

A question of reframing: How LSP improves math fluency, economics, and financial literacy at the secondary level

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A QUESTION OF REFRAMING: HOW LSP IMPROVES MATH FLUENCY, ECONOMICS, AND FINANCIAL LITERACY AT THE SECONDARY LEVEL

ABSTRACT

The purpose of this applied expository paper is to demonstrate how world language teachers at the secondary level can incorporate Languages for Specific Purposes (LSP) principles into their courses when it is not possible to offer standalone LSP courses. Multiple examples are provided that illustrate how many traditional classroom lessons, communicative activities, and projects can be reframed to incorporate interdisciplinary connections to provide students with a skill set that focuses on global awareness and communication, as well as economic and financial literacy. One rural and persistently low-performing school district created initiatives to integrate reading apprenticeship strategies, writing across the curriculum, and number fluency into weekly lessons in all classrooms at all grade levels in order to increase student academic achievement. Beginning world language courses at the secondary level, reframed through an LSP lens, can provide valuable support to other content areas. Further, these courses may potentially increase student engagement within the classroom and cause higher achievement on state assessments across multiple disciplines.

KEYWORDS: 21st century skill set, high school, interdisciplinary connections, Languages for Specific Purposes (LSP), secondary level, student achievement

Engaged language teachers at the secondary level can feel the strain of multiple professional goals and commitments as they attempt to meet the World-Readiness Standards for Learning Languages (The National Standards Collaborative Board, 2015), as well as state standards and benchmarks in meaningful lessons for their students. Likewise, other worthwhile pursuits, such as Languages for Specific Purposes (LSP), the Partnership for 21st Century Learning (P21) (2015), integrated technology, language clubs and honor societies, and the Seal of Biliteracy, become secondary concerns as teachers prepare multiple classes and handle classroom management issues daily. Further, they must incorporate local, top-down directives and face punitive reviews if their students do not show enough progress in academic achievement. School boards, superintendents, and principals drive many of the initiatives that all teachers, including world language teachers, are expected to implement.

The purpose of this essay is to situate LSP within the secondary context of dueling classroom expectations and advocate for its broad implementation as a lens to create interdisciplinary connections. Then, specific classroom examples are provided to demonstrate how LSP-infused lessons can increase student engagement and achievement in middle and high schools. Lastly, some signs of success from student performance and school comparison metrics are provided to substantiate the efficacy of LSP as a vehicle to improve student success at the secondary level.

A SERVICE-LEARNING PROJECT AS IMPETUS FOR LSP-INFUSED LESSONS

The incorporation of LSP principles into lesson content was originally inspired by the comments that students made in reflections on an online service-learning project at a high school in Farwell, Michigan. This project, explained in Ruggiero and Hill (2016), involved students as translators for microcredit presentation materials for a Global Brigades microfinance group in Honduras. Microcredit is the lending of small amounts of money to entrepreneurial people who are unable to secure loans at banks, so they may begin or expand their own businesses (Yunus, 2008). Students were assigned the task of translating a PowerPoint presentation from Spanish to English for a group of undergraduate university students who had limited Spanish proficiency. The materials explained the organization and creation of microlending institutions in order to provide a base of available capital for entrepreneurial efforts in a broader effort to eliminate poverty and ameliorate the living conditions in Central America.

The students expressed their satisfaction in written reflection activities about being able to utilize their language skills in an impactful real-world context, and many expressed a future career interest in a business-related field. This project successfully integrated service-learning, LSP, and the incorporation of the World-Readiness Standards and P21 learning goals. Further, it demonstrated that an LSP-enhanced curriculum was particularly effective in engaging student interest because students were able to utilize specific language related to their intended careers. Although LSP courses are more common at the university level, all LSP courses have the same student-centered objective, “a focus on helping students discover and practice the types of language they need to meet their specific professional goals” (Crouse, 2015, p. 32). LSP courses focus on communicative, functional, and practical outcomes in addition to teaching critical thinking skills and textual analysis common to courses in the Humanities (Gálová, 2007; Long, 2017). Importantly, these objectives are also applicable at the secondary level (Risner, Swarr, Bless, & Graham, 2017).

BACKGROUND OF THE SCHOOL AND DISTRICT

Farwell Area Schools is a district located in a rural community approximately 90 miles from large urban areas and is characterized by high rates of generational poverty and persistent low performance. The district offers a universal breakfast and lunch program due to the high percentage of students that qualify for free and reduced lunch. Furthermore, afterschool programs offer dinner to students in attendance and transportation home. Rural poverty is a large contributing factor to the overall academic achievement in the district and a marker for the difficulties that teachers face district-wide and in the classroom.

Despite multiple initiatives over the years and the efforts of the district staff, elementary, middle, and high schools traditionally underperform in both the two-county regional education service district and in state averages on high stakes assessments (www.mischooldata.org). Michigan schools were ranked on its Top to Bottom list until 2016 based on a number of factors: the two-year statewide student average achievement in reading, mathematics, writing, science, and social studies; average improvement in achievement on state assessments; the achievement gap between the top 30% and the bottom 30% of students, graduation rates; and improvement in graduation rates (Ackley, 2017; Michigan Department of Education). Schools in the lowest five percent were subject to corrective action by the state, which included transporting students to a neighboring better performing district or replacing staff. Staff replacement was a perennial worry

at staff meetings because of the low achievement of the district's students on high stakes state assessments. For example, in the 2011–2012 school year, the elementary school was listed in the seventh percentile for all schools in the state. After being in the 11th percentile the previous year, teachers and administrators strategized how to meet the No Child Left Behind (NCLB) Annual Yearly Progress (AYP) goals but became increasingly worried as student achievement approached the bottom fifth percentile. Therefore, the district superintendent and principals established reading apprenticeship strategies, writing across the curriculum, and math fluency goals for every district teacher, regardless of grade level or content area. These goals began in 2009–2010 and continued in following academic years, and teachers had to maintain a log documenting weekly implementation of each of these goals in all classes.

At the high school level, each department created a document that indicated how their specific fields reinforced content in other areas, such as English, mathematics, and social studies. Social studies were included in the areas of improvement in the high school due to low student achievement on the state assessments. Figure 1 is an example the curriculum document that demonstrates how Spanish supports the English Language Arts curriculum at the middle and high schools.

How does the Spanish program support ELA at This High School?

Spanish classes constantly enforce English Language Arts, both in regard to teaching structure and use of language as well as providing constant opportunities for students to engage in the writing process. The American Council on the Teaching of Foreign Languages (actfl.org) presents research that demonstrates the following points:

- Language learning correlates with higher academic achievement on standardized test measures.
- Language learning is beneficial to both monolingual English and English language learners in bilingual and two-way immersion programs.
- Language learning is beneficial in the development of students' reading abilities.
- There is evidence that language learners transfer skills from one language to another.
- There is a correlation between second language learning and increased linguistic awareness.
- There is a correlation between language learning and students' ability to hypothesize in science.
- Language learning can benefit all students.
- There is a correlation between young children's second language development and the development of print awareness.
- Heritage learners who use their language skills to interpret and translate for family members experience higher academic performance and greater self-efficacy.
- There is a correlation between language study and higher scores on the SAT and ACT Tests.
- There is a correlation between high school foreign language study and higher academic performance at the college level. (<https://www.actfl.org/advocacy/what-the-research-shows>)

Basic grammar principles:

- | | |
|--|--|
| <input type="checkbox"/> Identification of parts of speech: nouns, verbs, adjectives, adverbs, and conjunctions | <input type="checkbox"/> Formation of adverb in English |
| <input type="checkbox"/> Identification of tenses: infinitive, present, present progressive, preterit, imperfect preterit, adverbial future, simple future, conditional, present perfect, present pluperfect, imperative, present and past participles | <input type="checkbox"/> Use of apostrophe, possessives |
| <input type="checkbox"/> Gender of nouns | <input type="checkbox"/> Possessive adjectives |
| <input type="checkbox"/> Noun/verb agreement and placement | <input type="checkbox"/> Interrogative words |
| <input type="checkbox"/> Noun/adjective agreement | <input type="checkbox"/> Verb conjugation |
| <input type="checkbox"/> Subject Pronouns | <input type="checkbox"/> Irregular verb conjugation |
| <input type="checkbox"/> Direct Objects and Pronouns | <input type="checkbox"/> Capitalization of proper nouns |
| <input type="checkbox"/> Indirect Objects and Pronouns | <input type="checkbox"/> Double negatives in English |
| <input type="checkbox"/> Definite and Indefinite Articles | <input type="checkbox"/> Temporal and frequency adverbs |
| <input type="checkbox"/> Formation of plural in English | <input type="checkbox"/> Prepositions, adverbial prepositions |
| | <input type="checkbox"/> Making comparisons, using superlatives |
| | <input type="checkbox"/> Cognates |
| | <input type="checkbox"/> Indicative/ Subjunctive mood use in English |
| | <input type="checkbox"/> Analysis of idiomatic expressions |
| | <input type="checkbox"/> Structure of dialogue |

Figure 1. How the Spanish Curriculum Supports the ELA Curriculum (cont. on next page)

Typical In-Class Writing:

- Writing a personal description
- Discuss likes and dislikes
- Expressing interest, indifference, and displeasure
- Expressing and supporting a point of view
- Expressing qualified agreement and disagreement
- Introduce and change a topic of conversation
- Express an opinion or recommendation
- Discussing responsibilities
- Discussing the future, hopes, and wishes
- Pen pal program w/ Caribbean School, Puerto Rico
- Talking about what you need and want
- Describing contents of your room and classroom
- What school supplies you need for each class
- Describe your school schedule
- Describe people both physically and psychologically
- Describe your free time activities and how long you've done them
- Asking for and giving opinions— numerous topics
- Asking for and giving information
- Asking for and offering help
- Making comparisons
- Discussing plans
- Discussing healthy living
- Describe a typical week and what you normally do
- Relating a series of events
- Discussing the weather in different parts of the world
- Discussing how you feel in different situations
- Describing what Farwell use to be like
- Discussing your childhood
- Making excuses or saying why you couldn't do something
- Reporting on what others said or wrote
- Talking about unintentional events

Essays, Skits, and Presentations:

- Summary of Hispanic Influence on U.S. Culture
- Formal and Informal Introductions
- What is your normal day like? Essay
- Description of Family/Family Album.
- Travel Vacation Project
- El Norte/ Viaje de su vida* Skit
- Famous Person Essay Project
- Cultural Traditions Project
- Restaurant Skit
- Environmental Project
- Essay on Early Childhood
- Hispanic Art, Literature, and Music Presentation

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In addition to meeting the world language standards and benchmarks for the state, including aiming for every student in the state to reach a proficiency rating of novice-high proficiency within two years of language study, language teachers in this district were required to demonstrate how they supported each of the previously mentioned district and school goals. Fortunately, the framework of the World-Readiness Standards aligns with the purpose of LSP and P21 to foment interdisciplinary connections with functional and meaningful language learning (The National Standards Collaborative Board, 2015). In fact, an LSP lens offers world language teachers at both the primary and secondary levels a unique opportunity to create lessons that accomplish the district and school goals listed above. In fact, world language teachers are perfectly situated to be able to support interdisciplinary content by learning new information and reinforcing previously learned content through the target language and creating citizens with global awareness, as well as the financial, economic, business, entrepreneurial, civic, health, and environmental literacies demanded by P21 (ACTFL, 2011; P21, 2015).

It is important to note that the two-credit graduation requirement in the state created the need to provide world language instruction to all students. Many small, rural districts with one world language teacher limited their scope of instruction and lost programs that were able to move students past two years of instruction in a language. In the district in question, for example, third through fifth year Spanish classes were no longer an option. Further, petitions to have specific LSP-focused courses relating to business and the health professions failed to win administrative approval due to the focus on the two-year requirement and student scheduling concerns. These issues partially explain why the formal incorporation and connection of languages to the professions is practically unheard of at the secondary level (Risner & Markley, 2014). Similar concerns with fulfilling general education requirements, enrollment, and

scheduling may extend into tertiary education, where LSP-centered programs at the university and graduate levels are scant (Ruggiero, 2015).

REFRAMED LESSONS AND PROJECTS

In order to meet the administrative goals of improving reading, writing, and mathematics performance and to incorporate LSP content in my first- and second-year courses, I began to redesign many of my lessons. This process allowed me to better incorporate interdisciplinary connections targeted toward the interests of more students. Nationally, students who took the SAT and related assessments during the 2016–2017 school year indicated that their top three intended college majors were in the health professions (including biology and biological sciences), Business, and Engineering (The College Board, 2017). Courses that incorporate an LSP perspective in these three areas can increase the interest of approximately half of secondary students by relating to their prospective career field. Therefore, I started to shift the focus of even my most basic lessons to better incorporate student interests. Examples of some of these reframed lessons and projects are provided below.

In a first-year course, for example, the beginning week of class typically consists of learning how to greet one another, and in the context of Spanish, differentiating greetings between the informal and the formal second-person singular perspective, *tú* and *usted*. Most textbooks and teachers discuss this difference in terms of formality, which can often be a confusing concept for English-speaking students because English does not have this distinction. To reframe the concept of formality within an LSP framework, I decided to move from an explanation of formal speech to professional language. Figure 2 demonstrates how this change was incorporated into a communicative activity.

¡Conociéndonos!—Getting to know each other

In this activity you will need to meet 10 people from the class.

Say “¡Hola!” or “**Buenos días / Buenas tardes / Buenas noches**” (good morning / afternoon / evening) and then ask them their name with either

“**¿Cómo te llamas?**” (Friends or Peers) OR “**¿Cómo se llama usted?**” (Professional)

They say “**Me llamo...**” and ask back, “**¿Y tú?**” (Friends/Peers) OR “**¿Y usted?**” (Professional)

Say “nice to meet you” – “**mucho gusto**” or “**encantado / encantada**” (if you’re a woman). (Also, don’t forget appropriate **non-verbals** as well.)

They say it right back or say “**igualmente**” or “**el gusto es mío.**”

Say goodbye with “**Adiós / Nos vemos / Chau / OR Hasta luego**”

I met...Persona	I met...Persona
1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

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Figure 2. An Example of Reframing Different Registers in a Greeting Activity

The use of professional as the word choice also incorporates another cognate, facilitating the ability of the teacher to maintain instruction in the target language (TL). Similarly, extension activities that relate to creating contact lists for customers, clients, and patients, as well as how to transcribe and store last names alphabetically, in addition to other important contact information can help prepare students for simple but relevant tasks in an office setting. Lear and Abbott (2009) have signaled that these skill sets are often lacking as students enter internships or other community service-learning activities. Therefore, introducing students to an LSP mindset of purposeful, professional language skills can lead to improvement as students enter service projects or internships at the post-secondary level and beyond, especially as students grow and make connections between coursework and real-world experiences (Lear & Abbot, 2008).

Reframing course content from an LSP perspective is also possible for cultural activities. For example, students in a beginning Spanish course might learn how holiday traditions in the United States compare to those of Spain and Latin America. The Christmas season illustrates these varied traditions well. For instance, many students have never heard of the Three King's Day celebration on January 6 but are excited by the possibility of receiving gifts. An LSP framework can center the student as a business owner and task them to utilize an entrepreneurial lens to attract potential clientele. They can write their own advertising jingle, create a special sale, or create window displays showcasing this holiday. They may view the holiday from the perspective of an accountant or manager and compare the sales of a business that incorporates advertising and Three King's Day specials to one that does not. Reframing the lesson from learning about a cultural practice to one that allows students to demonstrate how their knowledge of that cultural practice can be leveraged to make content area connections to community and other content areas demonstrates how LSP meaningfully engages student interest.

Classroom projects present an excellent opportunity to introduce an LSP perspective. One of the common first- or second-year units involves travel, often under the guise of a vacation to a TL country. Typically, students describe the country regarding population size, major cities, tourist destinations, and transportation, as well as weather expressions, gastronomy, and what people do for leisure. To incorporate LSP, I reframed the student as a manager either moving to a TL country to work for a US company abroad or to open a franchise abroad. This project was titled *La Sucursal* and the revision was based in two local and real-world examples.

I adjusted the project in which students plan a vacation to a Spanish-speaking country to be a business-oriented project instead because of two experiences. First, I helped an undergraduate university student who was majoring in Business to prepare for an internship at a pharmacy in Puerto Rico. He had chosen this internship location to diversify his experiences, but he needed help in understand housing, transportation, and cultural nuances. The second inspiration came from a multinational chemical company located approximately 40 miles from Farwell. The highest-level executives were required to manage an international operation, signaling the importance of international experience for business leaders (Karabell, 2016). This is also corroborated by the rise of the proportion of European CEOs that have international experience (Smeetes, 2016). According to reporting by Bump (2018), the Department of State estimates that approximately nine million Americans live abroad, mostly for career purposes. Therefore, the reframing of a traditional travel project into a work-abroad project not only is topical, but it also reinforces the importance of LSP for students' professional life post-high school or college.

As mentioned above, one of the primary district goals was to increase mathematics achievement by incorporating weekly lessons involving number fluency in each teacher's class, regardless of grade level or content area. The National Research Council (2001) describes the main components of number fluency: conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and a productive disposition. In short, these components seek to endow students with confidence in their own abilities to accurately understand and logically solve both real and conceptual mathematical problems. Therefore, teachers could focus on the basic operations of addition, subtraction, multiplication, and division in their classrooms to meet the district and building level expectations. Similarly, lessons could incorporate the naming of place value, order of operations, comparisons of equality, and exponents with whole numbers, fractions, and decimals.

One of the areas of weakness for students was percentages and dimensional analysis, the conversion from one unit to another. World language instructors in the United States traditionally incorporate dimensional analysis by describing the use of the metric system, particularly with distances and temperature conversions. Beyond basic algebra and geometry, including solving systems of equations, higher level mathematics instruction was not expected. Rather, district expectations focused on basic mathematical reasoning and operations. Part of a unit involving these basic operations is described below.

One of the beginning units in the second-year Spanish course was reframed from a lesson on numbers and an introduction to the capitals and nationalities of the Spanish-speaking world to a lesson with an international business focus. To contextualize these numbers within a business framework, students were introduced to the concept of hyperurbanization throughout Latin America. Hyperurbanization refers to the rapid increase in urban areas relative to rural areas and is characterized by the growth of megacities. The inability of economic development to keep pace with the rapid population growth of an urban area can result in large unemployment, insufficient infrastructure, and social instability (World Economic Forum, 2018), although others have argued that hyperurbanization can lead to greater innovation, sustainability, and economic growth (Crenshaw & Oakey, 1998; Institute for the Future, 2012).

Figure 3 is an example of a partner activity where students find the name of the capital city of each country and record the population of both the country and the capital. Students work in groups of two, one completing the odd-numbered countries and the other the even-numbered ones. They practice asking the questions like, "How many Peruvians are there?" and "How many Peruvians live in Lima?" in Spanish. Their responses allow them to practice the advanced numbers that are a goal of this section. However, they must also calculate and report the percentage of the population that lives in the capital. Although this does not appear difficult, classroom observation recorded that students would sometimes report meaningless or impossible percentages from the miscalculation of the proportion. District expectations were reinforced by practicing decimals and percentages in Spanish. Students were also expected to calculate the mean percentage of the Spanish-speaking world, compare that to the proportion of the US population that lives in Washington, DC, and speculate on why this might be by incorporating any previously learned content from Spanish or social studies classes.

Capitales y Poblaciones

Nombre: _____

Find what the capital of each country is and how many people live in the country and in the capital. Then, calculate a percentage for the population that lives in the capital compared to the total country (cap pop/ total pop x 100 = %). Work in pairs to collect the information and exchange it in Spanish. Use the CIA World Factbook for the information: www.cia.gov/library/publications/the-world-factbook/wfbExt/region_soa.html. The people and society tab has the information you need. (Capital populations is under major urban areas.)

País	Población	La capital	Población en capital	%Capital
1. México	_____	_____	_____	_____
2. Puerto Rico	_____	_____	_____	_____
3. Rep. Dominicana	_____	_____	_____	_____
4. Cuba	_____	_____	_____	_____
5. España	_____	_____	_____	_____
6. Colombia	_____	_____	_____	_____
7. Guatemala	_____	_____	_____	_____
8. Venezuela	_____	_____	_____	_____
9. Perú	_____	_____	_____	_____
10. Ecuador	_____	_____	_____	_____
11. Chile	_____	_____	_____	_____
12. Argentina	_____	_____	_____	_____
13. Uruguay	_____	_____	_____	_____
14. Paraguay	_____	_____	_____	_____
15. Bolivia	_____	_____	_____	_____
16. Panamá	_____	_____	_____	_____
17. Costa Rica	_____	_____	_____	_____
18. Nicaragua	_____	_____	_____	_____
19. El Salvador	_____	_____	_____	_____
20. Honduras	_____	_____	_____	_____
21. Guinea Ecuatorial	_____	_____	_____	_____
Promedio (Average) de por ciento (%) de personas en capital/población total:				_____
22. Estados Unidos	_____	_____	_____	_____

*Mira los resultados de porcentajes (%). ¿Qué diferencia hay entre Estados Unidos y el mundo hispano?

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Figure 3. Student Activity with Capitals and Population Proportions

Students continued to learn about the concept of hyperurbanization throughout Latin America with a reading apprenticeship activity based on a United Nations report about the region, shown in Figure 4. Reading apprenticeship activities are strategies to aid students’ reading comprehension and can include note-taking instructions and graphic organizers, among other strategies. The last question asks students to consider the implications for employing businesspeople from Latin America and what their expectations would be, particularly if coming from a well-developed urban area. This question can help students to understand how expectations of lifestyle and available services that are considered typical elsewhere would compare to their own rural upbringing, such as a lack of reliable public transportation.

Hyperurbanization Reading Apprenticeship Nombre: _____ En tus propias palabras escribe una definición de “Hyperurbanization” en inglés:	
Busca en línea una definición: ¿De dónde es la definición? (Source)	La definición:
Dibuja (draw) una representación gráfica de la hiperurbanización.	
Lee el artículo sobre la urbanización en América Latina. Escribe 2 cosas interesantes en inglés.	
If you work for a company and employ business people from Latin America and they had to come to the United States, given what you just read, what do you think their expectations of life and services would be like?	
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Figure 4. Example of a Reading Apprenticeship Activity for Hyperurbanization

Students then considered how language affects understanding of the world in another reading apprenticeship activity with a writing across the curriculum component. To better understand the region of Latin America in this activity, students compared the definitions and pages on Wikipedia for Latin America in English and in Spanish. Searching under the different language options provides insight into how different language groups view the same concept, despite the correct translation. Students first examined the content on both English and Spanish-language pages. They focused on the cognates and numbers represented on the page. Students discovered that the Spanish-language page differed from the English-language page and that the concept of Latin America varied across different Spanish-speaking countries. To complete the reading apprenticeship and writing across the curriculum components, I required students to utilize the page translate function with the Spanish-language page for a closer comparison. Then, they had to evaluate the similarities and differences they found and write their own definition for the region. This is described in Figure 5. This activity provided students with a concrete example of how the same term can acquire different meanings in globalized contexts, an essential understanding from an international business or relations perspective.

Spn 2, "Latin America" Reading Apprentice/WAC Nombre _____ Hora _____

Michigan Content Standards for World Languages

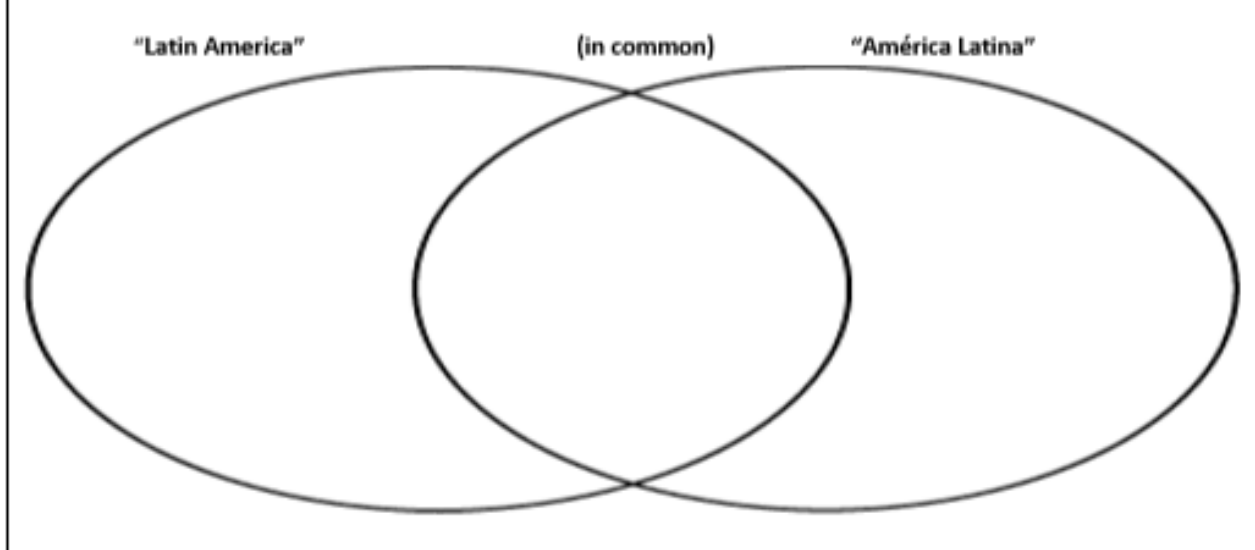
3.1.N.a: I can reinforce content knowledge I have previously learned through Spanish.

3.2.N.a: Using AV and/or print materials only available in Spanish, I can recognize that a topic or situation may be viewed differently in one's own culture than in Hispanic culture.

4.1.N.a: I can identify basic differences and similarities in vocabulary between English and Spanish (cognates and borrowed words).

<p>Escribe una definición de "Latinoamérica" en tus propias palabras. Puede ser en inglés.</p>	<p>Dibuja (draw) una representación de Latinoamérica.</p>
<p>¿Qué preguntas tienes sobre la definición de Latinoamérica?</p>	

Sometimes people from different languages and cultures understand the same word from different perspectives. Let's take a look at the definition from the **Wikipedia**, both in English and español. Since you won't understand much of what is on the Spanish site, you can translate the Spanish page into English using Chrome.



Take what you found and write a 5-sentence summary of the similarities and differences between these definitions and describe why it is so important that the same word is understood differently? Other side if needed →

Escribe una nueva definición de "Latinoamérica."

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Figure 5. The Definition of Latin America through Different Sources: Reading Apprenticeship and Writing Across the Curriculum

After more thoroughly understanding the concept of Latin America as a region, the LSP reframing of this review unit into an international business unit then examined the presence of US chain restaurants in the region, leading to a discussion of currency and opportunities for

students to work with samples from TL countries. I required students to use the currency rate to determine how much one dollar is worth in the TL country and how much their sample was worth in US dollars. A lesson plan describing this is already detailed in Hill (2014) and a communicative activity involving the distribution of currency samples is provided in Figure 6. It is important to note that this activity not only allows students to interact with authentic materials, but also reinforces the goals of descriptions involving nationality as well as utilizing more advanced numbers. Depending on the number of students in class or the number of specimens of different countries' currencies available to the instructor, this activity can be completed individually or in groups.

¿Cómo se llama(n)?	¿Cómo se llama la moneda que tiene(n)?	¿De dónde es el dinero?	¿Cuánto dinero tiene(n)?	¿Cuánto vale en dólares estadounidenses?
Me llamo/ Nos llamamos...	Se llama...	Es (nacionalidad).	Tengo/Tenemos...	Vale X\$ estadounidenses.

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Figure 6. Communicative Activity for Real Currency Conversions

Moreover, an extension to this activity that reinforces economic and financial literacy involves an examination of how currencies change value over time, particularly due to inflation and global affairs. As part of a classroom lesson comparing the benefits of Latin American inflation for US vacationers in popular all-inclusive Caribbean venues, the change in currency value was juxtaposed with the impact of Argentina's economic collapse to its working and middle classes. More current discussions involve the problem of hyperinflation in Venezuela. To demonstrate investment potential in different countries, currency inflation must be considered. Students are provided with the year the currency samples used in class were bought and their value at that time. Then, they must calculate the instructor's total gain or loss given the current value of those currencies. In this way, students are not only working toward the district goal of number fluency but can also begin to understand the real-world and broader implications of regional economic conditions.

In part of a restaurant and foods unit, student attention returned to inflation as part of an internet search of McDonald's outside of the United States. Students learned about the Big Mac index as an unofficial proxy for inflation when official reports are expected to be false. An example of this activity is provided in Figure 7 and demonstrates how 21st century skills, an appreciation for number fluency, and an LSP perspective can increase students' interdisciplinary connections utilizing a TL website from a company in the United States.

McDonald's fuera de Estados Unidos**Nombre:**

Ve a la página web www.mcdonalds.es, la página oficial de McDonald's en España.

1. Mira los anuncios automáticos. ¿Qué es interesante para ti?

2. Haz clic en OK bajo "Encuentra un restaurante para ti". Mira el mapa. ¿Cuántos McDonald's hay en España?
3. ¿Cuántos McDonald's están abiertos las 24 horas?
4. ¿Cuántos McDonald's tienen servicarro (servicio de ventana)?
5. Haz clic en BEBIDAS (está bajo productos). Mira las bebidas frías. ¿Qué bebidas frías no se sirven en el McDonald's de Clare o en los McDonald's de Estados Unidos?

6. Haz clic en Happy Meal (está bajo productos). ¿Cómo es diferente el Happy Meal estadounidense y el Happy Meal español? (pista... el Happy Meal estadounidense incluye una hamburguesa o nuggets de pollo, una bebida (leche, jugo o refresco), papas fritas y manzanas)

7. Bajo nuestros menús, escoge DESAYUNOS.

¿Qué es similar?

¿Qué es diferente?

8. Bajo sándwiches, menciona unos sándwiches que no existen en Estados Unidos. ¿Qué ingredientes diferentes tienen?

Ahora, ve a la página web <http://latitude.blogs.nytimes.com/2011/11/24/argentinas-big-mac-attack/> y lee el artículo.

9. How is the price of a Big Mac related to the assertion that Argentina's government is lying about its rate of economic inflation?

10. Haz clic en el enlace "Economist Big Mac Index showed" y escribe cómo se llama la nación latinoamericana con el Big Mac más caro_____.

11. Which country has the comparatively most expensive Big Mac of all_____.

Ahora, ve a la página web <http://fast-food-around-the-world.blogspot.com/2008/11/mcdonalds-mexico-menu.html>. Escribe 2 cosas del menú de McDonald's México que quieres en Estados Unidos.

12a.

12b.

Ahora, ve a la página web <http://portionteller.com/mexico-mcdonalds> y escribe una reacción al blog.

13.

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Figure 7. Student Activity that Examines International McDonalds and the Big Mac Index of Inflation

The reframing of this unit examined one last topic that is related to personal finance and investment: the concept of interest. Within the framework of district goals, the difference between simple and compound interest allowed the instructor to demonstrate the powerful effect of the exponent in the calculation of compound interest. Students practiced calculations with the two formulas, but they also utilized an interest calculator in the TL. In this activity, students used the compound interest calculator on the website “Economía, finanzas y bolsa de valores para todo ClubPlaneta” to compute anticipated returns for saving different monthly quantities at various interest rates until their expected retirement to demonstrate how the exponent created a parabolic shape relative to the linear shape seen with either straight savings or simple interest. This online calculator is available at

www.economia.com.mx/calculadora_de_interes_compuesto.htm.

Figure 8 shows an example student homework assignment that gives students an opportunity to practice the concept and work with advanced numbers. Two reading apprenticeship activities were also created in which students interacted with authentic texts from the same website. The first reading described the difference between simple and compound interest. The second text related the case of Celia Reyes, whose lawsuit for her interest earnings in Mexico also demonstrated the powerful effects of inflation and compound interest on personal finance. Both of these readings are available at the website listed above.

Importantly, this homework activity can be leveled to match student proficiency. In Figure 8, the context of the contextualized grammar structures can be varied to apply this activity at multiple levels. For instance, if students are practicing discussing what is going to happen with the “*ir + a + infinitive*” form, this structure can be used as the example and with student writing prompts. If the simple future tense were used, then students would practice the conjugation with future endings. Lastly, this same activity can also be used with more complex structures such as the use of the past subjunctive with the conditional. For instance, the activity could be rewritten so that students would practice the form, “*Si yo ahorrara . . . tendría . . .*” Therefore, the same activity can be purposed for multiple levels of language complexity with little additional effort for already busy instructors.

Ve a la página web y calcula el dinero que tienes después:

http://www.economia.com.mx/calculadora_de_interes_compuesto.htm

Ejemplo: Si ahorro cincuenta dólares por mes a una tasa de 5.0% por veinte años, en total yo ahorro doce mil dólares a los cincuenta años. Con interés compuesto, tengo diecinueve mil novecientos treinta y un dólares.

If I save fifty dollars per month at a rate of 5.0% for twenty years, in total I save twelve thousand dollars by fifty years old. With compound interest, I save nineteen thousand nine hundred thirty dollars.

1. Si ahorro _____ dólares por mes a una tasa de _____ % (por ciento) por _____ años, en total yo ahorro _____ dólares a los _____ años. Con el interés compuesto ahorro _____ dólares.

2. Si ahorro _____ dólares por mes a una tasa de _____ % (por ciento) por _____ años, en total yo ahorro _____ dólares a los _____ años. Con el interés compuesto ahorro _____ dólares.

3. Si ahorro _____ dólares por mes a una tasa de _____ % (por ciento) por _____ años, en total yo ahorro _____ dólares a los _____ años. Con el interés compuesto ahorro _____ dólares.

4. Si ahorro _____ dólares por mes a una tasa de _____ % (por ciento) por _____ años, en total yo ahorro _____ dólares a los _____ años. Con el interés compuesto ahorro _____ dólares.

Figure 8. Student Activity on Compound Interest (cont. on next page)

Ahora, usando los cálculos obtenidos, crea una gráfica que ilustre el poder del ahorro sin interés en comparación con el ahorro y el interés compuesto en períodos de cinco años. Se puede utilizar **Excel** o cualquier otro programa para hacer la gráfica. Si no tiene computadora, puede utilizar lo de abajo.

Tasa:																	
Dólares																	
Años de ahorro																	

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The end of the discussion about interest involved understanding interest on debt. Simple interest was calculated for the purchase of a car with monthly installments, and compound interest was calculated for credit card debt. The two different calculations mirrored the previous saving and investment calculations, but this financial literacy lesson was designed to demonstrate the perils of credit card use before high school students have access to credit cards. Students participated in another reading apprenticeship activity with a TL text about the benefits and pitfalls of credit cards and completed a vocabulary song cloze activity with “La economía” from salsa group La Excelencia. The song incorporates much of the vocabulary regarding economic and financial literacy that reinforce the 21st century skill set and a Spanish for Business Professions perspective.

Although I had changed the travel project mentioned earlier to incorporate an LSP perspective, the travel unit’s focus was also shifted to a discussion of the historical, economic, and social impact of immigration from Latin America to the United States. Students examined the economics of immigration from banana republics, Central American wars, the Bracero Program, gang violence, and the circular relationship of US foreign and economic policy within Latin America.

An activity on microfinance incorporates LSP’s interdisciplinary connections and helps students gain global communication and cross-cultural understanding, as well as economic and financial literacy. As part of a discussion regarding the difficulties of solving the root causes of the immigration dilemma the United States faces, students were challenged to find solutions. Although some students despaired and confessed that there were no possible solutions to the crisis, others presented potential solutions. At this point I introduced the concept of microcredit and provided a short history of Muhammad Yunus and Grameen Bank, winners of the 2006 Nobel Peace Prize for their efforts at alleviating poverty. Students were then tasked with visiting www.kiva.org and selecting a worthy recipient of a potential loan. Students were asked to focus primarily on a person from the countries and regions that had been studied in the unit and they formed groups to argue why one recipient was worthier than another in the TL. They were also asked to weigh factors such as the microcredit group’s loan repayment rate, the term of repayment, and the person’s entrepreneurial goals. Figure 9 shows the directions that students

read on the board for their selection criteria. After the selection of a participant, the students watched as their choice of participant for the loan petition was fulfilled.

Vayan a www.kiva.org

- Busquen una petición de préstamo...
 - De América Latina
 - Puede ser un país hispanohablante
 - **Sort by remaining**
 - La persona necesita más o menos \$100
 - (not per borrower)
 - Field Partner Risk Rating 4 estrellas o más
 - (es posible 3... hablemoslo)
 - Necesitan pagar en un año o menos
 - (es posible un poco más... hablemoslo)
 - Lean la parte en español antes de leer en inglés
 - Decidan en una persona perfecta para un préstamo
 - Después, van a decidir como una clase entera...
 - Usen expresiones como:
 - ¿Qué tal si...? ¿Por qué no...?

Figure 9. Presentation Slide of Instructions for Loan Request Selection

Microcredit is a powerful tool that can be used to incorporate an LSP perspective that creates interdisciplinary connections. Many business and financial literacy concepts coincide with microcredit and the fulfillment of loans can be a powerful example for students that small steps toward positive global change can be created in the classroom and continued outside its walls. Figure 10 shows two screenshots from Kiva that list summative investment portfolio information. As evidenced, students can learn about return on investment, loan delinquency and default, currency loss principally from inflation, as well as noting how many loans have been funded and repaid from an initial capital investment.¹

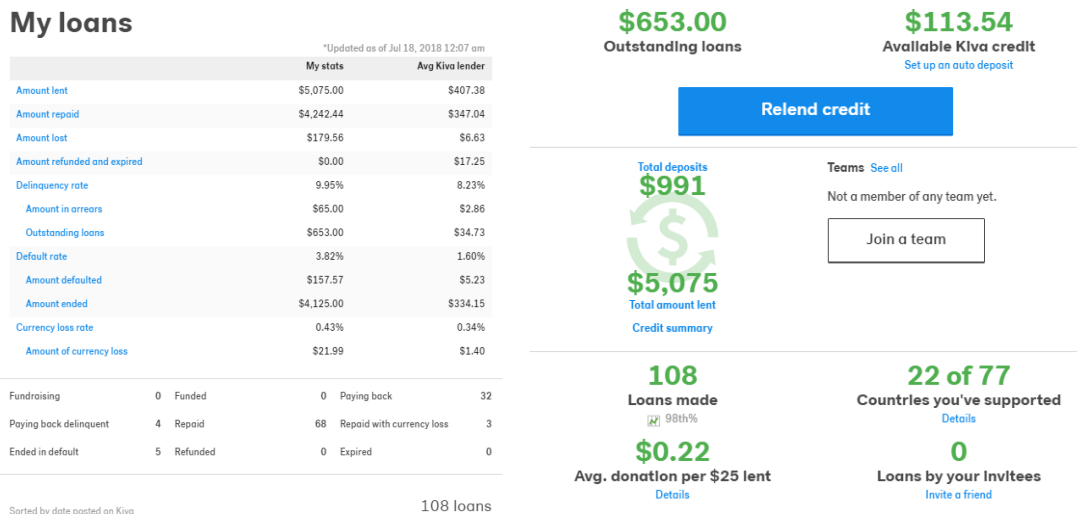


Figure 10. Screenshots of Classroom Kiva Loans over Multiple Years (source: www.kiva.com)

¹ It is important to note that this project was supported by two instructional grants from the Michigan World Language Association.

SIGNS OF SUCCESS

In a small, rural district with multiple initiatives at the elementary, middle, and high school levels, it is difficult to ascertain which specific programs, initiatives, or other factors raised student achievement. Multiple initiatives created a shotgun effect; everything was aimed at raising student performance. Some of these additional initiatives included the creation of a Mandarin immersion program at the elementary school. The high school began a focused “Freshman Academy” with grant funding that modernized classroom technology, and a dual enrollment initiative permitted high school students to receive credit through the community college. Each of the schools also received grant funding for an after-school enrichment and tutoring program and for summer programs. The district and school level goals of reading apprenticeship strategies, writing across the curriculum, and number fluency may have increased student achievement. The LSP-enhanced curriculum in the high school did meet the curriculum goals by integrating opportunities for interdisciplinary connections through reading, writing, and mathematical practice and problem solving.

There are multiple measures which indicate a positive direction in student performance on state assessments. For example, in the 2013–14 school year, the elementary school demonstrated considerable growth on the top to bottom state rankings. After the low of 7th percentile in 2011–2012, it rose to the 15th and 35th percentiles in 2012–2013 and 2013–2014, respectively. The state assessment data of the elementary school showed that students not only outperformed the average regional education service district schools in reading, writing, and mathematics, but that third-grade students also outperformed the state average in reading for the first time (www.mischooldata.org). In a district with a free and reduced lunch rate that generally vacillated between 60% and 70%, outperforming the state average was an unexpected accomplishment.

The high school level also indicated marked increases in student performance. For example, the ACT recognized the district as being one of just over 100 higher performing high schools for college and career readiness relative to the national average. To meet this distinction, “ACT researchers used grade 8 to grade 12 student assessment data to identify examples of high schools where students have progressed toward CCR at atypically fast rates” (ACT, 2012, p. 3). Aside from longitudinal growth rates, schools may also have been chosen as higher performing if each advancing cohort also grew beyond the expected point gain. According to ACT (2012), the students from the higher performing schools averaged growth rates of 30% in Mathematics. Lastly, schools that were chosen as higher performing may have consecutively increased their college and career readiness trendline relative to the national average. Therefore, this distinction speaks to the possible effectiveness of the school district’s interventions and it is plausible that the LSP-infused and mathematics-focused lessons helped create that change.

One final measure of success comes from the Mackinaw Center for Public Policy and its apples to apples comparison. This comparison controls for the socioeconomic level of students and examines school type (from urban to rural) in order to determine how schools with similar levels of poverty compare to one another because poverty has a very strong negative relationship with math performance on state assessments, both in general and especially in Michigan (Spalding, 2013). From 2012 to 2013, the elementary and middle schools were rated with a C and scored at the 45th and 58th percentiles, respectively. This is an improvement from the 2009 to 2012 rankings of 27th and 54th percentiles, respectively. Although the middle school received

the same letter grade for the period of 2009 to 2012, the elementary school had previously been rated with a D.

LSP AS A VEHICLE FOR REFRAMING LESSONS

Although language teachers at the secondary level must follow state standards and benchmarks, as well as meet district- and school-level goals, LSP has yet to reach recognition as a viable course option in most beginning language secondary curriculum. Further, graduation requirements can often constrict the flexibility needed to offer standalone LSP courses in districts with financial limitations. This is especially true for states where world languages do not form part of a mandated high stakes assessment: school leadership and teachers often focus resources on subjects that are assessed (ACT, 2012; Popham, 2001; Ryan & Weinstein, 2009). As such, it is important that secondary language teachers consider how to provide support to students in other disciplines to raise the achievement of all students.

LSP, therefore, provides a platform for teachers to reframe their lessons in order to strengthen interdisciplinary connections and engage student interest. Often, this reframing can be as simple as an intentional change in word choice and does not require an extensive time commitment on behalf of time-strapped teachers. Rather, business, criminal justice, and health care professions, for example, and professional skills can be referenced and practiced easily using an LSP framework, and students can leave the classroom with language that supports those ends (Risner et al., 2017). Furthermore, students gain real-life language skills that can be utilized in the workplace. Lastly, the interdisciplinary connections that LSP facilitates can also be integrated into a strategy that supports student achievement across multiple content areas that are assessed at the state level. It is hoped that the activities discussed in this article can serve as an example to secondary teachers of how to reframe lessons and activities when LSP courses are not an available option.

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