 74%; in suburban Atlanta's Gwinnett County, the largest raw number increase was over 21,000, a 99% increase since 2000. In fact, this part of suburban Atlanta is the most heavily Hispanic locality in the state, where the Latino population rose to 162,035 in 2010 from 64,137 in 2000 (U.S. Census Bureau). Before the Great Recession, one trend driving immigration was the robust economic growth of these regions.

Figure 1:



Source: author's tabulations from 2000 Census Summary File and 2007-2011 ACS
Notes: Traditional Settlement States are CA, TX, NV, NM, AZ, FL and NY; the six Southern States are AL, AR, GA, NC, SC and TN.

New Immigrant Entry Points

Most of the additional Latinos in new settlement areas of the South are foreign born (Kochhar, Suro, & Tafoya, 2005), which suggests many do not speak English well. The highest concentration of foreign-born Latino youth[4] resides in the following Southern states (listed in decreasing order): Georgia, North Carolina, Tennessee and Arkansas, with the greatest numbers in the states' largest metro areas (Appendix B). The list of states with the highest percentage of foreign-born Latino youth relative to the total Latino youth population can seen in Appendix B. Over 5.7% of Latino youth in Arkansas are born outside the U.S., compared to less than 2.5% in California, a traditional Latino settlement state. Other Southern states have similarly high percentages, suggesting that these states are, in fact, entry points for Latino immigrants.

The large proliferation of Latinos in the Southern United States is a recent phenomenon, and the impact of the new wave of immigration is only beginning to make itself felt on the infrastructure of the host communities. But it is already clear that the impact will be dramatic, particularly on the schools, which will be undoubtedly at the forefront of this demographic transition. Compared to the U.S. states that boarder Mexico, the numbers of Latinos are still relatively small, and Hispanics comprise just a fraction of the school-age population in new settlement regions. Yet their impact on local schools is potentially dramatic, as this population is overwhelmingly from homes where Spanish is the spoken language, requiring special support for English-language instruction. The demographic data presented will inform policymakers, educators, academics, and the general public as they develop and discuss policies, strategies, and potential laws to guide these demographic challenges and opportunities.

Conclusion

Presently, one in four U.S. children is Latino, many of whom (45%) are classified as English learners (Gándara & Contreras, 2010). Public schools have become the main vehicle of integration for Latino students, although this group's schooling experience in the U.S. has been characterized by high dropout rates and sometimes an alienation from schooling (Gándara & Contreras, 2010). Given the current demographic shifts in the U.S. population, it is inevitable that many more teachers at some point in their careers will encounter students who do not yet have sufficient proficiency in English to be successful in traditional classrooms. Many teachers do not have the preparation to provide high-quality instruction to this population of students. Recent research on teacher preparation from the Organization of Economic Cooperation and Development (OECD) showed that less than a quarter of surveyed U.S. teachers received some kind of professional development on multiculturalism or multilingualism (OECD, 2014), and with respect to quality of this instruction, little is known.

While significant demographic shifts have certainly changed the landscape of the nation over the last several decades, the growth of the last ten years, in particular, has been most pronounced in the South. A decade or two ago, many regions currently experiencing rapid growth in the population of young Spanish speakers were only sparsely populated by this group, which now makes-up a significant presence across a greater variety of communities– rural, small towns, central cities and suburbs.

[4] "Foreign born Latino youth" refers to persons who are under 18 years old and born outside of the United States, Puerto Rico or other U.S. territories.

Most of the recent Spanish-speaking immigrants in the South are foreign born. Rather than move to states such as Nevada or California, where migrants join well-established, large, Latino communities, the emergence of entirely new communities poses unique challenges and opportunities. Given its distinctive character, Hispanic population growth in these parts of the South will also have distinctive impacts on educational and social policy. If this group's needs are ignored, Hispanic students in the South may evolve into a generation lacking the basic credentials necessary for entry-level employment, with few job skills and low labor productivity. Of course, it is also important to point out that even in locales with a history of receiving immigrant students, the growth in numbers is clearly outpacing the capacity of schools and districts to provide a highly qualified teacher who can instruct students in a language they can understand. This is especially true at the secondary level.

The maps and data presented here are useful for those who are not only concerned with the high dropout rate and low educational attainment of Latino youth, but also with the economic future of this nation. As the world becomes increasingly interdependent, and immigration to the developed world continues, the integration of these new populations is going to be more and more essential for economic success.

Policy Implications

Today's Latino children are a key part of America's future. Ensuring that our nation's public schools and universities improve their capacity to adequately serve this growing group is certain to be one of our country's most significant challenges. Far too many educators, for example, are not adequately prepared to teach immigrant and English learner students. Furthermore, teachers likely cannot rely on university teacher education programs nor on school district professional development to receive this preparation. Addressing this is an urgent and important policy matter, as this vulnerable student group continues to lag dangerously behind (Gándara & Contreras, 2010). As has been thoroughly documented, the consequences of dropping out of high school are more devastating today than ever before (Carnevale, 2010; Orfield, 2004). Of course, there are limitations to what schools or teachers can do to mitigate many of the social issues this group faces, including persistent poverty, employment instablity and housing insecurity. (Obviously these students would be better off, for example, if they could remain in the same school with minimal disruptions in learning.) There is, however, much we can do educationally, as this is the single most effective way to integrate the burgeoning population of Latinos into the nation's economy and society. This document higlights how educators can leverage the linguistic resources of Latino students while utlizing technological innovations in the areas of Open-access Educational Resources to mitigate challenges in regions where teachers may not be fully bilingual or know enough Spanish to help these students access mathematical content. Not recognizing the unique educational needs of this group will only enhance long-term inequality, and will, undoubtedly, be a tragic waste of human potential.

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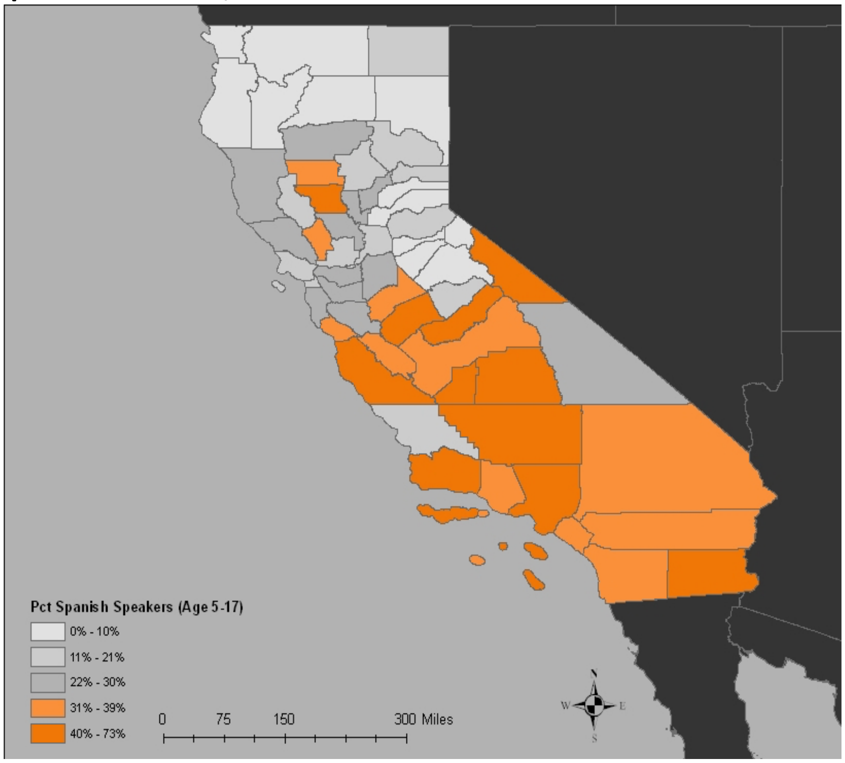
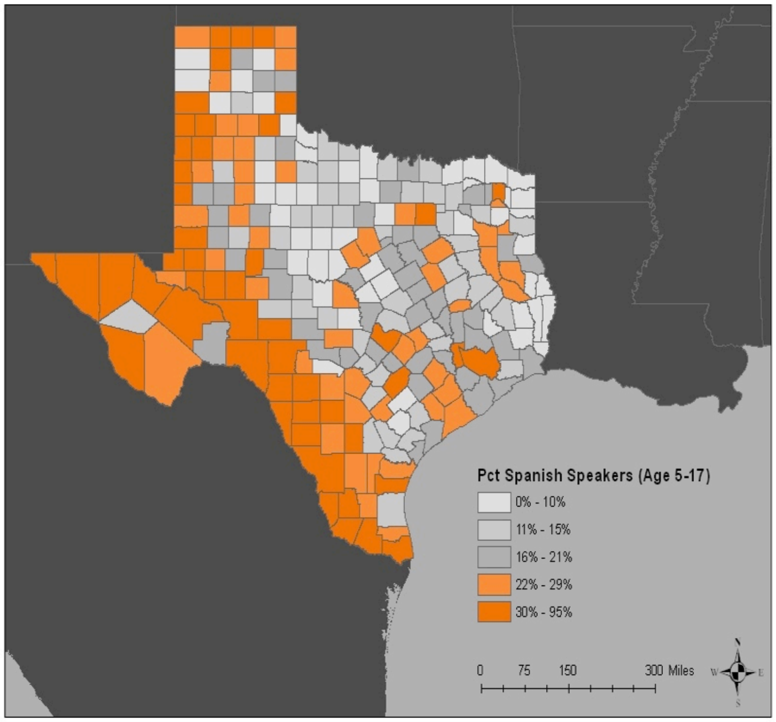
Appendix A: Maps
States with highest percentage of Spanish-speaking school-age children

Map A-1: California, 2007-2011

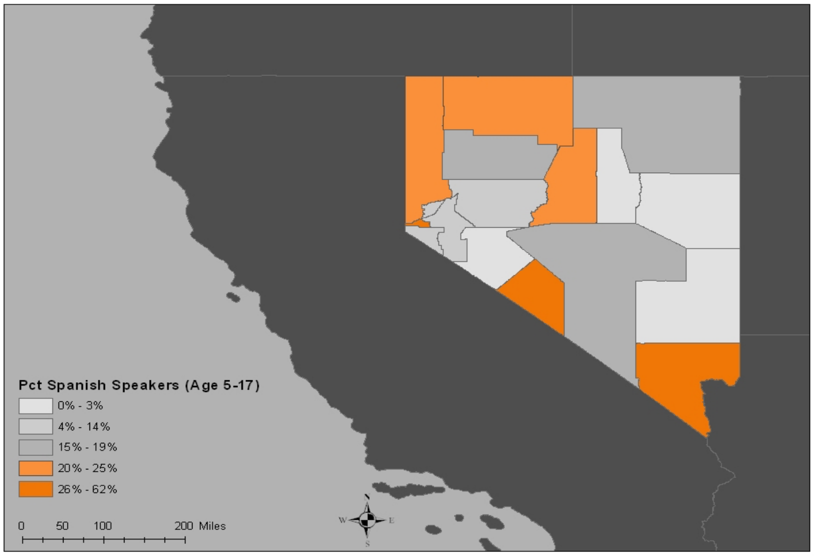


Map A-2: Texas 2007-2011



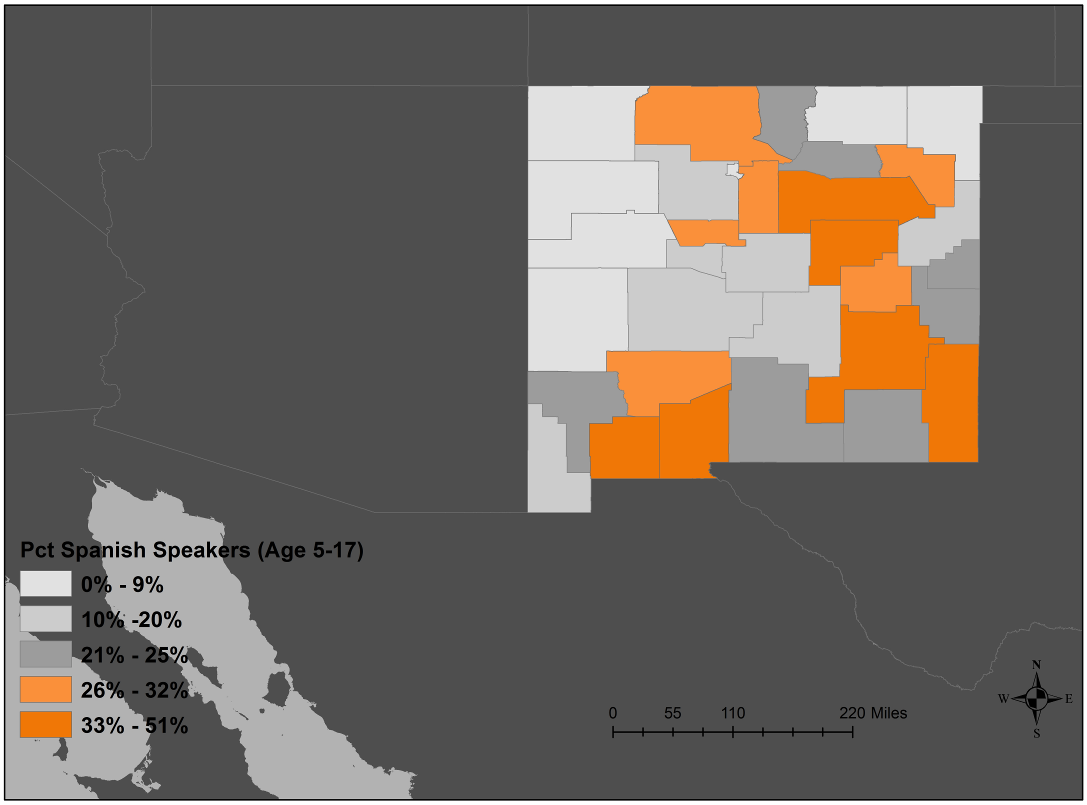
Source: 2011 ACS (5 yr. avg) Designed by: Kfir Mordechay

Map A-3 Nevada, 2007-2011



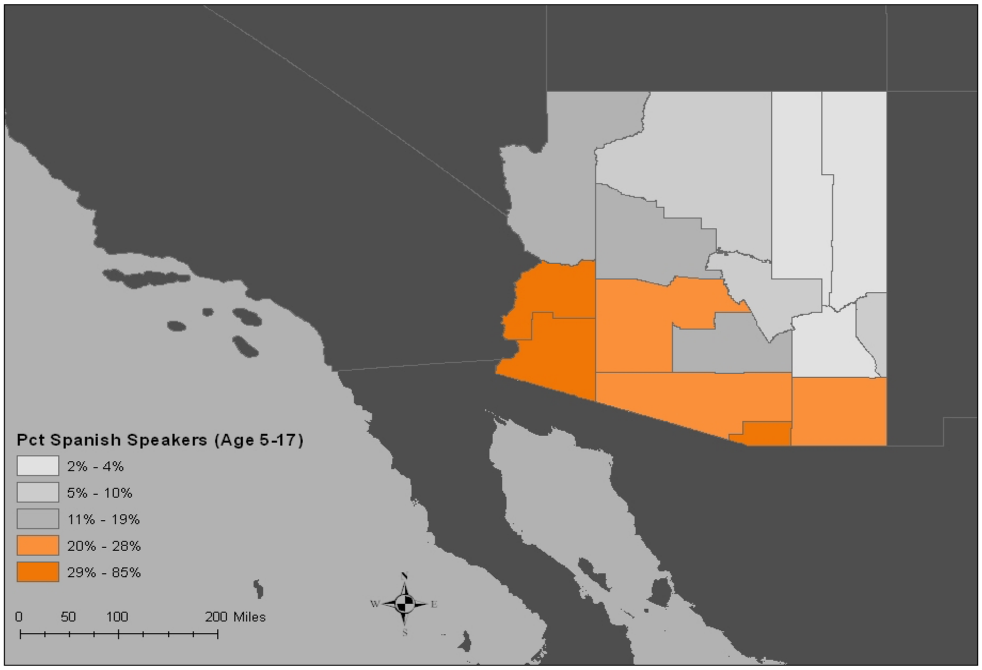
Source: 2011 ACS (5 yr. avg) Designed by: Kfir Mordechay

Map A-4: New Mexico, 2007-2011



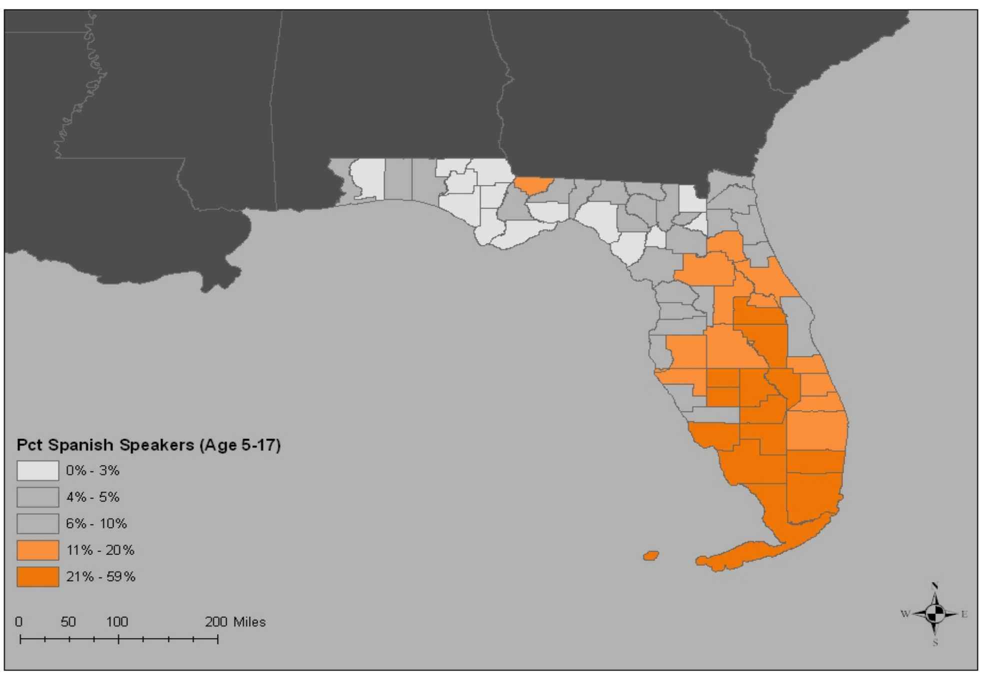
Source: 2011 ACS (5 yr. avg) Designed by: Kfir Mordechay

Map A-5: Arizona 2007-2011



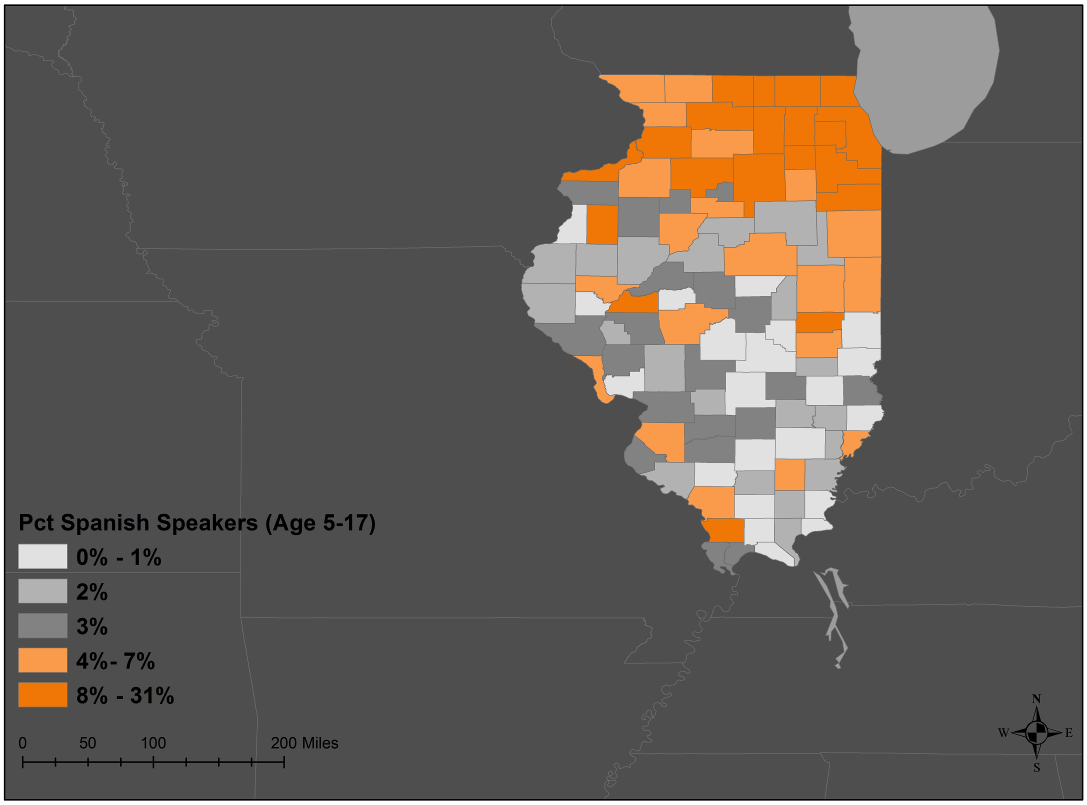
Source: 2011 ACS (5 yr. avg) Designed by: Kfir Mordechay

Map A-6: Florida, 2007-2011



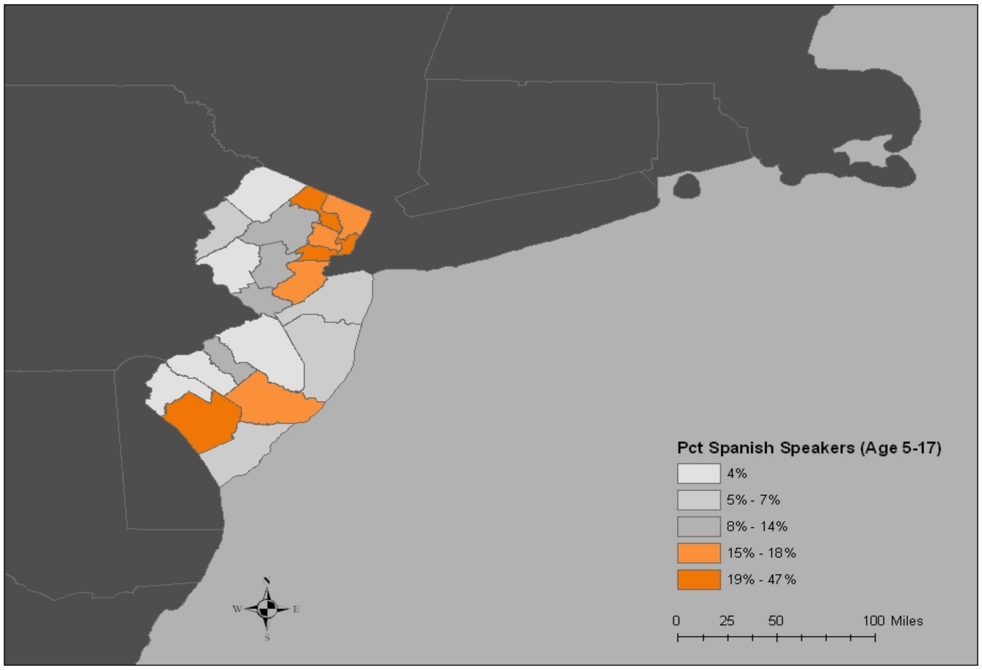
Source: 2011 ACS (5 yr. avg) Designed by: Kfir Mordechay

Map A-7: Illinois 2007-2011



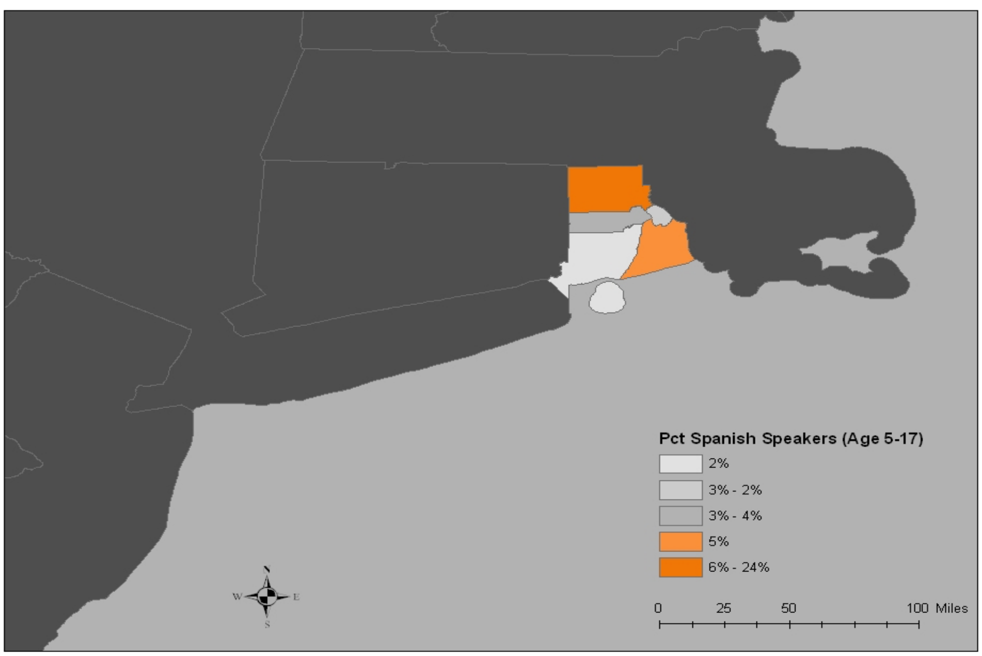
Source: 2011 ACS (5 yr. avg) Designed by: Kfir Mordechay

Map A-8: New Jersey, 2007-2011



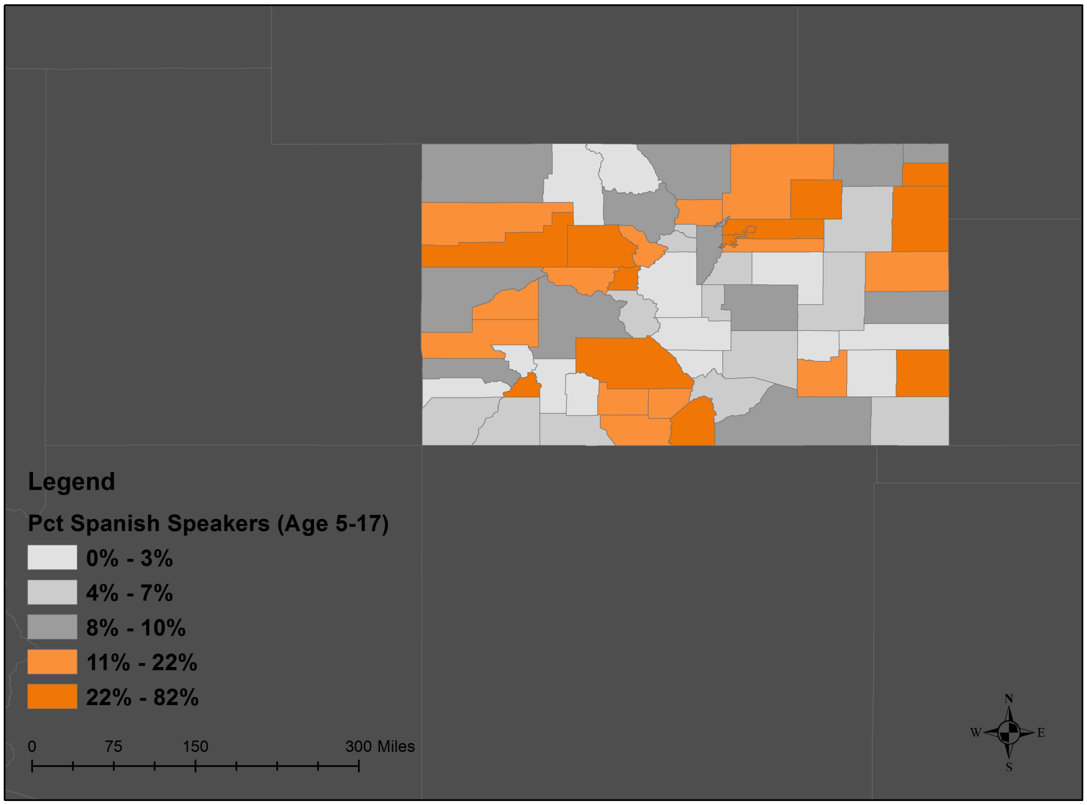
Source: 2011 ACS (5 yr. avg) Designed by: Kfir Mordechay

Map A-9: Rhode Island, 2007-2011



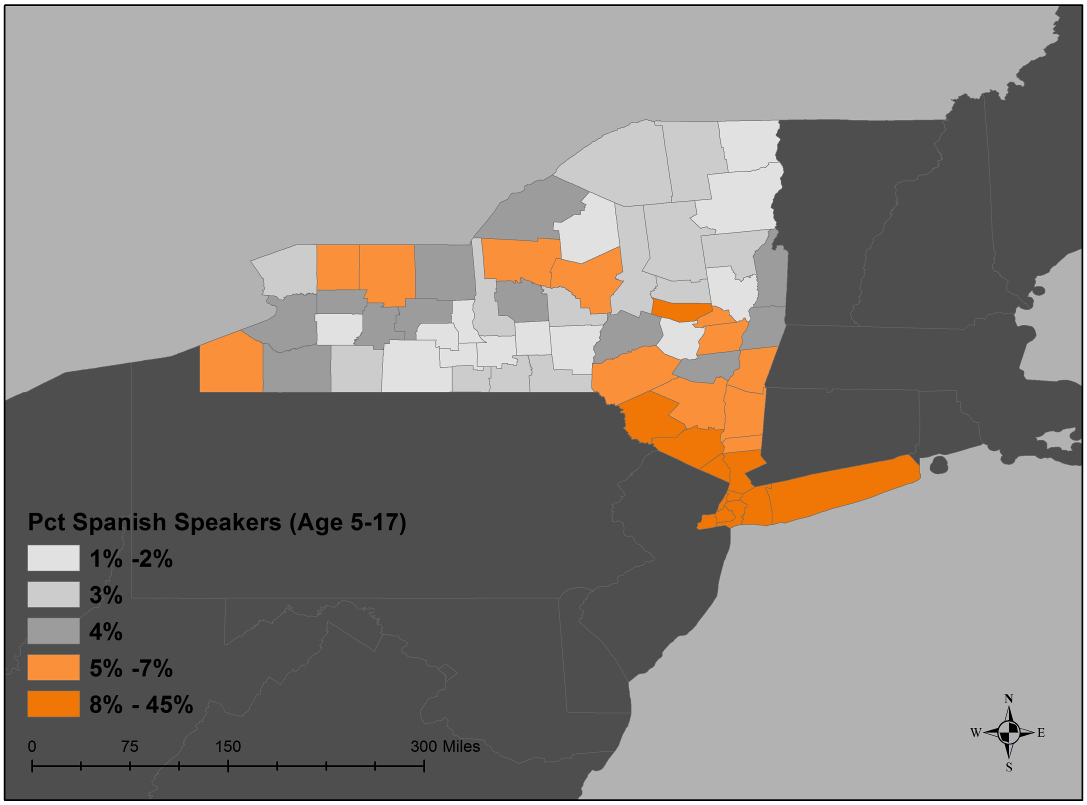
Source: 2011 ACS (5 yr. avg) Designed by: Kfir Mordechay

Map A-10: Colorado, 2007-2011



Source: 2011 ACS (5 yr. avg) Designed by: Kfir Mordechay

Map A-11: New York 2007-2011

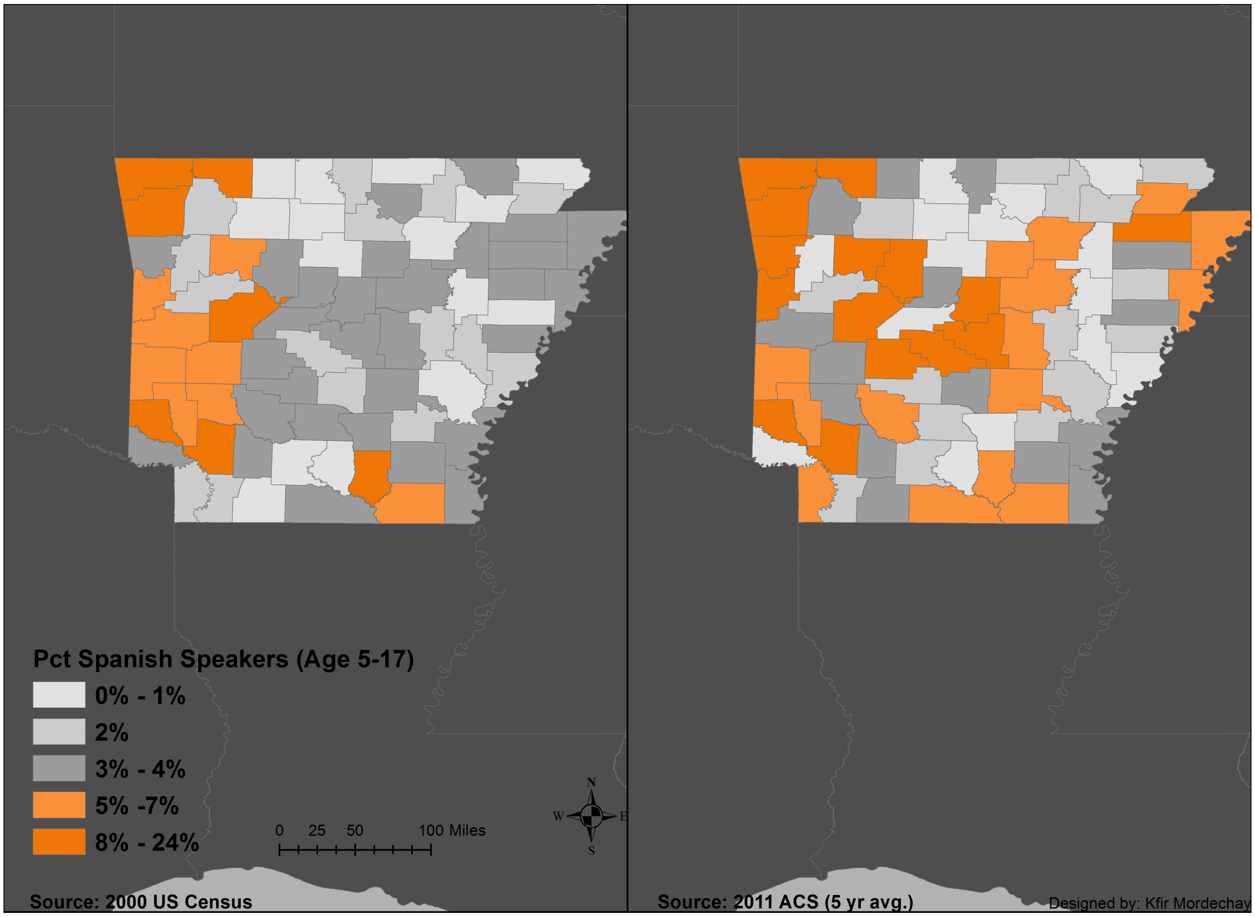


Source: 2011 ACS (5 yr. avg) Designed by: Kfir Mordechay

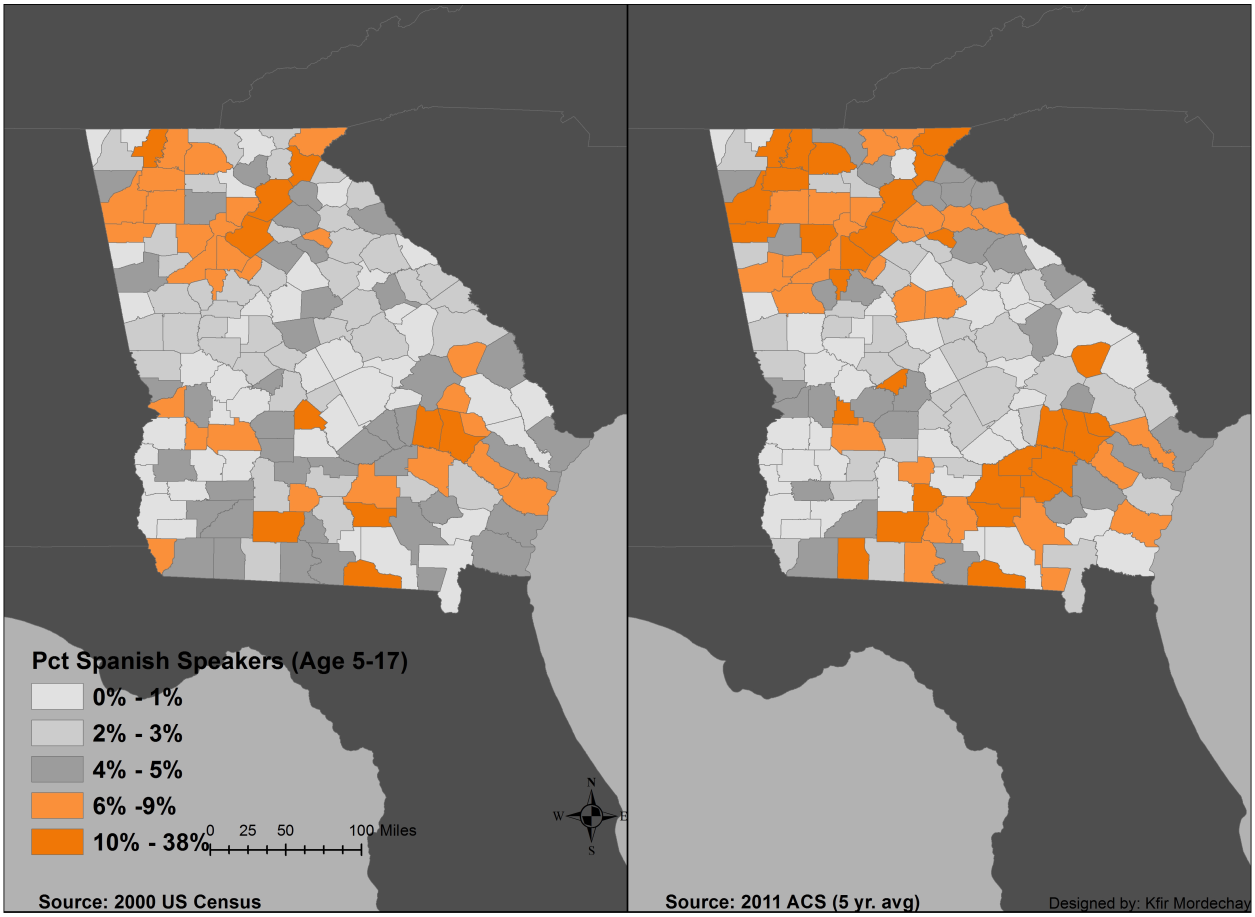
Appendix B: Maps

States with the highest proportional growth of Spanish-speaking school-age children

Map B-1: Arkansas, Comparison between 2000 Census and 2007-2011 American Community Survey (ACS)



Map B-2: Georgia, Comparison between 2000 Census and 2007-2011 American Community Survey



Map B-3: North Carolina, Comparison between 2000 Census and 2007-2011 American Community Survey

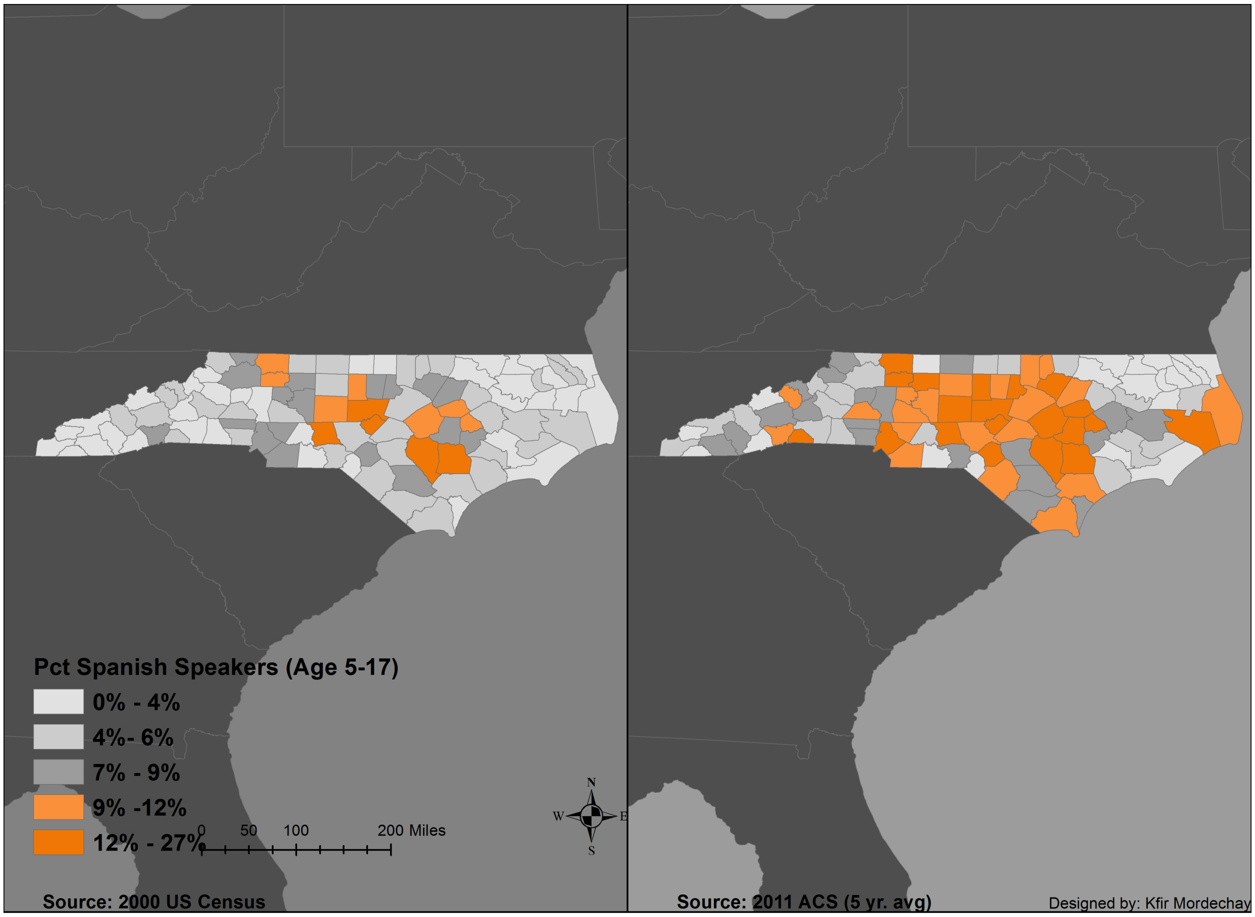
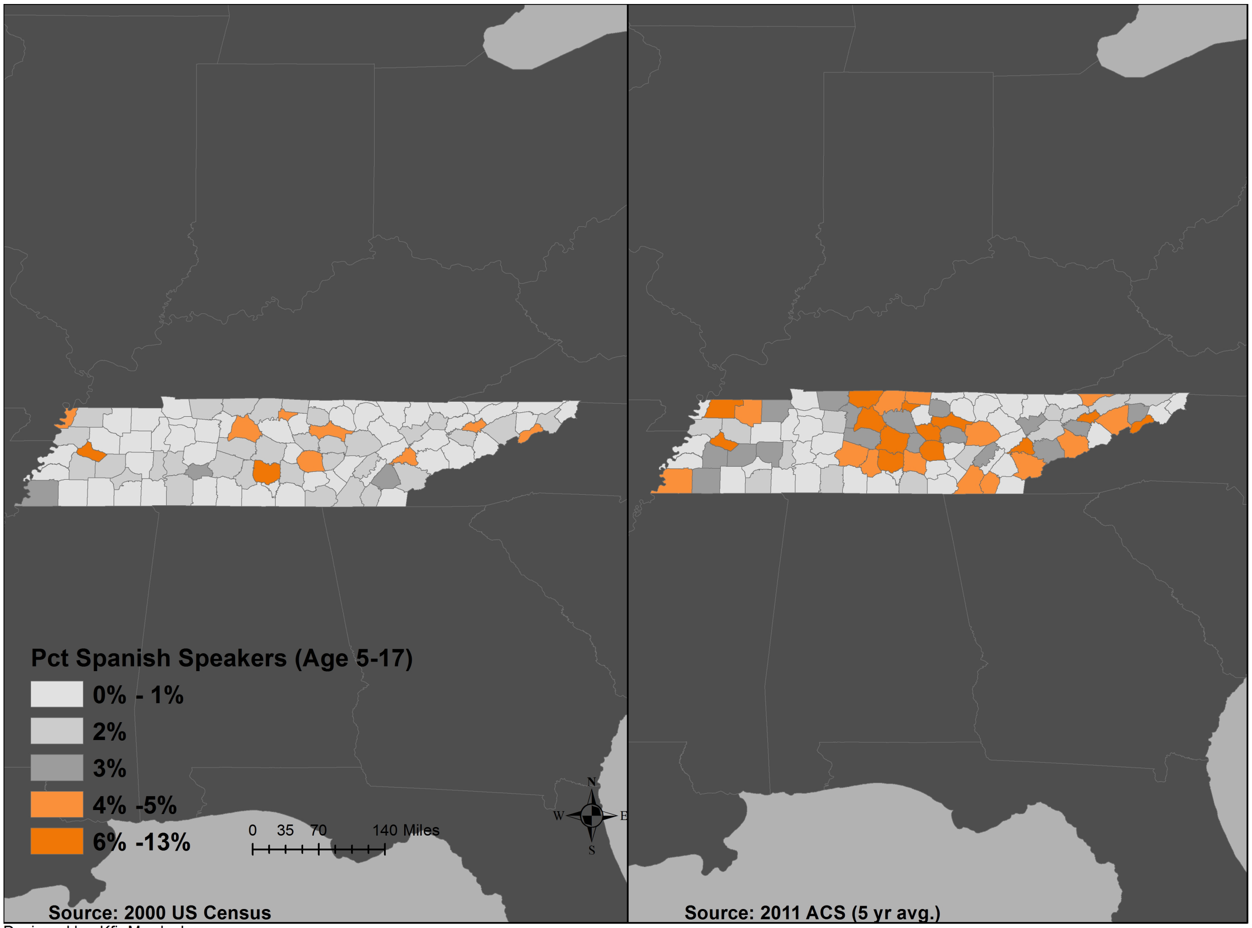
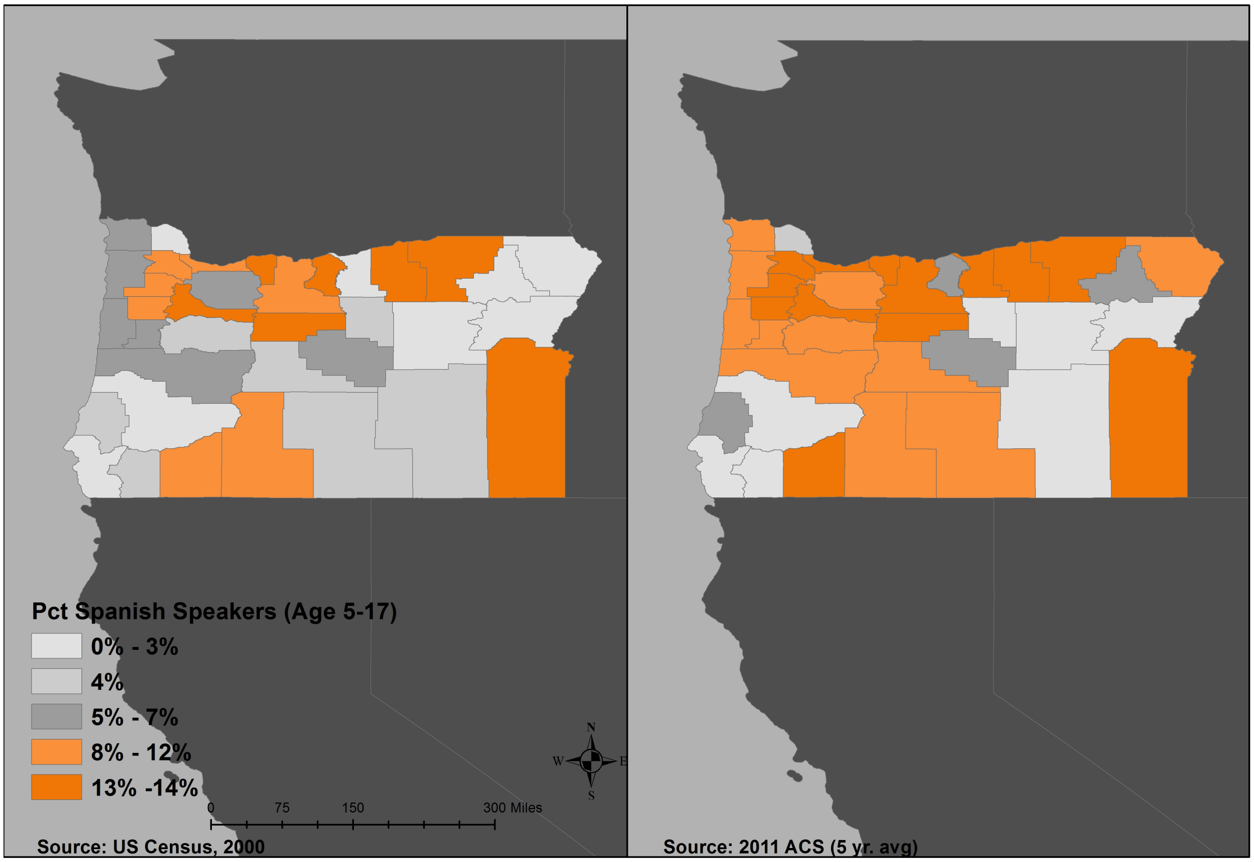


Figure B-4: Tennessee, Comparison between 2000 Census and 2007-2011 American Community Survey



Designed by: Kfir Mordechay

Map B-5: Oregon, Comparison between 2000 Census and 2007-2011 American Community Survey



Designed by: Kfir Mordechay

Appendix C: Tables
U.S. states & counties[5] with the highest percentage of school-age Spanish speakers, 5-17 years old

California Counties and % School-age Spanish Speakers			
Imperial County	72.8%	San Joaquin County	28.9%
Monterey County	56.3%	Sonoma County	27.8%
Colusa County	53.4%	Yolo County	26.7%
Los Angeles County	47.7%	Sutter County	25.1%
Tulare County	46.6%	Tehama County	25.0%
Madera County	45.8%	San Mateo County	24.6%
Merced County	45.2%	Santa Clara County	23.6%
Santa Barbara County	44.6%	Alameda County	22.3%
Kings County	41.5%	Yuba County	22.1%
Mono County	41.4%	Contra Costa County	21.5%
Kern County	40.7%	Inyo County	21.4%
Riverside County	38.7%	Modoc County	20.9%
Napa County	38.5%	Solano County	19.2%
Santa Cruz County	37.2%	San Luis Obispo County	18.3%
San Bernardino County	37.1%	Lake County	17.7%
Glenn County	36.6%	Sierra County	17.3%
Stanislaus County	35.5%	San Francisco County	16.7%
Orange County	34.0%	Sacramento County	15.9%
Fresno County	34.0%	Marin County	14.7%
Ventura County	33.6%	Butte County	12.6%
San Diego County	32.9%	Mariposa County	11.9%
San Benito County	32.4%	El Dorado County	11.8%
Mendocino County	30.3%	Plumas County	10.4%

[5] All county data is from the author's calculations using the 2011 American Community Survey (a 5-year moving average). Counties with less than 10% are excluded from the tables.

Colorado Counties and % School-age Spanish Speakers			
San Juan County	82%	Weld County	20%
Costilla County	45%	Montrose County	20%
Lake County	39%	Arapahoe County	17%
Eagle County	36%	Kit Carson County	17%
Denver County	34%	Boulder County	16%
Saguache County	31%	Rio Grande County	15%
Garfield County	31%	Pitkin County	13%
Morgan County	30%	Otero County	13%
Prowers County	29%	Rio Blanco County	12%
Adams County	27%	Delta County	11%
Yuma County	24%	Grand County	10%
Phillips County	24%	Gunnison County	10%
Summit County	22%	Moffat County	10%
Conejos County	21%	San Miguel County	10%
Alamosa County	21%	Logan County	10%

Florida Counties and % School-age Spanish Speakers			
Miami-Dade County	59%	Polk County	20%
Hardee County	46%	Palm Beach County	19%
Hendry County	42%	Manatee County	18%
Osceola County	40%	St. Lucie County	17%
Okeechobee County	34%	Indian River County	16%
Collier County	32%	Martin County	14%
DeSoto County	29%	Putnam County	13%
Glades County	27%	Seminole County	12%
Lee County	24%	Marion County	11%
Orange County	24%	Gadsden County	11%
Monroe County	22%	Volusia County	11%
Highlands County	22%	Lake County	11%
Broward County	22%	Pasco County	10%
Hillsborough County	20%		

Georgia Counties and % School-age Spanish Speakers			
Whitfield County	38%	Cobb County	13%
Hall County	33%	Schley County	13%
Atkinson County	22%	Jeff Davis County	12%
Gwinnett County	20%	Coffee County	12%
Colquitt County	19%	Gilmer County	11%
Murray County	18%	Floyd County	11%
Gordon County	18%	Grady County	11%
Habersham County	17%	Appling County	11%
Clarke County	16%	Rabun County	10%
Echols County	16%	Peach County	10%
Evans County	15%	Jenkins County	10%
Tattnall County	14%	Toombs County	10%
Tift County	14%	Bacon County	10%
Clayton County	14%	DeKalb County	10%
Polk County	14%	Putnam County	10%

Illinois Counties and % School-age Spanish Speakers			
Kane County	31%	Kendall County	13%
Cook County	27%	Rock Island County	12%
Cass County	26%	Winnebago County	11%
Lake County	21%	McHenry County	11%
Boone County	21%	DeKalb County	10%
Warren County	15%	Union County	10%
Will County	14%	Douglas County	10%
DuPage County	13%		

Nevada Counties and % School-age Spanish Speakers

Esmeralda County	62%	Elko County	19%
Clark County	30%	Pershing County	16%
Carson City	27%	Nye County	16%
Washoe County	25%	Lyon County	14%
Humboldt County	24%	Douglas County	10%
Lander County	22%		

New Jersey Counties and % School-age Spanish Speakers

Hudson County	47%	Atlantic County	16%
Passaic County	38%	Bergen County	14%
Union County	25%	Mercer County	14%
Cumberland County	23%	Somerset County	13%
Essex County	18%	Camden County	12%
Middlesex County	17%	Morris County	10%

New Mexico Counties and % School-age Spanish Speakers

Doña Ana County	51%	Eddy County	25%
Luna County	50%	Otero County	24%
Guadalupe County	40%	Grant County	23%
Lea County	38%	Curry County	22%
San Miguel County	36%	Roosevelt County	22%
Chaves County	35%	Mora County	21%
Rio Arriba County	32%	Socorro County	20%
Santa Fe County	31%	Valencia County	19%
Sierra County	31%	Lincoln County	18%
Harding County	27%	Torrance County	16%
Bernalillo County	27%	Sandoval County	13%
De Baca County	27%	Quay County	12%
Taos County	25%	Hidalgo County	11%

New York Counties and % School-aged Spanish Speakers			
Bronx County	45%	Suffolk County	12%
New York County	34%	Nassau County	12%
Queens County	25%	Rockland County	11%
Westchester County	19%	Sullivan County	11%
Kings County	17%	Richmond County	10%
Orange County	13%		

North Carolina Counties and % School-aged Spanish Speakers			
Duplin County	27%	Mecklenburg County	13%
Lee County	26%	Polk County	12%
Greene County	26%	Wilson County	12%
Montgomery County	24%	Wayne County	12%
Sampson County	20%	Hoke County	12%
Hyde County	20%	Henderson County	12%
Chatham County	19%	Rowan County	12%
Durham County	16%	Harnett County	12%
Forsyth County	16%	Union County	11%
Alamance County	15%	Orange County	11%
Johnston County	14%	Wake County	10%
Randolph County	14%	Davie County	10%
Yadkin County	14%	Cabarrus County	10%
Surry County	13%	Granville County	10%

Oregon Counties and % School-aged Spanish Speakers			
Hood River County	40%	Yamhill County	17%
Morrow County	36%	Multnomah County	15%
Malheur County	32%	Gilliam County	14%
Marion County	29%	Polk County	13%
Umatilla County	27%	Jackson County	11%
Jefferson County	23%	Tillamook County	11%
Wasco County	19%	Klamath County	11%
Washington County	17%		

Tennessee Counties and % School-aged Spanish Speakers			
Hamblen County	13%	Davidson County	12%
Crockett County	13%	Loudon County	10%
Bedford County	13%	Warren County	10%

Texas Counties and % School-age Spanish Speakers					
Starr County	95%	Bexar County	29%	Chambers County	15%
Presidio County	91%	Camp County	29%	Stephens County	15%
Maverick County	91%	Floyd County	29%	Leon County	15%
Webb County	88%	Brooks County	29%	Live Oak County	15%
Zapata County	83%	Hale County	28%	Rockwall County	15%
Hidalgo County	82%	Mitchell County	28%	Hunt County	14%
Hudspeth County	82%	Duval County	28%	Trinity County	14%
Cameron County	69%	Brewster County	28%	Knox County	14%
El Paso County	67%	La Salle County	28%	Burleson County	14%
Val Verde County	65%	Lipscomb County	27%	Lubbock County	14%
Jim Hogg County	62%	Medina County	27%	Blanco County	14%
Edwards County	57%	Bastrop County	27%	Williamson County	14%
Crockett County	55%	Jackson County	27%	Mason County	14%
Zavala County	53%	Wharton County	27%	Kaufman County	14%
Yoakum County	52%	Atascosa County	26%	Henderson County	13%
Castro County	51%	Hemphill County	26%	Anderson County	13%
Reeves County	49%	Jim Wells County	26%	Throckmorton County	13%
Reagan County	48%	Comanche County	26%	Victoria County	13%
Parmer County	48%	Navarro County	26%	Motley County	13%
Culberson County	47%	Garza County	26%	Harrison County	13%
Bailey County	47%	Midland County	26%	Washington County	13%
Deaf Smith County	47%	Dallam County	25%	Montague County	13%
Pecos County	46%	Tarrant County	25%	Schleicher County	13%
Kinney County	46%	Nacogdoches County	25%	Young County	12%
Moore County	46%	Lee County	24%	Baylor County	12%
Uvalde County	45%	Gillespie County	24%	Jones County	12%
Ochiltree County	44%	King County	24%	Comal County	12%
Titus County	44%	Hockley County	24%	Houston County	12%
Sutton County	43%	San Saba County	24%	Bell County	12%
Collingsworth County	42%	Briscoe County	23%	Wichita County	12%
Crane County	42%	Crosby County	23%	Wood County	12%
Dallas County	42%	Madison County	23%	Nolan County	12%
McMullen County	41%	Willacy County	23%	Wilbarger County	12%
Hansford County	39%	Swisher County	23%	Collin County	12%
Gonzales County	39%	Nueces County	22%	Grayson County	12%
Sherman County	39%	Angelina County	21%	Armstrong County	11%
Harris County	39%	Irion County	21%	Kennedy County	11%
Frio County	39%	Borden County	21%	Refugio County	11%
Ector County	37%	Real County	21%	Bee County	11%
Winkler County	35%	Gaines County	21%	Freestone County	11%
Sterling County	35%	Coke County	21%	Menard County	11%
Upton County	35%	Walker County	21%	Hood County	11%
Andrews County	34%	Scurry County	21%	Shackelford County	10%
Cochran County	34%	Cooke County	19%	Taylor County	10%
Dimmit County	32%	Kimble County	19%	Morris County	10%
Waller County	31%	Hill County	19%	Van Zandt County	10%
Kleberg County	31%	Rusk County	19%	Eastland County	10%
Lamb County	30%	Tom Green County	19%	Hardeman County	10%
Hall County	30%	Wheeler County	19%	Hamilton County	10%
Travis County	30%	Glasscock County	19%	San Augustine County	10%
Potter County	29%	Polk County	15%	Brown County	10%

U.S. States and % School-aged Spanish Speakers			
California	35.6%	Nebraska	9.9%
Texas	32.0%	Massachusetts	9.8%
Nevada	27.7%	Georgia	9.6%
New Mexico	26.4%	District of Columbia	8.7%
Arizona	25.5%	Delaware	8.5%
Florida	21.4%	Virginia	8.3%
Illinois	17.5%	Oklahoma	8.2%
New Jersey	16.3%	Maryland	8.0%
Rhode Island	16.2%	Arkansas	8.0%
Colorado	15.8%	Wisconsin	6.4%
New York	15.4%	Iowa	6.2%
Oregon	14.5%	Indiana	6.0%
Washington	12.0%	Wyoming	5.9%
Connecticut	11.9%	Minnesota	5.8%
North Carolina	10.3%	South Carolina	5.7%
Utah	10.3%	Pennsylvania	5.7%
Kansas	10.1%	Tennessee	5.0%
Idaho	9.9%		

Appendix D: Tables

U.S. Counties with highest proportional growth of school-aged Latinos in states of highest proportional growth, between 2000-2011.

Arkansas Counties with Highest Growth					
Independence County	312%	Union County	110%	Marion County	63%
Pope County	273%	Nevada County	100%	Ashley County	62%
Madison County	206%	Washington County	99%	Hempstead County	61%
Miller County	199%	Garland County	89%	Drew County	59%
Columbia County	198%	Yell County	86%	Grant County	56%
Newton County	191%	St. Francis County	83%	Lincoln County	52%
Howard County	190%	Fulton County	74%	Faulkner County	48%
Chicot County	148%	Clark County	73%	Carroll County	45%
Pulaski County	145%	Boone County	72%	White County	45%
Johnson County	143%	Greene County	71%	Crittenden County	40%
Arkansas County	137%	Sevier County	71%	Benton County	38%
Saline County	133%	Crawford County	68%	Scott County	23%
Bradley County	123%	Prairie County	66%	Sharp County	17%
Cleburne County	118%	Pike County	63%	Baxter County	16%
Sebastian County	117%	Polk County	63%	Mississippi County	15%

Arkansas Counties with Highest *Raw* Growth											
Washington County	4404	Independence County	294	Crittenden County	87	Lincoln County	24	Woodruff County	-15	Jackson County	-41
Benton County	3622	Miller County	235	Chicot County	70	Arkansas County	19	Conway County	-18	Lonoke County	-44
Pulaski County	2532	Howard County	231	Clark County	64	Fulton County	18	Logan County	-19	Izard County	-47
Sebastian County	1938	Carroll County	229	Pike County	63	Newton County	18	Van Buren County	-23	Jefferson County	-48
Pope County	607	Hempstead County	207	Drew County	61	Sharp County	14	Monroe County	-24	Poinsett County	-50
Sevier County	602	Bradley County	191	Ashley County	58	Prairie County	6	Cross County	-29	Franklin County	-55
Yell County	494	Union County	162	Boone County	45	Marion County	5	Perry County	-29	Phillips County	-100
Faulkner County	425	White County	161	Nevada County	41	Lafayette County	3	Stone County	-29	Randolph County	-114
Johnson County	418	Greene County	108	Mississippi County	37	Clay County	-2	Cleveland County	-31	Hot Spring County	-138
Garland County	401	Madison County	107	Grant County	36	Searcy County	-7	Desha County	-35		
Saline County	401	Polk County	104	Lawrence County	32	Baxter County	-11	Lee County	-36		
Craighead County	370	Cleburne County	89	Scott County	29	Dallas County	-12	Little River County	-38		
Crawford County	322	Columbia County	89	St. Francis County	27	Calhoun County	-15	Ouachita County	-40		

Georgia Counties with Highest Growth					
Union County	985%	Calhoun County	160%	Evans County	88%
Schley County	686%	Lee County	159%	Newton County	78%
Jasper County	455%	Fannin County	159%	Bulloch County	74%
Miller County	333%	Oglethorpe County	158%	Glynn County	74%
Franklin County	320%	Murray County	154%	Appling County	73%
Barrow County	316%	Towns County	153%	Tift County	71%
Bacon County	313%	Effingham County	147%	Wayne County	69%
Bryan County	308%	Brooks County	145%	Wilkinson County	69%
Jeff Davis County	278%	Fayette County	120%	Ware County	46%
Taliaferro County	272%	Cherokee County	112%	Paulding County	45%
Charlton County	264%	Gordon County	111%	Habersham County	44%
Berrien County	241%	Madison County	105%	Hall County	43%
Macon County	240%	Wilkes County	103%	McDuffie County	40%
Grady County	213%	Stephens County	100%	Forsyth County	39%
Jefferson County	211%	Gwinnett County	99%	Harris County	16%
Brantley County	180%	Peach County	97%	Atkinson County	13%
Douglas County	174%	Crawford County	89%	Richmond County	11%
Laurens County	174%	Dawson County	88%	Spalding County	11%

Georgia Counties with Highest *Raw* Growth					
Gwinnett County	21249	Laurens County	149	Lanier County	-9
Cobb County	7618	Lee County	149	Quitman County	-9
Hall County	5397	Brooks County	139	Treutlen County	-10
Clayton County	3606	Appling County	137	Johnson County	-13
Fulton County	3375	Putnam County	130	Monroe County	-13
Whitfield County	3290	Wayne County	123	Washington County	-13
Cherokee County	2576	Franklin County	120	Talbot County	-14
DeKalb County	2231	Tattnall County	120	Taylor County	-14
Forsyth County	2129	Evans County	118	Twiggs County	-14
Douglas County	1671	Cook County	111	Clinch County	-15
Henry County	1250	Schley County	111	Lincoln County	-15
Gordon County	1178	Stephens County	111	Sumter County	-15
Clarke County	1067	Ware County	111	Catoosa County	-16
Coweta County	983	Pierce County	97	Dooly County	-16
Barrow County	978	Fannin County	95	Stewart County	-16
Murray County	902	Oglethorpe County	92	Decatur County	-22
Paulding County	823	Macon County	89	Morgan County	-23
Carroll County	743	Spalding County	87	Baker County	-26
Fayette County	734	Hart County	83	Webster County	-26
Floyd County	711	Jefferson County	83	Dade County	-29
Chatham County	618	Atkinson County	80	Greene County	-29
Colquitt County	609	Dawson County	79	Terrell County	-31
Bartow County	587	Elbert County	75	Warren County	-31
Glynn County	583	Harris County	74	Worth County	-31
Houston County	552	Rabun County	64	Upson County	-32
Habersham County	541	Pickens County	58	Irwin County	-33
Newton County	530	Towns County	57	Crisp County	-34
Rockdale County	463	Haralson County	54	Early County	-35
Columbia County	459	Chattooga County	46	Lamar County	-36
Coffee County	423	Jenkins County	46	Ben Hill County	-38
Tift County	400	Banks County	44	Liberty County	-44
Polk County	396	Wilkes County	43	Wheeler County	-45
Muscogee County	365	Charlton County	42	Meriwether County	-46
Bryan County	337	McDuffie County	41	Candler County	-47
Grady County	323	Brantley County	38	Hancock County	-55
Jackson County	276	Lumpkin County	38	Telfair County	-56
Jeff Davis County	271	Calhoun County	29	Baldwin County	-57
Walton County	247	Dodge County	24	Chattahoochee County	-64
Gilmer County	243	Crawford County	23	Walker County	-64
Peach County	239	Wilkinson County	22	Burke County	-68
Lowndes County	230	Pike County	16	Randolph County	-68
Bibb County	224	Richmond County	16	Oconee County	-69
Union County	218	Turner County	13	Seminole County	-72
Effingham County	206	Marion County	12	McIntosh County	-75
Troup County	188	Clay County	-1	Jones County	-83
Jasper County	181	Butts County	-4	Echols County	-85
Madison County	177	Thomas County	-4	Screven County	-101
Berrien County	174	Bleckley County	-5	Emanuel County	-116
Bacon County	171	White County	-5	Pulaski County	-120
Bulloch County	166	Toombs County	-7	Camden County	-176
				Dougherty County	-222

Oregon Counties with Highest Growth			
Wallowa County	700%	Yamhill County	55%
Gilliam County	367%	Marion County	53%
Deschutes County	125%	Curry County	50%
Multnomah County	88%	Polk County	44%
Lincoln County	80%	Clatsop County	40%
Lake County	75%	Jackson County	38%
Linn County	75%	Lane County	33%
Coos County	67%	Hood River County	29%
Union County	67%	Umatilla County	29%
Clackamas County	60%	Klamath County	22%
Wasco County	58%	Malheur County	19%
Tillamook County	57%	Morrow County	13%
Washington County	55%		

North Carolina Counties with Highest Growth											
Clay County	741%	Harnett County	120%	Wake County	80%	Davidson County	55%	Rockingham County	36%	Rockingham County	36%
Hyde County	429%	McDowell County	119%	Columbus County	80%	Avery County	55%	Haywood County	35%	Haywood County	35%
Cherokee County	285%	New Hanover County	115%	Guilford County	80%	Sampson County	54%	Halifax County	34%	Halifax County	34%
Swain County	281%	Granville County	114%	Robeson County	73%	Person County	52%	Edgecombe County	34%	Edgecombe County	34%
Dare County	267%	Durham County	113%	Richmon d County	70%	Davie County	50%	Transylvania County	33%	Transylvania County	33%
Gates County	266%	Yancey County	110%	Catawba County	65%	Beaufort County	50%	Nash County	32%	Nash County	32%
Macon County	203%	Forsyth County	103%	Montgom ery County	65%	Cleveland County	49%	Scotland County	31%	Scotland County	31%
Currituck County	169%	Caswell County	102%	Hoke County	63%	Madison County	47%	Lenoir County	30%	Lenoir County	30%
Jackson County	154%	Lee County	94%	Ashe County	63%	Moore County	47%	Wilson County	30%	Wilson County	30%
Polk County	151%	Mecklenburg County	94%	Henderso n County	62%	Stanly County	47%	Martin County	28%	Martin County	28%
Watauga County	148%	Pender County	93%	Randolph County	61%	Craven County	46%	Pamlico County	27%	Pamlico County	27%
Rowan County	138%	Orange County	93%	Franklin County	61%	Vance County	46%	Onslow County	23%	Onslow County	23%
Greene County	137%	Wayne County	88%	Pitt County	60%	Duplin County	45%	Surry County	22%	Surry County	22%
Brunswick County	135%	Alexander County	85%	Alamance County	59%	Cumberla nd County	39%	Mitchell County	20%	Mitchell County	20%
Tyrrell County	132%	Graham County	84%	Rutherfor d County	56%	Cabarrus County	38%	Burke County	14%	Burke County	14%
Anson County	122%	Gaston County	83%	Union County	56%	Yadkin County	37%	Lincoln County	10%	Lincoln County	10%
Iredell County	121%	Caldwell County	82%	Johnston County	55%	Chatham County	37%	Chatham County	37%		

North Carolina Counties with Highest *Raw* Growth									
Mecklenburg County	12449	New Hanover County	1043	Columbus County	335	Hyde County	161	Bladen County	2
Wake County	10891	Duplin County	1004	Davie County	331	Lenoir County	136	Pamlico County	0
Forsyth County	5727	Robeson County	941	Dare County	327	Cherokee County	134	Halifax County	-10
Durham County	3944	Sampson County	929	Caldwell County	321	Burke County	133	Hertford County	-21
Guilford County	3535	Buncombe County	895	Yadkin County	319	Yancey County	128	Wilkes County	-22
Union County	3123	Brunswick County	881	Onslow County	317	Ashe County	110	Carteret County	-31
Johnston County	2790	Henderson County	842	Rockingham County	271	Person County	105	Perquimans County	-33
Alamance County	1689	Pitt County	841	Rutherford County	268	Haywood County	99	Alleghany County	-35
Harnett County	1606	Chatham County	795	Vance County	262	Caswell County	93	Northampton County	-35
Rowan County	1604	Franklin County	656	Polk County	239	Anson County	76	Camden County	-46
Randolph County	1598	Hoke County	597	Lincoln County	233	Currituck County	74	Bertie County	-48
Iredell County	1583	Greene County	568	Richmond County	217	Graham County	34	Chowan County	-54
Cabarrus County	1565	Granville County	549	Jackson County	206	Clay County	30	Pasquotank County	-58
Lee County	1463	Wilson County	495	Macon County	206	Madison County	30	Warren County	-67
Cumberland County	1252	Montgomery County	493	Watauga County	202	Avery County	28	Washington County	-69
Wayne County	1206	Moore County	488	Cleveland County	190	Martin County	22	Stokes County	-90
Gaston County	1149	Pender County	463	Alexander County	189	Transylvania County	18	Jones County	-91
Orange County	1140	Nash County	450	Craven County	179	Mitchell County	13		
Catawba County	1108	Surry County	342	Stanly County	177	Tyrrell County	6		
Davidson County	1095	McDowell County	337	Beaufort County	171	Scotland County	4		

Tennessee Counties with Highest Growth							
Cannon County	926%	Hamblen County	142%	Claiborne County	85%	Union County	48%
Johnson County	416%	Henry County	137%	Gibson County	79%	Lincoln County	47%
Hancock County	281%	Cheatham County	134%	Coffee County	78%	Dyer County	43%
Franklin County	271%	Washington County	129%	Marshall County	78%	Trousdale County	41%
Weakley County	261%	Robertson County	126%	Cumberland County	77%	Montgomery County	39%
DeKalb County	245%	Davidson County	125%	Haywood County	73%	Benton County	39%
Fayette County	231%	Warren County	115%	Madison County	71%	Sullivan County	34%
Henderson County	218%	Unicoi County	113%	Maury County	68%	Lauderdale County	29%
Sevier County	199%	Knox County	112%	Bradley County	63%	Lawrence County	22%
Rutherford County	194%	Bedford County	104%	Crockett County	60%	Jefferson County	22%
Blount County	185%	Campbell County	93%	Hamilton County	54%	Grainger County	16%
McNairy County	176%	Sumner County	91%	Bledsoe County	53%	Moore County	15%
Cocke County	157%	Shelby County	88%	Hawkins County	52%	Dickson County	14%
Greene County	151%	Wilson County	86%	Fentress County	51%	Anderson County	11%
Obion County	150%	Macon County	86%	Williamson County	50%		
Loudon County	143%	Putnam County	85%	Monroe County	49%		

Tennessee Counties with Highest *Raw* Growth									
Davidson County	6141	Bradley County	340	Henry County	112	Grainger County	24	Perry County	-22
Shelby County	4541	Maury County	338	Gibson County	96	Union County	19	Meigs County	-26
Rutherford County	2770	Greene County	315	Hawkins County	95	Claiborne County	18	Stewart County	-31
Knox County	1083	Madison County	235	Jefferson County	89	Bledsoe County	17	Humphreys County	-33
Hamblen County	917	Obion County	216	McNairy County	85	Fentress County	14	Hardin County	-35
Hamilton County	730	Coffee County	211	Macon County	81	Lincoln County	12	Lake County	-40
Williamson County	700	Cumberland County	193	Anderson County	76	Overton County	11	Chester County	-42
Sumner County	687	Fayette County	185	Cannon County	62	Polk County	9	Giles County	-44
Bedford County	682	DeKalb County	166	Cocke County	62	Decatur County	6	Hardeman County	-44
Blount County	532	Sullivan County	156	Dickson County	58	Benton County	3	Scott County	-50
Robertson County	510	Unicoi County	156	Lawrence County	49	Morgan County	3	Marion County	-51
Putnam County	479	Cheatham County	150	Rhea County	43	Jackson County	0	Wayne County	-60
Loudon County	476	Weakley County	149	Trousdale County	42	Moore County	0	Lewis County	-70
Sevier County	436	Marshall County	126	Dyer County	41	Lauderdale County	-2	Carroll County	-76
Wilson County	411	Franklin County	124	Haywood County	38	Clay County	-5	Tipton County	-99
Warren County	392	Crockett County	121	White County	35	Roane County	-5	McMinn County	-105
Montgomery County	362	Henderson County	121	Hancock County	33	Sequatchie County	-5	Carter County	-203
Washington County	351	Monroe County	118	Johnson County	27	Hickman County	-8		

Appendix E

Foreign–born Hispanics under 18 years of age,[6] State & County Demographic Data

Table 1: All states sorted in descending order of foreign-born Latinos, under 18

States	Total Latinos	Total Foreign Born Latino	% of Latino Foreign Born	States	Total Latinos	Total Foreign Born Latino	% of Latino Foreign Born	States	Total Latinos	Total Foreign Born Latino	% of Latino Foreign Born
California	13752743	341550	2.48%	Massachusetts	606922	15032	2.48%	Louisiana	183706	5231	2.85%
Texas	9216240	242257	2.63%	Tennessee	277011	14627	5.28%	Rhode Island	127816	4931	3.86%
Florida	4122759	133618	3.24%	Utah	344014	14313	4.16%	Puerto Rico	3697954	4692	0.13%
New York	3356747	78848	2.35%	Michigan	432043	12390	2.87%	Mississippi	75626	3238	4.28%
Illinois	1987211	57454	2.89%	Oklahoma	318007	12105	3.81%	Delaware	70196	3224	4.59%
Arizona	1864375	54710	2.93%	Minnesota	242956	11675	4.81%	District of Columbia	53372	1809	3.39%
New Jersey	1512251	46276	3.06%	South Carolina	222550	11595	5.21%	Wyoming	46391	1153	2.49%
Georgia	824037	42638	5.17%	Wisconsin	324238	11525	3.55%	New Hampshire	36452	993	2.72%
North Carolina	764707	40931	5.35%	Kansas	287599	10703	3.72%	Hawaii	119059	767	0.64%
Washington	725373	27427	3.78%	Arkansas	177869	10132	5.70%	West Virginia	22007	529	2.40%
Colorado	1011545	27168	2.69%	Connecticut	463407	9966	2.15%	Maine	17307	488	2.82%
Nevada	698713	25236	3.61%	Ohio	345370	9792	2.84%	South Dakota	21539	467	2.17%
Virginia	604882	24067	3.98%	Alabama	173990	9707	5.58%	Alaska	39212	288	0.73%
Maryland	451861	18220	4.03%	Missouri	206777	7764	3.75%	Vermont	9451	266	2.81%
Oregon	436806	17004	3.89%	Nebraska	159550	6162	3.86%	Montana	28368	227	0.80%
Indiana	377169	16366	4.34%	Iowa	144158	6006	4.17%	North Dakota	13210	40	0.30%
Pennsylvania	690128	15848	2.30%	Kentucky	124593	5990	4.81%	Louisiana	183706	5231	2.85%
New Mexico	934301	15502	1.66%	Idaho	168949	5571	3.30%	Rhode Island	127816	4931	3.86%

[6] All State and County level data are from the author's calculations using 2007-2011 American Community Survey (5-year moving average); California, Florida and Texas are the three states with the highest *number* of foreign-born Latinos under 18.

Table 2: California county data, highest *number* of foreign-born Latinos under 18

California Counties	Total Latinos	Total Foreign Born Latino	% Latino Foreign Born
Los Angeles	2749159	17721	0.64%
San Diego	1500123	6688	0.45%
Sacramento	690766	6568	0.95%
Santa Clara	632114	5530	0.87%
Orange County	1339135	4883	0.36%

Table 3: Florida county data, highest *number* of foreign-born Latinos

Florida Counties	Total Latinos	Total Foreign Born Latino	% Latino Foreign Born
Miami-Dade	1593648	56961	3.57%
Broward	428881	17987	4.19%
Hillsborough	297353	8693	2.92%
Palm Beach	242756	7980	3.29%
Orange	299170	7106	2.38%

Table 4: Texas county data with the highest number of foreign-born Latinos

Texas Counties	Total Latinos	Total Foreign Born Latino	% Latino Foreign Born
Harris	1621065	58792	3.63%
Dallas	886310	35882	4.05%
Hidalgo	684756	19533	2.85%
Tarrant	467775	16814	3.59%
Bexar	985329	12367	1.26%

Table 5: States in descending order, highest *percentage* of Latinos under 18 and foreign-born

States	Total Latinos	Total Foreign Born Latinos	% of Latino Foreign Born	States	Total Latinos	Total Foreign Born Latinos	% of Latino Foreign Born	States	Total Latinos	Total Foreign Born Latinos	% of Latino Foreign Born
Arkansas	177869	10132	5.70%	Oklahoma	318007	12105	3.81%	Colorado	1011545	27168	2.69%
Alabama	173990	9707	5.58%	Washington	725373	27427	3.78%	Texas	9216240	242257	2.63%
North Carolina	764707	40931	5.35%	Missouri	206777	7764	3.75%	Wyoming	46391	1153	2.49%
Tennessee	277011	14627	5.28%	Kansas	287599	10703	3.72%	California	13752743	341550	2.48%
South Carolina	222550	11595	5.21%	Nevada	698713	25236	3.61%	Massachusetts	606922	15032	2.48%
Georgia	824037	42638	5.17%	Wisconsin	324238	11525	3.55%	West Virginia	22007	529	2.40%
Kentucky	124593	5990	4.81%	District of Columbia	53372	1809	3.39%	New York	3356747	78848	2.35%
Minnesota	242956	11675	4.81%	Idaho	168949	5571	3.30%	Pennsylvania	690128	15848	2.30%
Delaware	70196	3224	4.59%	Florida	4122759	133618	3.24%	South Dakota	21539	467	2.17%
Indiana	377169	16366	4.34%	New Jersey	1512251	46276	3.06%	Connecticut	463407	9966	2.15%
Mississippi	75626	3238	4.28%	Arizona	1864375	54710	2.93%	New Mexico	934301	15502	1.66%
Iowa	144158	6006	4.17%	Illinois	1987211	57454	2.89%	Montana	28368	227	0.80%
Utah	344014	14313	4.16%	Michigan	432043	12390	2.87%	Alaska	39212	288	0.73%
Maryland	451861	18220	4.03%	Louisiana	183706	5231	2.85%	Hawaii	119059	767	0.64%
Virginia	604882	24067	3.98%	Ohio	345370	9792	2.84%	North Dakota	13210	40	0.30%
Oregon	436806	17004	3.89%	Maine	17307	488	2.82%	Puerto Rico	3697954	4692	0.13%
Nebraska	159550	6162	3.86%	Vermont	9451	266	2.81%				
Rhode Island	127816	4931	3.86%	New Hampshire	36452	993	2.72%				

Table 6: Alabama, three counties with the highest *percentage* of foreign-born Latinos under 18

Alabama Counties	Total Latinos	Total Foreign Born Latino	% Latino Foreign Born
Jefferson	23994	1841	7.67%
Shelby	10562	1017	9.63%
Marshall	10557	748	7.09%

Table 7: Arkansas, three counties with the highest *percentage* of foreign-born Latinos under 18

Arkansas Counties	Total Latinos	Total Foreign Born Latino	% Latino Foreign Born
Benton	32883	2151	6.54%
Washington	30130	2026	6.72%
Pulaski	20636	1225	5.94%

Table 8: Georgia, three counties with the highest *percentage* of foreign-born Latinos under 18

Georgia Counties	Total Latinos	Total Foreign Born Latino	% Latino Foreign Born
Gwinnett	155702	8894	5.71%
Fulton	70329	4450	6.33%
Cobb	82452	4349	5.27%

Table 9: North Carolina, three counties with the highest *percentage* of foreign-born Latinos under 18

North Carolina Counties	Total Latinos	Total Foreign Born Latino	% Latino Foreign Born
Mecklenburg	106490	5593	5.25%
Wake	83115	4709	5.67%
Forsyth	39628	2537	6.40%

Table 10: South Carolina, three counties with the highest *percentage* of foreign-born Latinos under 18

South Carolina Counties	Total Latinos	Total Foreign Born Latino	% Latino Foreign Born
Greenville	34699	1806	5.20%
Beaufort	18347	1340	7.30%
Horry	15544	1126	7.24%

Table 11: Tennessee, three counties with the highest *percentage* of foreign-born Latinos under 18

Tennessee Counties	Total Latinos	Total Foreign Born Latino	% Latino Foreign Born
Davidson	58032	3468	5.98%
Shelby County	49761	3220	6.47%
Rutherford	16625	839	5.05%