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How High School Learners of Spanish Respond to a Flipped Classroom: An Analysis of Performance & Involvement

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Dedication

I dedicate this dissertation to my wife and children who stood beside me and encouraged me to finish, year after year.

How High School Learners of Spanish Respond to a Flipped Classroom: An Analysis of Performance & Involvement

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Although many studies have examined "flipped classrooms" (essentially the inversion of presentational and practice learning spaces, Bergman & Sams, 2012; Bledsoe 2015; Bretzman, 2013; Lockwood & Folse, 2014; Pasisis, 2014; Plunkett & Beckerman, 2014), few have examined flipping foreign language classes and even fewer have examined the practice in high schools (Huang & Hong, 2016; Hao 2016). In addition, although a large number of blogs, teacher forums and online help pages address flipped language classrooms, few empirical studies have appeared in peer-reviewed journals. Consequently, the efficacy of the flipped classroom approach in the foreign language high-school classroom has not been adequately assessed.

The purpose of this study was to better understand learning interactions and outcomes of secondary Spanish 2 students within a flipped classroom environment. The nine -week action research project assessed the flipped classroom approach for two high-school Spanish classes. The study investigated the process of learning second year Spanish at a private high school through a collection of questionnaires, teaching artifacts, and assessment data. Involvement with the flipped materials and student performance on daily quizzes proved to explain most of the variation in grades and other outcome measures. Data analysis showed students to be classified into four groups: high-performance high-

involvement, low-performance high-involvement, high-performance low-involvement, and low-performance low-involvement.

The study found that effective learners reported a range of learning strategies which they used to select the best methods to practice the target language concepts. A variety of learning strategies in addition to efficient choice of time and investment corresponded with increased performance in the Spanish class.

The flipped classroom was an effective approach to teaching Spanish for secondary students in this study. The study also found that some learners needed support in selecting learning strategies, managing time, and remaining accountable. Teachers who want to implement flipped high school Spanish classrooms should pay attention to individual student involvement and performance for this approach to achieve maximal effect.

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Chapter 1: Rationale

Jones (2013) asks an important question raised by many educators, "How can I teach in such a way so that all of my students learn?" This question is especially important in foreign language classes where learners have diverse abilities and backgrounds. To attend to these needs, a variety of educational fields have chosen to utilize a flipped classroom approach. Indeed, the availability of technology combined with innovative teaching methodologies is a promising means to meet the needs of all students. As classroom technology has progressed to allow access to online materials, the flipped classroom may provide a solution for these challenges.

The flipped classroom (FC) is a teacher-controlled method of presenting information outside of class time, which increases opportunities for practice and refinement of course content within the classroom. In other words, segments of explicit instruction traditionally reserved for a classroom context, are made available to students outside of class, typically online. At the same time, the practice, repeated exposure and tasks traditionally utilized as homework occur during regular class time (Hamdan, McKnight, McKnight & Arfstrom, 2013).

The exchange of these two instructional components would seem to have several advantages. The first is an increase in access. Within the flipped classroom, students are able to access and review past lessons and difficult concepts as well as preview upcoming material. Students also have increased access to the teacher during class sessions. Instead of having to do homework alone, the teacher is present, allowing for increased mentoring and support. The teacher becomes a facilitator during class time and a content manager outside of class (Bergmann and Sams, 2012). Thus, more time is available to help meet the needs of increasingly diverse groups of learners. Importantly, since students study at

their own pace, the flipped classroom empowers them to take greater charge of their own learning.

THE FLIPPED CLASSROOM

The concept of the flipped classroom has been popularized by Bergmann and Sams (2012) (Hamdan et al., 2013). These rural high school chemistry teachers began to publish annotated videos of their lectures and presentations for students who had missed class (Jamludin & Osman, 2014). This practice allowed students to take notes on the course material outside of class and participate in practice and problem-solving activities during class time.

In 'flipping,' the instructional activities that typically occur in the classroom become homework, while traditional homework becomes classwork (Bergman & Sams, 2014). With respect to language classrooms, the 'flip,' affects not only how a language learning classroom operates, but also student-teacher roles and interactions with materials (Hamden et al., 2013). Traditional in-class presentations are exchanged with homework, and student preparation outside of class is replaced with classroom practice and teacher guidance. Accordingly, the teacher's role changes from "the all-knowing sage" into resource producer, classroom facilitator and student mentor. Learning materials such as textbooks and teacher videos can be accessed outside of the classroom and utilized as resources. At the same time, written and oral practice can take place during class time.

Heavily dependent on technology and recorded lessons, the FC approach typically utilizes learning management systems (Koedinger et al, 2015) including remote video storage and various internet-based resources. The availability and access to these resources allow students to view recorded lessons of the teacher presenting new information for practice with the teacher the following day. In a flipped language class, the outside of class

presentations can focus on grammatical content through videos or interactive PowerPoints, opening class time to build on that knowledge through guided activities, immersion, or focused activity in order to enhance student learning outcomes (Bishop & Verlger, 2013; Koedinger et al, 2015). Giving students free access to course content allows repeated exposure, autonomous learning, and increased attention to a particular concept. Depending on the platform utilized, students are able to pause and rewind or even skip to different sections of the material. Thus, students can target a specific grammar structure, practice an individual sound, or see / hear the entire lesson again.

In recent years, viewing video content on an individual device has become a viable way to receive instruction. YouTube reports that roughly five hours of YouTube videos are uploaded every second. Four billion videos across 54 languages are viewed every hour (YouTube, 2015). Whereas people have been learning from texts and even scrolls for eons, multimedia theory suggests that inclusion of multiple modes of transmission (text, images, audio, video, etc) increases retention and comprehension (Mayer & Moreno, 2003; Meyers, 2009). Mayer & Moreno (2003) contend that learners learn better from the combination of audio and visual input than from either type of input alone. According to Mayer (2009), content rich multimedia lessons enhance the value and impact of the teaching. He maintains that the combination of visual images, audio voice, textual enhancement or other forms of multimedia instruction all serve to improve learning, retention and ultimately acquisition.

Within the FC approach, a teaching unit is segmented into smaller teachable parts with step-by-step demonstrations, examples, and comprehension checks. This approach to explicit instruction can be defined as an "unambiguous and direct approach to teaching which includes both instructional and delivery purposes" (Archer & Hughes, 2010). Large complex skills and strategies break down into smaller segments, which can be practiced and reviewed by the viewers. Directly and concisely providing content and explanations to

students, allows them to view and use a presentation as a resource, especially if it is recorded and easily accessible.

The FC model would seem to have a number of potential benefits for foreign language learning, including increased access to content, increased time of exposure, and improved classroom practice. Although it tends to be contingent on technology, it has the potential to improve language learning due to increased access and multiple modes of instruction. These benefits would seem to be especially important at the high school level.

CONNECTIONS FROM FOREIGN LANGUAGE METHODOLOGY

There were both positive and negative reactions to the concept flipped classroom when it was originally introduced in popular media and educational blogs (Bergam & Waddell, 2012; Nye, B. 2012). It must be pointed out, however, that the ideas utilized in the FC are not entirely new. Foreign language education has been utilizing many of the key elements for quite some time. Both flipped classrooms and foreign language instruction underscore the importance of shifting instruction to match student needs and abilities and working with students to help them move from their current level of knowledge to a deeper and more complete level of understanding.

Krashen's input hypothesis of i+1 (1983) in second language acquisition is strongly supported in the flipped classroom environment. Consistent with Krashen's theory, students can be immersed in the target language with rich context within the FC. Multiple activities, texts, and interactions with the target language fill the class time. As this time is devoted to interactive language practice, the room has the energy and excitement characteristic of Terrell and Krashen's (1983) Natural Approach where learners engage with the target language in a "risk-free and fun environment." The FC approach also allows for explicit instruction (Archer & Hughes, 2010) via video or other collection of online

resources, leaving the classroom space free for input, scaffolded practice, and use of the target language.

A central idea to both FC and language instruction is shifting the access to knowledge from the teacher to the student, thereby allowing students to take more control of their own education, at the same time, to provide even more classroom opportunities to use and refine student understanding alongside the guidance of the teacher. The FC approach hinges on the idea that students should have access to content rich presentations (Mayer, 2009), and explicit instruction (Archer & Hughes, 2010) outside of the classroom (Anderson, 2008), as well as scaffolded practice (Vygotsky, 1978), input rich exposure (Krashen, 1985), and language practice (Krashen & Terrell, 1995) in the classroom. The provision of an easily accessible presentation is also in line with self-directed learning (Knowles, 1975) as well as active learning (Michael, 2006). By providing extensive out-of-classroom content and many opportunities for scaffolded practice, the FC model may also prepare language learners for autonomous learning.

AUTONOMOUS LEARNING

The flipped classroom is consistent with the idea of autonomous language learning. Autonomy is often defined as taking "charge or responsibility of one's own learning" (Benson 2013). Autonomy is seen as especially important in language learning since only a limited amount of language can actually be presented in the classroom. Benson (2013) focuses on "the capacity to take control of one's own learning," emphasizing that 'capacity' and 'control' are the key elements in language learning. The hoped-for result is a learner who is capable of selecting learning goals, appropriate materials, and recognizing when they have mastered a concept.

The three areas over which a language learner can potentially take control include content, learning management and cognitive processing (Benson, 2013). Control over the content allows the learner to choose the 'what' and 'why' of language learning. Although language content is traditionally selected by a teacher, school board, school district or other curriculum authority, parameters can be established to allow a student to either choose between specific subtopics and/or to delve deeper into a particular topic. For example, an interested student could pursue information on the dialectal variations between various target language countries or vocabulary on a specific topic of individual interest. Control over learning management involves both the choice of activities and practice as well as the planning, organization and evaluation of learning. In practical application, autonomous learning management could range from letting learners choose between two projects to allowing students to develop their own evaluation assignment. Intertwined with both content and learning management is control over cognitive processing. Cognitive processing includes attention, reflection, metacognition, and all other processes "through which learning management and content are controlled" (Benson, 2013). Learner autonomy can range from no control to complete learner control. Thus, the question is not whether or not a learner is 'autonomous,' but rather how much autonomy a learner displays in various areas.

In the general learning literature, moving control of learning to the learner is in line with the concepts of self-directed learning (Knowles, 1975) and active learning (Michael, 2006). Knowles defines self-directed learning as "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating their learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (1975). Similarly, in active learning, students engage in some activity that forces them to reflect

upon ideas and how they are using those ideas (Michael, 2006). Whereas self-directed learning posits tactics and classroom strategies, active learning incorporates learning principles associated with metacognitive reflection learning. Both concepts focus on the learners in control whether by classroom actions or by the principles guiding those actions.

Increased learner autonomy has been associated with better learning outcomes. Chalupa & Haseborg (2014), used a variety of self-assessment surveys, journal entries and observations in advanced university language classes to increase motivation and autonomy. They found that the use of choices increased the university students' interest and motivation and ultimately their desire to continue studying a foreign language. Similarly, Luke (2006) tracked autonomous choice of content in an inquiry based foreign language classroom and found increased autonomy and motivation. Deci et al (1991), argue that "motivation, performance, and development will be maximized within social contexts that provide people the opportunity to satisfy their basic psychological needs for competence, relatedness and autonomy." Although the studies referenced focused on intermediate and advanced students in college-level Spanish classrooms, the authors extend their implications to include younger audiences.

While several studies have examined flipped foreign language classes at the college level, few studies have assessed flipped classroom language learning at the high school level. As highlighted by Benson (2013), this gap may stem from the strict adherence to curriculum and pressures of time and performance in secondary schools. The few studies that exist show promise for the flipped classroom approach. Huang and Hong (2016) contrasted flipped and traditional instruction of 10th grade Taiwanese learners of English, finding significant performance gains from the flipped group. With a similar contrast of third semester Spanish students, Maranski and Kim (2016), found the flipped group to not

only outperform the traditional group, but was "more adept at correctly identifying grammatical instances of the target structure."

Several important questions remain about the role of autonomy in language learning: can students truly learn language content outside of the classroom? And if they are studying language content outside of the classroom, how do we know that they are actually learning? Likewise, how do we know if allowing choices over content, process, and assessment according to student abilities will be of benefit to the foreign language learner?

BRIDGING THE GAP

While there have been a number of studies examining the effects of the FC (Bergman & Sams, 2012; Bledsoe 2015; Bretzman, 2013; Lockwood & Folse, 2014; Pasisis, 2014; Plunkett & Beckerman, 2014), few studies have assessed foreign language development within this approach, and even fewer have looked at language development in a high-school context (Huang and Hong, 2016, Maranski and Kim, 2016). Likewise, a large number of blogs, teacher forums and online help pages address flipped language classrooms, yet little related material has appeared in peer-reviewed journals, and of these contributing, even fewer relate to the high-school Spanish classroom (Huang & Hong, 2016; Hao 2016). Consequently, the efficacy of the FC approach in the foreign language high-school classroom has not been adequately assessed.

Chapter 2: Literature Review

With the ever-increasing demand for higher learning outcomes and a dwindling commodity of time and finance (Oreopoulus & Petronijevic, 2013), the strategy of employing innovative educational strategies such as the flipped classroom has become increasingly popular in American classrooms (O'Flaherty & Phillips, 2015). The flipped classroom consists of shifting homework from "home" to within the classroom and shifting classroom presentations to video format thereby increasing access to "knowledge" and encouraging learner control. As highlighted by Bergman & Sams (2012), "flipping" consists of two main components nested within traditional teaching methods. The external component allows students to access explicit instruction (Archer & Hughes, 2010) and content rich presentations (Mayer, 2009) outside of the classroom (Anderson, 2008). These elements are simultaneously combined with internal classroom activities of input rich exposure (Krashen, 1985), scaffolded practice (Vygotsky, 1978) as well as direct practice with the target language (Krashen & Terrell, 1995). Thus, the resulting flipped classroom is an instructional strategy by which students acquire content outside of class—through texts, videos, or other materials—and come to class to practice and implement their knowledge through activities, discussions and projects.

The purpose of this chapter is to examine available literature relating to the flipped classroom in general and specifically to the flipped foreign language classroom, as well as underlying theories that support the approach.

Defining the Flipped Classroom

To better understand the rationale behind the flipped classroom, it is first necessary to define a flipped classroom. The four pillars of flipped learning according to Hamdan et.al., take into account the learning environment, the content, the method of delivery and

teacher roles (2013). The four pillars of the “F-L-I-P”, are the acronym referring to the flexible environment, learning culture, intentional content, and professional educator (Hamdan et.al., 2013). While to some, the learning environment in a flipped classroom may appear chaotic and noisy, flexible environments for learning are meant to allow student control of when and how learning occurs, as well as flexible timelines and deadlines and variation in assessment. Teachers in flipped classrooms change from the 'sage on the stage' to the 'guide on the side' (Bergmann & Sams, 2012), and instruction is usually done through annotated videos or other digital content. Instead of teaching to the test or following the textbook, a flipped learning approach segments content into portions appropriate to the abilities and limits of the class. Importantly, educators may be especially attentive to and interactive with students so that they can maximize the usefulness of class time and challenge students to engage with the content.

In an assessment of flipped classroom studies, Bishop and Verleger (2013) demonstrate how what is traditionally considered flipped instruction can vary according to context, including the use of readings, lectures, videos and quizzes both outside and inside of the classroom. They maintain however, that to be a flipped classroom, "out-of-class activities must include required video lectures; in-class activities must be required, and must involve interactive learning activities—specifically, the primary in-class component could not be lectures" (9). Herreid and Schiller (2013) echo this perspective by asserting that the "flipped classroom engages and focuses students’ learning by combining active, student-centered learning with content mastery that can be applied in the real world" (124). To understand the flipped classroom, it is important to note its various forms reported in education literature.

The design and implementation of the flipped classroom depends heavily on teacher training and resources. Training can range from active inclusion in an exploration of

flipped methods (Basal, 2015), to passive exposure to resources (Witten, 2015). Currently there are a number of resources, blogs, books and articles, how-to videos and lists of resources for flipping a classroom, constructed by teachers employing flipped instruction. For example, Witten (2015) has posted a collection of resources for new teachers, a blog on her reflections as a teacher using a flipped approach as well as ideas for improving implementation, and importantly, a chapter on flipping language classes (in Brezman, 2013).

FORMS OF DIGITAL LEARNING

Classroom formats generally range on a continuum from face-to-face environments to virtual classrooms, with blended learning falling somewhere in between (Murphy & Southgate, 2011). In a review of flipped learning, Hamdan et al. (2013) underscore the differences between on-line learning, blended and flipped, focusing primarily on when and how learners access instructional content. In addition to content, online learning focuses primarily on individual, asynchronous learning, while blended learning requires human contact of some kind. Flipped learning, in contrast, moves content learning outside the classroom, allowing for greater practice and metacognition. As a flipped classroom simply requires that the content be learned prior to practice and application, any of these previously mentioned classroom formats can be used in the flip.

Traditional or face-to-face learning, has been and continues to be the principal form of instruction used in American classrooms. In contrast with blended or online learning, this traditional form of instruction does not use web-based or online approaches (Murphy & Southgate, 2011), but tends to have a lecture-style delivery of content accompanied with homework practice. Interestingly, this style of teaching can also be flipped by simply

having the student read targeted material outside class and come to class prepared to discuss or apply the content to a given problem.

Online learning contrasts greatly with traditional learning environments, with all of the content delivery and practice occurring in a virtual space. In a synchronous online approach, both content and practice may replicate a traditional classroom, but through a digital platform. The asynchronous interaction will have content and practice separated, with students free to access content at their leisure, posting their discussion replies or activities according to a specified time sequence. Both online organizations lack the teacher scaffolding that occurs in flipped classrooms.

A blended learning approach has been defined as an "integrated combination of traditional learning with web-based, online approaches" (Nicholson et.al, 2011). In the blended context, students may have prerecorded video presentations, live lessons or out of class papers as well as digital practice. The key component in a blended learning context is a dual mode: the use of both face-to-face interactions as well as web-based approaches. The blended context lends itself easily to the flipped classroom as much of the instructional content can be hosted online. However, the mere fact that a classroom is blended does not imply that it is flipped.

All classroom formats can be flipped to various degrees. Students might study a text, video or audio file prior to class. Similarly, they might perform classroom activities, engage in an online activity or a combination therein during class time. Indeed, in all three formats, "learners may use text-based material, audio, video and online resources in a range of environments during formal teaching sessions, independently or informally with other learners, either for new learning or to practice language previously learned" (Murphy & Southgate, 2011:16). The classroom format and the home context can both utilize a variety of modes of transmission as well as practice and implementation of the content.

The teacher plays an especially important role in flipped instruction. The FC teacher is seen as open to incorporating novel approaches (Richards & Renandya, 2002), technology (Mayer, 2009), and teaching beyond the limits of a traditional classroom (Mellow, 2002). However, regardless of the location and the level of access to technology or content, three conditions appear to be necessary across various versions of the flipped classroom: flexible access to content, accountability, and practice. The first of these defining characteristics is the delivery of content outside of the classroom setting (Abeysekera & Dawson, 2015). The form of content delivery may come through textual reading, audio recordings, video instruction or a combination of these media. It is the student's responsibility to have a basic understanding of the content prior to class time. The student should review the readings and links to additional resources or peruse the videos prior to the scheduled practice of these concepts in class. Accountability may be confirmed through short quizzes, a check on student notes, or student feedback (Cunningham, 2016). This practice heightens the importance of coming to class prepared and paves the way for autonomous learning. A final characteristic is the incorporation of guided practice in class time. In the FC, practice and refining of knowledge return to the classroom where the teacher facilitates group activities, answers key questions and keeps the practice or discussion moving.

FLIPPED CLASSROOM HISTORY

Although one could argue that an element flipped learning has been around for decades if not centuries, Bishop and Verleger point out that there has been a focused redefining of learning and teaching roles in recent years (2013). The act of asking students to come to class prepared to discuss or implement a target topic has been around since Plato proposed the idea of intellectual autonomy or Aristotle proposed self-sufficiency (May,

1994). Students can clearly seek out information on their own and become proficient in a concept to the point of being able to understand and use it, and access to information outside of a physical classroom has always been available at least to an extent.

In the 1970s, the concepts of autonomy and self-directed language learning began first in Europe then spread to the rest of the world (Benson, 2013). The underlying purpose of the autonomy movement in language learning was to encourage students to seek out their own resources and learn the target language without the presence of a teacher. Many of the resources for these learners involved target texts, recordings, and even guided textbooks. The idea was that "access to a rich collection of second language materials would offer learners the best opportunity for experimentation with self-directed learning" (Benson, 2013).

Since the turn of the century, autonomous learning has been applied to the language classroom in the form of online instruction, blended learning, and flipped classrooms (Bishop & Verleger, 2013). These instructional innovations corresponded with increased availability of technology as the turn of the century heralded platforms such as YouTube where target language conversations, lessons and even full courses could be accessed by autonomous learners. The most prominent sources often attributed to the development and popularity of flipped instruction in all content areas include the internet sensation Kahn Academy (Khan, 2014) and the grassroots movement of flipped classroom headed by Bergmann & Sams (2012) as well as a Lage, Platt & Treglia proposal for "the inverted classroom" (2000).

The paper by Lage, Platt and Treglia (2000) was the first to propose the idea of video-based learning supplemented by classroom scaffolding to the academic community. Using business students at the University of Miami in Ohio, the authors inverted the two learning spaces for 189 participants. The researchers created multimedia presentations and

moved the content lessons to recordings for the computer lab or home via VHS tapes. Additional resources including PowerPoint presentations, quizzes and handouts were published on the class homepage for learners to peruse and review outside of class. Students were instructed to review and understand target material prior to class. Class time was used for experiments, labs and application of the learned material. At the conclusion of the course, both student and teacher response were positive; the students cited increased motivation and the instructors cited more motivation for teaching and referred to students' increased integration of knowledge. Even though the Lage et. al. study may have been seen as purely academic or unattainable at the time, Bergman and Sams (2014) refer to it as 'foundational.' and indeed the principles that the authors proposed have become foundational for today's flipped classroom: the creation of media rich lessons that are accessible out of the classroom and the use of hands-on learning within the classroom

Kahn Academy is well-known for its use of educational video presentations and has often been credited with originating the flipped classroom model. Originally intending to help his niece with math and science concepts in 2004, financial analyst Salman Khan moved his videos to YouTube in 2006 to tutor additional family members and friends (Khan, 2014). As the videos were available to a wide audience, they soon became immensely popular. This following inspired the launch of the Khan Academy website in 2009, which grew to host over 100,000 practice problems and 6,000 micro lessons on topics focusing on mathematics and science (Khan, 2014).

Within K-12 education, the flipped classroom has become increasingly common since the turn of the century. The two teachers often credited with its development are Sams & Bergmann. In 2007, these rural high school chemistry teachers saw that their students were often out of class due to athletic or other school commitments and were thus unable to meet their academic demands. To address the needs of these students, Sams & Bergmann

saw that they needed to increase the amount of teacher facetime and access for their students. They used screen-casting software and video recordings, to post their presentations to a website instead of giving the same presentations in the classroom. With the lessons moved out of the classroom the teachers were able to use class time for more laboratory activities and practice. Similar to Kahn's experience, others soon discovered their videos, prompting the teachers to launch the Flipped Learning Network, in which they mentor teachers in utilizing their methods (Berghman & Sams, 2014).

As YouTube continued to expand, Kahn as well as Sams & Bergmann posted their lessons to the public and gained increased visibility. Similarly, with teachers such as Kahn posting videos in 2006, and Bergman and Sams posting in 2007, YouTube quickly became a platform for hosting videos for educational purposes (Watkins & Wilkins, 2011). Since this point, the flipped classroom method has branched into almost every educational field and level (O'Flaherty & Phillips, 2015).

THE VIDEO COMPONENT

Although the requirement of learning key material before class is not new, shifting the bulk (or in some cases, all) of presentation time to openly accessible video platforms has only been possible with the recent developments of new technologies. Beginning with books and scrolls, educational tools have progressed through cassette tapes, VHS recordings, CDs, satellite, interactive video, audio conferencing and eventually to web-based courses (Mupinga, 2005). This progression has opened the door to massive open online courses or MOOCs and complete online graduate and undergraduate degrees (Kern, 2014).

With today's new technologies, the traditional lesson or teaching component of a class can be pre-recorded or transmitted live for instant access, and then archived for

reference and individual learning (Kern, 2014). Currently, both blended and virtual classrooms utilize access to teacher videos. In their endorsement of video education, the Cisco corporation states that "video, as a fundamental agent in the process of education transformation, facilitates collaboration, accommodates for different learning styles, increases engagement and excitement among students, helps maximize school and university resources, and improves learning outcomes" (Greenburg and Zanetis, 2012:3). In the case of foreign language classes, modular videos can succinctly explain target grammatical principles and provide examples and practice, allowing students to learn and review material in an asynchronous autonomous learning environment.

The external component of the flipped classroom assumes that students are able to learn from video modules (Greenburg and Zanetis, 2012) without direct interaction from the teacher. The potential benefit to learning from a video presentation is based on multimedia theory (Mayer, 2008, 2009), which posits that multiple modes of instruction (ie image + text + audio) are more effective than one of these modes alone. Mayer bases this theory on 20 years of evidence-based research on dual channels, limited capacity and active learning (2008). The theory maintains that not only can students learn from a video, but that the inclusion of multiple modes of transmission, in addition to the video, further aid in the retention of the target concepts (Mayer, 2008). An additional benefit of video instruction is the accessibility of the lesson out of class. Access to the recorded video enables multiple viewings of the target concept, as well as permitting a learner to preview future lessons or review past lessons or related concepts.

Blyth used a multimedia approach to assist foreign language instructors to teach grammatical aspect (1997). He emphasized the need to continually draw the learner's attention back to aspectual contrasts through images, texts, reflections etc. His goal for teachers was for them to understand both aspect and how learners perceive the differences,

thereby enabling teachers to improve their awareness and ultimately their effectiveness. Though not specifically a study of video in the acquisition of a language, it provides a framework for teacher education and shows the benefit of using multiple modes to teach a grammatical concept.

FLIPPED LEARNING RESEARCH

As noted by Maranski and Kim (2016), 'instructors value inverted classroom pedagogy particularly for its opportunity to dedicate less time to explicit content instruction and to allocate more time to using a second language meaningfully in class" (p.831). Indeed, explicit instruction through videos and interactive classroom activities are defining characteristics of the flipped high school foreign language classroom. Relevant to this review is the impact of each of these components. This section lists key empirical studies that address factors such as the video component, the use of explicit instruction, and interactive activities within the flipped high school foreign language classroom.

In their 12-week study of Taiwanese learners of English in a flipped and traditional classroom, Huang and Hong (2016) compared two groups of 10^{th} graders on performance and foreign language reading comprehension. The researchers found that the students in the flipped classroom not only significantly surpassed the scores of the control group, but that their gains from pre-test to post-test were higher than those of the control group overall. The authors concluded that the use of the flipped language classroom was a powerful teaching strategy with high school students, recommending its use in other contexts.

Moranski and Kim (2016) also underscore the benefit of using the flipped approach in the foreign language classroom. They focused on attitudinal and measures of L2 knowledge in their study of 213 third-semester Spanish students. They found that, "learners in the flipped condition had higher scores than those in the traditional for every item on the

inventory, with the flipped groups' overall scores being significantly higher with a large effect size" (p.846). The in-class group showed no advantage regarding the evaluation of metalinguistic knowledge. In fact, they found that the flipped group was "more adept at correctly identifying grammatical instances of the target structure" (p848). Moranski and Kim also showed that the majority of the students expressed a positive attitude toward the flipped classroom with the caveat that "certain subgroups of learners may have differential reactions to [the flipped classroom]" (p.848). They concluded with an emphasis on further research, particularly in the area of the predictor variables of the subgroups.

Related to the use of a video as a means of instruction in the flipped foreign language classroom, Moranski & Henery (2017) found that using a video to mediate learners' pedagogical expectations had a positive effect. In their mixed methods study of expectations for learners of Spanish in a flipped classroom, the researchers analyzed self-report data from 193 university students of Spanish before and after the 16-week study. The researchers concluded that the use of the video helped to prepare students for the flipped classroom and that the students' positive affect increased throughout the semester.

FLIPPED LEARNING & SECOND LANGUAGE ACQUISITION THEORY

The theoretical underpinnings of the Flipped Classroom are compatible with several second language acquisition (SLA) theories. As noted by Hung (2017), the flipped model is still developing and although the model appears to be "comprehensive and plausible" the relevance to the specific English language teaching context has not yet been established (p. 181). Neither has it been established more generally within SLA. The four foundational pillars of the flipped classroom: flexible environment, learning culture, intentional content, and professional educator or F-L-I-P (Hamdan et al, 2013) are considered from an SLA perspective in this section.

Flexible learning environments represented are associated with learning spaces that are able to shift between group work, independent study, research, performance, and evaluation (Hamdan et al, 2013). Such an environment is consistent with language teaching environments associated with the natural approach to communicative second language teaching (Krashen,1983). Within the parameters of the flipped classroom, "students decide when, where and how they will view the language material" (Hung, 2017: 181). Flexibility according to student needs may help lower students' affective filters (Krashen, 1983) and anxiety (Horwitz et al, 1986; Young, 1990). Boredom, fear, nervousness or stress can impede language learning, while positive attitudes and motivation may facilitate learning (Gardner, 1985, Dörnyei, 1994). Gardner (1990), calls these factors "motivational or predispositional characteristics of individuals that influence their perceptions and impressions of the language learning context" (p.179). While it may be true that there is no simple remedy for student anxiety (Koch & Terrell, 1991), or other emotions within the affective filter, second language environments should work to minimize effects of the affective filter.

The second pillar of flipped learning is the shift of responsibility from the teacher to the learner. In the flipped classroom, students practice and use the language during class time. Language immersion requires extensive exposure to authentic use of the language in the form of comprehensible input. Krashen & Terrell (1995) call comprehensible input the "critical ingredient" in language acquisition They also emphasize that "language is best taught when it is being used to transmit messages, not when it is explicitly taught for conscious learning" (p.55). This communicative approach to language teaching is in line with the input hypothesis and is the essence of the classroom component of the flipped classroom since students are exposed to the target language through teacher input and authentic texts and videos. But it is the learners' responsibility to use the language they are

exposed to, since according to Swain, 1991 and Swain and Lapkin 1995, comprehensible input alone is insufficient for language acquisition. In the flipped classroom, students are able to practice negotiation of meaning, comprehension checks, and clarification during conversational interactions with the instructor and their peers. These interactions help connect the input with the messages they want to communicate (output). Long (1996) states, "negotiation for meaning, and especially negotiation work that triggers interaction adjustments by the NS or more competent interlocutor, facilitates acquisition because it connects input, internal learner capacities, particularly selective attention, and output in productive ways" (p.451). Creating more contexts for output in the classroom helps shift responsibility for learning to the learner.

The third pillar of flipped instruction, intentional content, can be applied to the course content of the language class. In the case of the flipped classroom, intentional content utilizes explicit instruction (Ellis, 2011) of target concepts outside of the classroom through the video, specifically through form-focused instruction (Spada, 1997; 2010). Explicit instruction occurs when learners receive information concerning rules underlying the input (Hulstijn, 2005:132; Ellis, 1994). This approach is recognized by its multiple use of pedagogical rules, which guide the student through a step-by-step process of learning. Within the FC, explicit instruction is transmitted through the video component. Spada summarizes this approach, stating "FFI is any pedagogical effort which is used to draw the learners' attention to form either implicitly or explicitly ... within meaning-based approaches to L2 instruction [and] in which a focus on language is provided in either spontaneous or predetermined ways" (Spada 1997: 73; 2010:226).

The fourth pillar of flipped classrooms is usually described as the professional educator. This refers to the important role of the instructor in transmitting content relevant to student needs as well as recognizing when and how to shift the content, activities or

practice to better meet learners' needs. The importance of this role is noted in a cautionary statement by Hamdan et al that "flipped educators help students explore topics in greater depth using student-centered pedagogies aimed at their readiness level or zone of proximal development (Vygotsky, 1978), where they are challenged but not so much so that they are demoralized" (2013:5). Indeed, the goal of research in SLA is to improve second language teaching (Larson-Freeman, 1998). Yet this improvement is not contingent on content or methods, for as Lightbown states, "second language research does not tell teachers what to teach, and what it says about how to teach they had already figured out" (1985:182). Within the FC, the professional educator has a crucial role in designing and implementing the out-of-class instruction as well as the related in-class practice. From Lightbown's perspective, this educator must be knowledgeable about SLA research to help facilitate the language learning process.

In sum, the FC approach is consistent with a number of theories and teaching approaches proposed in the SLA literature. Students are able to learn the content outside of class through a lowered affective filter, practice through comprehensible input in the classroom, have access to research driven content and activities, all facilitated through the experience of a professional language educator.

AUTONOMY & SECOND LANGUAGE ACQUISITION

According to Gremmo and Riley (1995), the interest in the concept of autonomy within the field of language education was "a direct response to conditions and expectations" (153) aroused by the political turmoil in Europe in the late 1960s. Thus, in 1971, the Council of Europe's Modern Languages Project helped to establish the *Centre de Recherches et d'Applications en Langues* (CRAPEL) at the University of Nancy, France (Benson, 2013). Both its founder, Yves Châlon, and his successor, Henri Holec are

considered prominent figures within second language autonomy research (Benson, 2013). Some of the key innovations of their approach were self-access resource centers and the idea of learner training. (Benson, 2013).

Autonomy shifts the responsibility of learning from a dependence on the teacher to an independence of the learner and is often described as "the capacity to take charge of, or responsibility for, one's own learning" (Benson, 2013). The idea of taking charge of one's own learning is "to have and hold the responsibility for all the decisions concerning all aspects of this learning "(Holec, 1981). This can include establishing objectives, content, progression, learning methods and techniques, as well as monitoring and evaluating one's acquisition. In essence, the autonomous learner is capable of making all the significant decisions regarding their language learning process, management and organization. The capacity to take responsibility, reflects the view of the learner "control over the cognitive processes underlying effective self-management of learning" (Benson, 2013). This psychological dimension of autonomy emphasizes the cognitive control and competencies of the language learner. The third dimension of autonomy encompasses the control over the content of learning (Benson, 2013). Control over content is a social negotiation with isolated learning on the one end and the release of control to others on the opposite end. Considering that language learning is enhanced through interaction, a learner must move away from isolated learning, yet without releasing all control of content to their social context (Benson, 2013). Autonomy under this model then emphasizes three dimensions of control: learning management, cognitive processes and learning content with a scale of little to high amounts of control in each of the three areas.

Assessing the amount of learner autonomy hinges on measuring progress in these three areas of control. Instead of a categorical view of these areas of control, they should be viewed as scalar, recalling Nunan's assertion that autonomy is not an "all-or-nothing

concept" but a matter of "degree" (1997). Estimating whether a learner is autonomous has met with several descriptions over the years. The lists range from 100 competencies connected with autonomy in 13 categories (Candy, 1991) to only 8 detailed descriptions (Been and Mann, 1997). Benson (2013) points out that some of these lists intersperse characteristics of "good learning" with autonomous learning, but after categorizing and removing arbitrary features, we are left with the three aforementioned dimensions of control.

Regarding the development of autonomy in language learning, Murphy (2008) highlights how achievement of learner autonomy depends on the teachers' willingness to distribute ownership as well as their commitment to creating these learning environments. Crucial to autonomous learning environments are opportunities for "repeated exposure to authentic language within the zone of proximal development" (84), allowing the learner to receive scaffolded help (Vygotsky) in attaining the desired outcome. In addition to simple awareness of strategies to help learners develop their autonomy, Murphy states that "learners need opportunities to try them out and become confident in using them" (2008:85).

Involving the organization of activities, practice and their assessment, control over the learning management involves observable behavior as well as the mental capacities of the learner which guides this behavior. The goal is to "understand the cognitive and attitudinal factors that underlie learning management" (Benson, 2013). The intersection of autonomy and content has the potential to increase learner motivation (Chalupa & Haseborg, 2014), practice with strategies, and increase proficiency within a content area.

In an assessment of the progression of autonomous encouraging materials, Murphy (2008) demonstrates effective and erroneous strategies from a variety of foreign language textbooks produced over the period of 1999 to 2005. Assessment of oral and written

assignments, feedback, interviews, and the course content revealed two approaches in the course content based on scaffolding. The courses produced in 1999 showed that although the "courses included opportunities for students to evaluate their progress" there was "little guidance or structure" to allow students to develop their autonomy (p.90). By 2005, course materials increased their support of autonomization by "moving from implicit expectations and opportunities to explicit explanations and activities" (Murphy, 2008:91). Guiding students with integrated 'noticing' cues, questions that encouraged metacognition, and highlighting key strategies all served to support autonomous development. Despite Murphy's contention that language courses are improving in their focus on autonomous development, she cautions that more research and development is still required in the areas of assessment, linear progression through the curriculum and their effect on the learner.

In summary, this review revealed that there is little focus in the literature on the use of flipped instructional practices with high school foreign language learners. The following chapters outline a study that attempted to explore the use of a flipped classroom environment in a high school Spanish class.

Chapter 3: Methodology

This study assessed the performance, progress and learning interactions of high school learners of Spanish in a flipped classroom environment. This chapter describes the environment and participants in the study, data collection instruments and procedures.

ACTION RESEARCH

Due to the exploratory nature of the study, I chose to employ action research methods. Grubba et al define action research as a "teaching-focused study that is designed to investigate a classroom-based pedagogical innovation" (2009, p.403). In a comparison of teacher versus theory driven research, Crooks explains that the goal of action research is "to contribute to the improvement of the teaching professional and the utilization of research" (1993: p.132). Consequently, the research questions emerge from the teacher's own immediate concerns or problems, rather than exclusively theory driven research (Crookes, 1993). In Bradbury-Huang's description of the practice, she shows how it brings together action and reflection, theory and practice, in the pursuit of practical solutions. Indeed, she calls it "a pragmatic co-creation of knowing *with*, not on *about*, people (2015, p1, emphasis in original).

Action research allows the researcher to reexamine the initial question and adjust the methods or materials to better understand the topic under inquiry. Crookes (1993) describes this approach stating that after first establishing the problem or question to be addressed by the research, various steps can be taken: "observation of students, teaching method, and or materials, data collection relevant to the research question, revision or development of the initial research question, and lastly an attempt to utilize the data to answer the question or solve the problem" (p.132). This cyclical strategy of narrowing the

research question while refining the methods allows the researcher to find a pragmatic solution within the current study rather than perform multiple studies.

The current study was initially designed to understand what was happening in a flipped classroom environment. More specifically, it sought to understand why some students seemed to do well and understand the target concepts within a flipped environment, while others struggled. In order to understand these differences, it is first important to understand the environment and population under study.

SITE & CONTEXT

The population under investigation in this study included two high school classes of Spanish II at a small southern private school. The entire high school had under 300 students, thus class sizes were small and courses tended to cluster by grade level and content choices. This meant that, because of small classes and fewer choices, many of the students placing into upper math or sciences tended to be placed with the same classmates in other courses, including Spanish. The high school followed a modified block schedule where each class met for two 90-minute and one 45-minute sessions each week.

The middle and high school section of the school was composed of 10 portable buildings including 16 classrooms, 3 offices, a computer room and a large meeting room. The rest of the K-12 campus included a gym, cafeteria, library, music room, theatre, and other offices. The high school and middle school students were allowed on the entire campus, with classes in every building, while restricting elementary students from the high school portable areas. In sum, the school was somewhat unusual because of its small classes, open-air campus and clusters of learning communities.

Spanish Curriculum

The textbook package purchased for the course was *Realidades2*, by Pearson publishing. Each chapter targeted three to four grammar topics, multiple cultural readings, at least one-hundred vocabulary terms, and a variety of practice activities consistent with this level, including fill-in-the-blank, short answer, peer conversations, cultural readings, essays and oral presentation topics. The textbook package included a student workbook, audio recordings, interactive practice activities for the classroom. There were more activities than time available, which allowed the instructor the option to vary the practice according to student needs and interest.

Previous to the flipped classroom implementation, the students worked linearly through the textbook, listening to the teacher's grammar explanations, and using the remaining class time to practice content. Homework consisted of practice activities for what had been covered that day. Students had access to online materials including past PowerPoint presentations, lists of grammar rules, vocabulary guides, and copies of other materials used in class. Students additionally had links to videos created by their teacher on current topics. These videos were utilized as references for additional review after the grammar had already been presented in class. With these resources readily available, some students chose to work ahead on the grammar or topics.

Classroom Learning Spaces

Students had access to a variety of common classroom resources, and often had control over their individual space, manipulating it in a variety of ways. As the classroom interaction was a key feature of the analysis, a more detailed description of the classroom features and its resources is included here.

The classroom environment was a flexible interactive learning space. Students had areas to work on independent projects, work in small groups as well as receive

individualized instruction. Most of the class activities were performed within the classroom. For some projects, students worked in the library, at nearby picnic tables as well as on the adjoining deck to the portable. Students had the freedom to manipulate and rearrange their learning spaces to best meet their needs and had a variety of tools and resources at their disposition to do so.

Within the flipped sessions, students were often divided between two or more learning spaces. This division usually happened after a quiz, or when it was clear that some did not understand a target concept. Usually students needing explicit instruction would group near the desk, while the rest worked on an alternate activity. It was common upon entering the class, to find students working on the language in varied learning spaces: a few students receiving explicit instruction at the teacher desk, a few engaged at the computers playing a Quizlet game targeting vocabulary or a conjugation game on Conjuguemos.com, with several other small groups around the room engaged in practice activities. These activities might include working on the workbook, writing and memorizing a dialogue, researching examples of target structure in newspapers, or working on their Homework Menu, which will be explained later.

Participants

The participants in this exploratory study were a convenience sample of two classes selected from the researcher's classes at this school. The selected classes had the largest number of participants, offering the widest range of learner backgrounds and abilities. The students ranged from ninth-grade to twelfth grade, from 12 to 17 years old, all at the Spanish 2 level. There were 21 total students between the two classes, almost exclusively

Anglo in ethnicity, all English speakers[1] at home, with similar numbers of male and female represented. Information about the participants appears Table 3.1 below.

Table 3.1: Participants

Feature	Details	Class 1	Class 2
1. Total population	21 students	8	13
2. Gender distribution	11 male, 10 female	5 M, 3 F	5 M, 7 F
3. Grade level	9th - 13 10th - 5 11th - 2 12th - 1	9th -5 10th ,-1 11th -1 12th - 1	9th - 7 10th - 4 11th - 1
4. Age distribution	12 – 17 years, Average 13.7	13-17, 14.3	12-15, 13.4

The researcher was also the teacher who coordinated the Spanish classes and produced the videos used in the study. This was the second semester with the same teacher for these students, and for some, the second year of Spanish with the same instructor. The teacher also used the Realidades by Pearson series for all of the Spanish levels, meaning that the students would have been familiar with the presentation style from the previous year. Consequently, all of the students were familiar with the teacher's style, personality, and teaching methods, flipped classroom style, and classroom context.

In order to attain a better understanding of the students' backgrounds, I administered a survey of their Spanish exposure. As seen in Table 3.2 below, the students had different sources and levels of exposure to the language. Four students reported regular

[1] Although six students reported access to other languages in addition to English, all participants involved in the study reported that English was the dominant language of the home, thus translation of documents or materials was not necessary for the study.

access to the language outside of the classroom, including family or extended family members, friends, and/or coworkers. The remaining seventeen students had only had classroom Spanish exposure. They separated on the way they completed the Spanish 1 material. In this school, students can take Spanish 1A in 7th grade, 1B in 8th grade and Spanish 2 in 9th grade, which was the route taken by 57% of the participants in this study. A second choice is to take Spanish 1 in 9th grade and Spanish 2 in 10th grade, as chosen by 38% of the participants. Thus, the class breakdown included thirteen freshmen, five sophomores, two juniors and a senior. The upperclassmen appeared to be putting the language class off until the end of their education plan.

Table 3.2: Spanish background of participants

Group name	Source	Population
Spanish access	Family, friends, acquaintances	4
2 year Spanish 1	Completed 1A, then 1B	11
1 year Spanish 1	Took only Spanish 1	6

Since the two main options for placing into Spanish 2 consisted of either taking Spanish 1 in one year starting in 9th grade or taking two years of Spanish 1 (Spanish 1A and 1B) starting in 7th grade, students selecting one route over the other tended to have the same classes each year, as noted previously. Thus, the 7th grade students enrolled in Spanish 1A were also taking advanced math and science, while their counterparts took general courses and a different elective. A third way[2] to place into the class required a placement test or completion of Spanish 1 through another source, which only accounted for one student.

[2] One participant entered the course as a transfer from another school. Since this student also reported regular access to Spanish, he was included in the first group.

It is also worth noting that even though all students reported English as their main home language, four of the students mentioned access to a second home language, as noted in Table 3.2. Since these students reported English as their dominant home language, the influence of the second language may be considered minimal, at least in the mind of the student.

As seen in Table 3.2, not all of the students were able to complete the second semester of the Spanish 2 course. Three students ultimately elected to drop the class and select a graduation plan that did not require Spanish 2. They were included in the study, however, as they contributed to the overall dynamic of the classroom up to the moment they left. These students are noted by how many weeks of the nine weeks they participated in the class and their grade at that point. All grades reported after their departure only included their average up to that point. All names here and elsewhere are pseudonyms.

Table 3.3: Students which did not complete the study.

ID[3]	"Name"	Weeks	Grade	Note
1-M16	Drew	3 / 9	40	Needed to complete Math for graduation
3-F14	Nora	4 / 9	71	Audited until last week, then transferred
4-M17	Gabriel	7 / 9	80	Needed to complete Math for graduation

It should be noted that throughout the class and the data collection period, I kept a record of observations and notes about the students. Whenever possible, I wrote down direct quotes, interesting reactions or character traits of the students. During the analysis

[3] The ID is a combination of their group number, gender and age. Later discussed in the analysis chapter, students were placed into four groups depending on their involvement and proficiency.

stage, these observations were used as examples or to link tendencies within groups of students.

BACKGROUND RESEARCH QUESTIONS

While I was aware of the language backgrounds for some of the learners, there were a few other aspects of their backgrounds that I believed might be important in understanding their performance in a flipped classroom. Specifically, to help understand students' interactions with the flipped digital materials, I wanted to know their access and proficiency with technology. I was also curious as to whether their varied learner styles would be compatible with the flipped classroom design. As the flipped classroom depended on students having appropriate access to videos and online materials, I needed to find out the extent of that experience. Likewise, I wanted to assure that the presentational style and practice activities had the best fit with the students, so I needed to not only assess their learning styles, but also discover their motivations for learning. Consequently, in order to address my overarching question of "What happens when high-school students learn Spanish with a flipped classroom environment?" I needed to better understand a number of my students' background characteristics:

1. What kind of devices are available to my students?
2. What level of Spanish proficiency do my students have before starting the flipped classroom?
3. What are the student's learning and motivation strategies?

Before initiating the implementation of the flipped classroom, I decided it was necessary to know about access to and familiarity with technology as well as their learning strategies and motivation. I, therefore, administered a survey of the devices and programs the students had access to as well and "the Motivated Strategies for Learning

Questionnaire" (Pintrich, Smith, Garcia, & McKeachie, 1991). The MSLQ is an 81-item, self-report instrument consisting of 6 motivation subscales and 9 learning strategies scales, which has been used in a variety of contexts and languages, particularly in studies of self-regulated learning (Duncan & McKeachie, 2005).

PRELIMINARY ANALYSES

It was first necessary to perform a preliminary analysis to identify the previous background and experiences of the learners. As previously mentioned, two instruments were selected to provide insight into their background, a technology survey and the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al, 1991). The technology survey questioned students on their access to as well as their previous experience with the technologies used in this study. The MSLQ measured scales of motivation and learning strategies. The four sets of scores from these combined instruments (access, experience, motivation, and learning strategies) helped to shed light on the role and influence of learner backgrounds on the interactions and behaviors of these students in the flipped classroom environment.

Technology Survey

Technology may be one of the most important resources in education (NEA, 2008), enabling student interaction with the material, the teacher, the classroom or peers. According to a study by the Pew Research Center, as of August, 2015, 78% of teens aged 13-17 had or had access to a smartphone (Lenhart et al, 2015), showing an ever-increasing usage and proficiency over the years. Indeed, whether access to a smartphone (Philip & Garcia, 2015), or iPod (Banister, 2010), or a combination of devices (Behen, 2013), many students already have access to devices (Lenhart et al, 2015) for use in a classroom setting

(DeMallie 2013), or more specifically in this case, within the foreign language classroom setting (Golonka et al, 2014).

As foreign language instruction is rapidly becoming digital and this particular study required an understanding of student access to and proficiency with technology, I wanted to know how much access and familiarity they had with technology. To this end, I had the students complete a survey focusing on three areas: access to technology at home, ability to bring technology to school, and proficiency utilizing specific programs. The survey asked students to indicate devices available in their homes, to answer questions related to these items, and then to indicate their level of proficiency with various programs. The survey instrument also included with a technology contract, where the student agreed to only use technology for school purposes while in school or be subject to school disciplinary procedures. Table 3.4 shows the findings from this survey.

Table 3.4: Class results for the technology survey.

Access at home	100%	2.62 average devices
• Has apps for school	100%	
• Can access internet	100%	
Remote Access: • Bring to school - regularly	90.47%	2 students reported not being able to bring a device.
• Not bring anything	9.5%	

Proficiency:	Talented	Frequently	Few times	Don't know
• Microsoft Word	47.6	47.6	4.8	--
• PowerPoint	33.3	47.6	19	--
• MS Publisher	--	--	28.6	71.4
• Internet searches	71.4	19	4.8	4.8
• Prezi	9.5	23.8	28.6	38.1
• Quizlet	38.1	.38.1	23.8	--
• Make a video	28.6	9..5	33.3	28.6
• Use blogs	--	9.5	28.6	61.9
• Google Drive	23.8	23.8	19	33.3

Although all of the students reported having access to at least one device on a regular basis, not all of them were able to bring this device to school. Importantly, all the students reported that they had access to internet/ email at home, which I interpreted to mean that all students could access the video teaching segments that would be utilized in this study.

Additionally, students were asked to list common computer programs and their proficiency using those applications. The programs ranged from common and popular items related to homework and class to the less common in order to gauge the range of student abilities and familiarity. Most common to school life, MS Word (95.2) and internet searches (89.4) had a high use. Web based programs such as Prezi and Quizlet were listed

to see if students reported a higher frequency of use. Uncommon programs such as Publisher or the ability to make a video were listed to help assess the outer ranges of students' technological abilities. Listing a wide variety of programs also helped check students' honesty in responding to the questionnaire.

Paramount to the success of the flipped classroom was to ensure that all students could access and view the instructional videos online. Although all students stated that they had some form of access to technology at home, the type and depth of skill varied among the participants. As stated previously, the technology survey showed that all students could view the videos at home on an internet-based device. In fact, students reported an average access of two devices per person, including desktops, tablets, iPads or laptops; not a single student reported access to zero devices. Fully 86% of the students reported having a phone capable of accessing the internet. These results support[4] the possibility of using a flipped classroom design with these students. Table 3.5 displays the devices available to the students.

[4] The backup plan of posting materials for reading devices was not needed, and truly would not have worked in any case, as only a third of the students reported having a device exclusively targeting reading. It was decided to continue with video-based instruction at home, instead of shifting to reading based instruction based on access and recent experience. Up until this point, the students had the option to view teacher videos as additional resources for the chapters and all of them reported viewing these videos at least once. It now seemed both feasible and reasonable to make viewing the videos at home a requirement.

Table 3.5: Technology Survey Results: Devices

Questions	Students	Devices
1. Regular access to the following?	N = 21	67
Access to at least one computer	100%	21
● Desktop computer	76%	16
● Tablet PC	24%	5
● I-pad	52%	11
● Laptop	67%	14
At least one reading device	33%	8
● I-pod	19%	4
● E-reader	0%	0
● Kindle Fire	5%	1
● Kindle	10%	2
● Nook	5%	1
● Smartphone	86%	18
At least one support device	90%	43
● Printer	91%	19
● Scanner	48%	10
● Digital camera	67%	14
Summary of devices per student		
● Average devices per student	5.5 devices	
● Computer devices average	2.2 devices	
● Reading devices average	.3 devices	
● Cell phone average	.9 devices	
● Supporting devices average	2.1 devices	

100% of the students has sufficient home access to appropriate devices. Most of the students also reported that they had regular access to a device (95%), that they could use

the internet (95%) and could bring an internet capable device to school on a regular basis (90%). Although only 33% of the students reported access to a portable reading device, a majority listed a smart phone (86%), with the capability of viewing and accessing many of the same sources as a computer.

Table 3.6 Technology Survey- Additional questions

2. Can work at home on this device	95%
3. Might occasionally bring to school	71%
4. Can bring to school regularly	90%
5. Has apps for school	90%
6. Has internet service at home	95%
7. Can access personal email	90%

In addition to the availability of technology, the question remained as to the amount of student's previous experience with technology. Students were asked to rate their proficiency with several software programs, choosing from the categories of "I use this a lot and am very Talented," "I use this frequently," "I've tried to use this a few times," and "I don't know how to use this very well." The apps and programs[5] they reported as well as their responses are summarized in Table 3.7 below[6].

[5] As described in the previously, it was an inefficient use of space to list all the possible programs that a student might possibly use. Instead, both common and uncommon programs were selected to provide examples of their range of abilities.

[6] An open-ended question asking students to list additional programs as well as a proficiency rating for that program concluded the questionnaire. Unfortunately, the programs reported by the students did not correspond between students, limiting the possibility of comparison for this part of the survey.

Table 3.7: Technology Survey Results: Skills.

Skills	Talented	Frequent use	Limited use	Don't know
● Self-rating Totals	51	55	35	48
● MS Word	48%	48%	5%	--
● PowerPoint	33%	48%	19%	--
● MS Publisher	0%	0%	29%	71%
● Internet	71%	19%	5%	5%
● Prezi	10%	24%	29%	38%
● Quizlet	38%	38%	24%	--
● Google Drive	24%	24%	19%	33%
● Make videos	29%	10%	33%	29%
● Use Blogs	--	10%	29%	62%

The Microsoft package of Microsoft Word, PowerPoint and Publisher is often bundled with home computers and was accessible on school computers as well. It was correctly assumed that of these programs, students would be more familiar with MS Word. 48% of the students rated themselves as talented with this software, with another 48% stating frequent use. Similarly, students' familiarity with PowerPoint was also high, with 33% claiming to be talented, and almost half of the class reporting frequent use (48%). Interestingly, no one claimed that they didn't know how to use either program. On the other hand, the MS Publisher had exactly the opposite result with none of the students reporting that they were talented and 71% stating that they didn't know how to use it. These results were expected, as the first two programs are highly common programs used both in the classroom and for homework, while MS Publisher[7] is not used as frequently.

[7] MS Publisher was included in the survey to determine the extent of the student knowledge base, especially as this is not a typical classroom program. A second reason for its inclusion was to check for item response-set.

Regarding internet-based programs, a clear majority of the students considered themselves to have more skill at using the internet in general than having skill at using two common internet-based programs for the classroom: Quizlet and Prezi. The students rated themselves as talented in their use of the internet (71%), with another 19% giving a frequent rating. This means that 90% of the class had a positive view of themselves using the internet. This contrasts with the results from the two net-based programs commonly used for class. In addition to being an internet-based program, Quizlet is a downloadable app and had been used to host the vocabulary lists, vocabulary games and review activities for the class prior to the start of the flipped classroom study. It was expected that more students would claim to be talented with Quizlet, as this would be at least the second year students used Quizlet for classes at this school. Other teachers at this school used the program to review history, science and math terms. Moreover, their first-year Spanish class also used Quizlet, so it was expected that students would report a high level of acceptance or proficiency. However only 38% claimed to be talented with this program, but no one reported not knowing how to use it. Prezi is a presentational web-based program which allows creation and embedding of content on what is known as an infinite canvas. As this software had been used multiple times in class for student presentations and posted as an option on the Homework Menu, a higher rating was expected. Surprisingly, only 10% of the students claimed to be talented with this program, and a full 38% reported not knowing how to use it.

Google Drive is a cloud-based document storage platform, which is becoming more common in schools especially with the popular trend toward Google Classrooms. In the decision to select an appropriate storage platform, it was important to determine student familiarity with the Google system before requiring its use. The student responses were equally distributed across familiarity levels with only 24% of the students claiming to be

experts, a third of the participants reporting not knowing how to use it (33%), and the remaining responses falling between these two points. It was now clear that the students needed more training with the features as well as with connecting programs, before it would be feasible to move the class content to Google Drive.

With the increased use and popularity of videos and blogs, it was important to determine student familiarity before assigning homework or projects. As there had been an increased use of videos for the class prior to the flipped classroom, it was assumed that students would report a greater familiarity with them. Roughly one third of the participants considered making a video as one of their talents, (29%), with a third reporting not knowing how to make a video (29%) and the rest of the responses ranging between these two extremes. The ability to use blogs however, scored very low on the self-assessment, as most the students claimed not knowing how to make them (62%), and not a single student claiming to be talented. The skills of making a video or using a blog are both synthetic talents, meaning there is usually more than one program and skill involved in their creation and production. It may be that up to this point, most of the students had not yet acquired the necessary skills or experience to produce these items, thus removing the item from the list of possibilities.

In sum, the technology survey set out to assess the ability to access materials for the flipped class as well as to assess the depth and breadth of students' technology-related skills. Students reported having a variety of devices to access the class, many of which could also be used in the classroom. The proficiency portion of the survey shows a variety of talents with the more popular and common programs used in the school setting. Student strengths appear to be using the internet, MS Word and Quizlet, common and important programs to the class. They tended to be weaker in MS Publisher, blogs and Prezi, all of

which are useful, but not necessary to participate in the flipped classroom utilized in this study.

The Motivated Strategies for Learning Questionnaire

Although not specifically an instrument designed for language learning, the Motivated Strategies for Learning Questionnaire (MSLQ) was selected to assess student motivation and learning strategies. It was selected for several reasons including its high internal reliability, its ease in delivery and analysis, its breadth of information, and its historical use in examining autonomous learning. The questionnaire has six scales related to components of motivation and nine scales eliciting self-regulated learning strategies (Pintrich, Smith, Garcia, & McKeachie, 1991). The instrument takes about 20-30 minutes to administer, allowing ample time for students to reflect on their opinions about each item. For this study, the MSLQ was administered online.

The MSLQ has 81 self-report questions, which ask students to rate their responses on a seven-point Likert scale ranging from "not at all true of me" to "very true of me." It yields scores for fifteen scales related to learning strategies and motivations. The MSLQ has been utilized by hundreds of researchers around the world (Duncan & McKeachie, 2015), with a high internal reliability (Taylor 2012), and has been used in a variety of school subjects including foreign language (Huang, 2008).

The six motivation scales are Intrinsic Goal Orientation, Extrinsic Goal Orientation, Task Value, Control of Learning Beliefs, Self-Efficacy for Learning and Performance, and Test Anxiety. The nine learning strategies scales are Rehearsal, Elaboration, Organization, Critical Thinking, Metacognitive Self-Regulation, Time and Study Environment Management, Effort Regulation, Peer Learning, and Help Seeking. Each scale is based on

an average percentage score of the responses for the items that make up that scale (See Table 3.8 and Appendix A).

Pintrich et al, (1991) found Cronbach's alpha of internal consistency ranging from .52 (help seeking) to .93 (self-efficacy) as seen in Table 3.8. The alpha value above .7 was considered "acceptable" for all but four scales (Extrinsic Goal Orientation, Control of Learning Beliefs, Organization, & Help Seeking). Two scales (Task Value and Self-Efficacy for Learning and Performance) had .9 "excellent" internal consistency. Since all Cronbach alphas were above .52, taken as a whole, the authors, concluded that the coefficients "robust" and "demonstrate good internal consistency" (p. 4). Duncan and McKeachie (2005:124) consider the MSLQ to be "an efficient, practical, and ecologically valid measure of students' motivation and learning strategies." Although Taylor (2012) agrees that the MSLQ can be used across a variety of groups with reasonable confidence, she notes that study-specific and sample-specific characteristics can affect the measurement of motivation and learning strategies. She cautions researchers to consider the reliability of scores for their own samples (p. 148). The alpha values for the current study are listed in Table 3.8 below.

Table 3.8: Coefficient Alphas and Items Comprising the 15 MSLQ Scales.

Scale	Items Comprising the Scale	*Pintrich α*	*Current α*
Motivation scales			
Intrinsic Goal Orientation	1, 16, 22, 24	.74	.63
Extrinsic Goal Orientation	7, 11, 13, 30	.62	.35
Task Value	4, 10, 17, 23, 26, 27	.90	.80
Control of Learning Beliefs	2, 9, 18, 25	.68	.80
Self-Efficacy for Learning and Performance	5, 6, 12, 15, 20, 21, 29, 31	.93	.93
Test Anxiety	3, 8, 14, 19, 28	.80	.72
Learning strategies scales			
Rehearsal	39, 46, 59, 72	.69	.77
Elaboration	53, 62, 64, 67, 69, 81	.75	.80
Organization	32, 42, 49, 63	.64	.82
Critical Thinking	38, 47, 51, 66, 71	.80	.72
Metacognitive Self-Regulation	33r, 36, 41, 44, 54, 55, 56, 57r, 61, 76, 78, 79	.79	.82
Time and Study Environment Management	35, 43, 52r, 65, 70, 73, 77r, 80r	.76	.53
Effort Regulation	37r, 48, 60r, 74	.69	.58
Peer Learning	34, 45, 50	.76	.58
Help Seeking	40r, 58, 68, 75	.52	.69

The alpha values found in this study approximate the alphas found for most scales in previous studies. Comparing the alphas in this study with those in the original Pintrich version (as seen in the table above), it appears that most of the scales have comparable values. Extrinsic Goal Orientation and Time and Study Environment Management had lower alpha values perhaps due to the homogeneity of responses to these questions in these participants. Extrinsic Goal Orientation had a standard deviation of only 1.1 and Time and Study Environment Management had a standard deviation of only 0.8.

In the present study, the Motivated Strategies for Learning Questionnaire (Pintrich, 1991) provided some interesting insights into the impetus behind the choices of the learners. The questionnaire yielded a score for motivation and learning strategies for each participant. It was originally hoped that there would be more consolidation and agreement on the items within the class, making it possible to divide them into similar groups. However, the class was more heterogeneous than expected, consequently, any attempt to group participants according to a set of scores was not possible.

It was interesting to note however that the groups clustered more tightly together on certain measures. Given that averaging a group together will necessarily obscure some of the variation in the group, a lower standard deviation indicates there may be more homogeneity on some of the scales by the class as a whole. The three scales with the lowest standard deviation included Intrinsic Goal Orientation (X = 4.8, SD = 1.0), Metacognitive Self-Regulation (X = 4.4, SD = 1.0), and Time and study environmental management (X = 5.0, SD = 0.8), indicating that the students clustered in the middle to upper range on these scales.

Table 3.9: MSLQ Results: Student Mean and (Standard Deviation)

Motivation Scale:	Mean (SD)
Intrinsic Goal orientation	4.8 (1.0)
Extrinsic Goal Orientation	**5.7** (1.1)
Task Value	4.9 (1.2)
Control of learning beliefs	5.5 (1.3)
Self-Efficacy for Learning & Performance	4.9 (1.2)
Test Anxiety	4.8 (1.2)
Learning Strategies:	
Rehearsal	5.1 (1.4)
Elaboration	4.5 (1.3)
Organization	4.4 **(1.7)**
Critical Thinking	4.2(1.2)
Metacognitive Self-Regulation	4.4 (1.0)
Time/Study Environmental Management	5.0 **(0.8)**
Effort Regulation	5.2 (1.3)
Peer Learning	**3.6** (1.5)
Help Seeking	5.0 (1.3)

- Bold for the highest and lowest mean and standard deviation

The highest score for the participants was that of Extrinsic Goal Orientation (X = 5.7, SD = 1.1) This scale measures "the degree to which the student perceives herself to be participating in a task for reasons such as grades, rewards, performance, evaluation by others and competition" (Pintrich et al, 1991). Indeed, multiple activities in the course focused on competition, prizes, and rewards to help encourage the participants to better engage with the material and concepts. Students played games, raced to conjugate verbs, and competed on Quizlet and Conjuguemos.com, receiving class play money, participation points or other rewards. Student comments on these activities included statements like 'fun,' 'good practice,' and 'helped to prepare me' or in other words, the students viewed these activities positively and helpful for their performance in class, keeping with the high value of extrinsic goal orientation. In addition, extrinsic motivation would seem to be clearly associated with the Spanish class since it is a high school graduation requirement.

In addition to using the MSLQ results in this study, students' MSLQ responses helped me better relate to the students, cluster the students according to common orientations for specific tasks, and better understand how to match students with class activities. For example, knowing that the class as a whole tended toward extrinsic motivation prompted me to incorporate incentives such as a prize box, and opportunities for grade improvement. At the same time, realizing that my group's lowest learning preference was for peer learning, I changed the way I managed group activities. I became more specific in my instructions for small groups and partner activities, modeled more conversation and encouraged each group member to relate to and learn from each other.

Although the score was close to the midpoint of the seven-point scale, peer learning had the lowest score ($X = 3.6$, $SD = 1.5$) for the total student population. Half of the students scored very low on this scale (<50%). However, several students had high scores on this scale, and those who scored high were exceptionally high (>80%). This separation of scores lead me to conclude that students were either in favor of peer learning or not in favor: few students were indifferent about the practice. This was surprising to me as much of the focus in the classroom even before the implementation of the flipped classroom was on peer and group work. Thus, it must be considered that the low score may indicate a reaction toward the newly implemented group work practices.

Summary of the Preliminary Analyses

The technology survey and the MSLQ responses paint a broad picture of the skills, strategies, and underlying motivations of the students involved in this study. The results indicate that all of the students had sufficient access to the required technology with most of them capable of utilizing the required technology resources effectively. These surveys also revealed that the class as a whole had a high disposition towards extrinsic motivation

but not to the exclusion of other forms of motivation. Lastly, the class utilized a wide range of learning strategies, with rehearsal, time management and help seeking emerging as the three most frequently reported strategies.

Having determined the student experience with and access to technology, as well as their motivation and learning strategies, the next chapter turns to the classroom interaction and outcomes resulting from the flipped classroom.

INTERACTIONAL RESEARCH QUESTIONS

Based on my students' responses to the MSLQ and technology survey, I concluded that they were capable of interacting productively with the flipped classroom. Importantly, I believed that their motivations and learning strategies could work well within the design. I next felt that I needed to track how the students were utilizing their learning strategies. I wanted to be able to track the choices students would make in studying the chapter content during the flipped classroom implementation. I also wanted to be able to understand the type and amount of learning they would achieve as well as to examine the frequency of their interactions with the flipped materials and which materials interested them the most. I thought that perhaps more successful learners would make better choices regarding the amount of time or the type of variety of practice. I decided to form the following research question:

"What choices do proficient learners make regarding their time, focus and study habits in a flipped classroom?"

In order to address this question, two instruments were designed to understand student performance in these areas: a Homework Menu to track how students prepared and a Feedback Survey so that students could use to give reflections about the course.

Homework Menu

The Homework Menu allowed the students to choose how they would practice the target concepts for each chapter. The purpose of the menu was that not all learners have the same learning styles or interests, by allowing choices, students would engage with the target concepts according to their abilities and/or interests. In addition, the flipped classroom approach is based on the premise that learners should have more autonomy. The menu (Appendix D) divided the homework assignments for each chapter into several categories (Figure 3.10). Each category, in turn, included several tasks worth a different amount of points toward the student grades. For each chapter, students had to select activities from each category for a total of one hundred points. Each chapter menu lasted for four weeks, and weekly totals needed to sum to at least 25 points for the student to earn credit for that chapter. I started the use of homework menus two chapters prior to the implementation of the flipped curriculum so that students would be accustomed to using them when the study began.

Each Homework Menu was divided into four categories: Vocabulary choices, Grammar practice, Creative projects, and Cultural projects. Examples of vocabulary activities included creating 30 flashcards (5 points), writing original sentences (10 points), or drawing and labeling a scene with target vocabulary (20 points). Grammar practice activities included completing the chapter handout (see Appendix D), creating conjugation cards, or completing workbook pages. Creative projects included writing a short story, drawing a comic strip, and making a PowerPoint presentation of their childhood. Cultural projects awarded points for completing cultural readings, as well as oral and written presentations.

The menu was meant to make homework somewhat of a game as it incorporated points, ‘fun’ activities and a complicated rule system. Contrasting to the daily homework

assignments commonly used in language classes, this form of gamification awarded students points based on their personal choices of practice activities. In-class games and exemplary behavior could additionally earn 'Mr. Abels' monopoly money.' Students were issued only three of these passes at the start of each quarter, to be used for the bathroom, to purchase a prize from the prize box or to earn five extra weekly points. Extra passes could be earned for behavior, winning a class competition or exemplary work. Other game-like items on the menu included online competitions, such as vocabulary games for having the fastest time in a memory match or the highest score for a typing game (both of these activities appeared on Quizlet.com). A grammar game awarded the best average for conjugating given verbs in five minutes on Conjuguemos.com. Students also had the option to "negotiate" menu items as well as earn extra credit. Additionally, students could create a word search, a board game or negotiate for an item worth a set amount. Many of the students especially enjoyed the competitions, others liked having a list of due dates with clearly defined tasks, but most remarked that they simply enjoyed having the choice of how they would invest their time in practicing the target terms and concepts.

The following table (3.10) provides a list of the types of homework assignments and the points associated with each assignment. Data regarding student choice of assignments, the amount of time they spent on the assignment, and the number of points actually earned were collected for the two chapters completed during the flipped classroom study. Students turned in their homework menus and completed assignments each Monday so that I could see their progress over time.

Table 3.10: Homework Menu Details

Value	Homework	Explanation of task
Vocabulary Options		
5	Vocabulary Handout	Copy all of the chapter vocabulary in Spanish & English
5	Vocabulary Flashcards	Select and create 30 flashcards of vocabulary
5	Quizlet High Score	Be one of the top three scores in the Quizlet game
5	Crossword / Word Search	Create a handout of 20 words in a crossword or word search
5	Sentences	Write 10 original sentences using the vocabulary and grammar.
10	Art / PowerPoint	Draw and label 20 words per chapter
10	Article	Highlight 10 vocabulary words in a recent news article
20	Board Games	Create a board game targeting 50 terms, include rules and pieces
Grammar Options		
5	Preview Handout	Fill in gaps in grammar handout with information from book
5	Practice Quiz	Take the chapter review quiz from the book website
10	Verb Cards	Modify existing verb conjugation card to include new tense
20	Workbook	Complete the workbook for the chapter
Creative Project Options		
5	Chapter Survey	To collect data for this study
15	Drama Script	Write a short drama incorporating 40 chapter terms vocabulary

Table 3.10: Homework Menu Details, cont.

15	Comic Strip	Use specific prompt from book to illustrate and annotate
20	Display	Create a digital or physical display of topic with pictures and sentences
Cultural Projects		
15	Textbook Readings	Read specific passages from book and complete activities
15	Oral Presentation	Complete task in book
15	Written Essay	Complete task in book
30	Research Essay	Research chapter topic, create essay

Perceptions of Flipped Classroom

As there is often a disparity between teacher and student perceptions of an event, (Mucherah, 2003), students were asked to voluntarily complete an open-ended survey relating to their experience with the flipped classroom. Students were invited to provide feedback on a regular basis through an online questionnaire provided through Google forms. Items elicited their perceptions about the video presentations, the amount of time they spent studying and completing assignments, and their general reflections on the flipped classroom. Students earned 5 points for each survey completed, but only one survey could be completed each week.

The feedback questionnaire focused on three areas, student involvement in the classroom, student involvement outside of the classroom, and their evaluation of the flipped classroom (Table 3.11 and Appendix C). Students were asked how many times they did an activity, to estimate the amount of time they were involved in the activity, and their

opinion about the best or worst part of the weekly activities. (Answers were rounded to the closest number, so if a student answered 1-2 hours, the answer of 90 minutes was recorded for analysis.).

Table 3.11: Feedback Survey Details.

Questions	**Class Average**
1. How many times did you view the video?	2.8 views
2. How many links did you follow for more information?	.4 links
3. How many Google searches did you complete to better understand the material?	2 searches
4. How many times did you ask a person (teacher, classmate, relative…) for help in understanding?	2.7 times
5. In your estimation, how many total minutes did you spend studying Spanish outside of the classroom in the last 7 days?	106.9 minutes
6. Of all the materials you viewed this week, which was the most helpful and why? Which were the least helpful and why? (i.e. videos, websites, textbooks, other people, ...)	Most helpful (45 responses) 64.4% Video 13%% Other People 11.1% Class Lesson 8.8% Textbook 2.2% Homework menu
	Least helpful (6 responses) 66.6% Websites 33.3% Textbook
7. How many minutes of the 230 weekly minutes did you spend working on the Homework Menu?	95.8 minutes
8. How many class time minutes (230 max) did you spend engaged in an activity related to the unit topics?	143.2 minutes
9. How many class time minutes did you spend asking questions or gathering more information about the topics?	30.9 minutes
10. Regarding classroom time... How many class time minutes did you spend using the target language?	28.6 minutes
11. How many class time minutes did you spend off task (talking to a friend, doing math homework, staring into space…)? What kind of things did you do?	22 minutes

Table 3.11: Feedback Survey Details, cont.

12. Do you think that the videos prepared you for the classroom activities this week? Explain.	80% Yes 12.5% Some 7.5% No
13. Did you feel more or less motivated to learn the material after performing in class? What did you do about it?	55% More 32.5% Same 12.5% Less

In general, the group appeared to have a positive reaction to the flipped classroom. They viewed each video (average video length:10 minutes) several times outside of class, using the remaining time for Homework Menu or preparing for class. Their responses indicate that the class had a range of helpful and unhelpful resources as well as a range of time invested. These responses will be discussed in greater detail in the analysis chapter.

PROCEDURES

Several types of procedures are discussed in this section: classroom procedures within the flipped classroom, procedures for student and parental consent, and procedures for the implementation of the flipped classroom. The section concludes with a summary of the data analysis procedures.

Classroom Procedures

On the first day of each unit, students received the Homework Menu for the chapter, including a calendar of due dates and topic quizzes. Both Chapters 4 and 5 calendars as well as additional handouts are provided Appendix D. Students were told to come to class prepared for whatever was scheduled for that particular day. The video presentations were posted in Edmodo two days prior to their calendar date providing ample time for students

to watch the video on their phones, on the classroom computer or in the school computer lab before or after school.

As noted earlier, the classes only met three days a week. A typical week consisted of the video quiz on Wednesdays and Fridays and the vocabulary quiz on Mondays. I started each class with a five-minute question and answer session to see if there were specific questions on content the students had viewed out of class. The purpose was to address questions or confusions not to explicitly teach the content. Next, the students took a short quiz.

After grading the papers, students chose between two activities to further their understanding of the target grammar or an explicit instruction of the target grammar. The students who did not pass the quiz needed to hear the lesson again, and those that passed were free to choose either location. As a general rule, those who passed tended to select the interactive activity, while those who failed tended to select review lesson, but some students simply followed their friends, regardless of their score. The review group discussed the slides from the presentation, asked questions of the teacher and then took another quiz for self-assessment. The practice group worked on an activity that required the target concept, including paired conversations, individual writing, group dialogues, or peer editing.

When the class came back together, they discussed the product or process in reference to the target concept, then went on to do another short practice activity with the class. At least thirty minutes were reserved for the Homework Menu, in which students were able to choose how they would review the chapter concepts according to a criterion. Students moved desks and grouped according to activity or peer group. During this time, the students could ask for help on specific issues, work in groups, or use the class computers. Students were not permitted to work on other classes. After this point, class

time consisted of three short activities (five to ten minutes) and one or two longer activities. These activities ranged from peer conversations, writing and editing, video and oral transcription and response, to cultural readings. The class ended with a few minutes of student evaluation including its usefulness and difficulty and a reminder to watch the upcoming video. Specific topics in the student calendar are outlined in Table 3.12 below.

Table 3.12: Student Calendar.

2014	Monday	Tuesday / Wednesday	Thursday / Friday
Jan 6 - 10	No school	Review final Semester 1 MSLQ & Pre-test Ch4	Technology Survey Vocabulary Chapter 4
Jan 13 - 17	HM4 25 points due 4A Vocabulary focus	4A Grammar – Imperfect tense – Regular verbs	4A Grammar – Imperfect Tense – irregular verbs
Jan 20 - 24	Martin Luther King Day No school	HM4 50 points due 4A Grammar – Indirect object pronouns	4B Grammar – preterite & imperfect
Jan 27 - 31	HM4 75 points due 4B Vocabulary focus	4B grammar – Reciprocal actions	4B Grammar – preterite & imperfect
Feb 3 - 7	HM4 100 points due Chapter review	Ch 4 Post-Test	Ch 5 Pre-test Vocabulary Chapter 5
Feb 10 - 14	HM5 25 points due 5A Vocabulary focus	Vocabulary & Culture day	5A Grammar – p248 Preterite & Imperfect
Feb 17 - 21	Presidents Day No school	HM5 50 points due 5A Grammar - p250 Irregular preterit	5B Grammar – p274 Irregular preterite
Feb 24 - 28	HM5 75 points due 5B Vocabulary focus	5B Grammar – p277 Imperfect progressive	Ch 5 Grammar Review
March 3 - 7	HM5 100 points due Chapter review	Ch 5 Post-Test	

Procedures for student and parental consent

Before the study started, and upon its conclusion, both parents and students were informed of their options regarding data inclusion. At the start of the school year, an open house was hosted with the investigator (me), the school director and interested parents. Parents were informed of the study, its goals and their options to opt out of data inclusion. Before the winter break, an email was sent out to parents restating all of the previous information and reminding them of the options for opting out. The two-month study began after the winter break and ended the first week of March, at which point a second email reminded parents of their options to opt out of having their student's data included.

As I was both the researcher as well as the students' teacher, some students may have felt that they had no other option but to allow their data to be included. In order to address this issue, I informed the students about the project at the beginning of the semester with an IRB approved form and procedure and continued on as normal, but no attention was drawn to the study in class in order to minimize inauthenticity in student behavior. As the students had been gradually using more of the flipped method over the previous semester, all students participated in the course work as normal. As noted previously, the students had the option to have their data included or not as well as whether or not to participate in the surveys as these were additional to course curriculum. Simply informing, the school principal or director in written form would be enough to remove their data. They were told that I would not be informed of such decisions until after the conclusion of the course in order to protect student-teacher relationships. Thus, all data included in the study has permission of both the parents and students.

The implementation of the flipped classroom and data collection

Two units of two chapters (Chapters 4A, 4B, 5A and 5B) were targeted for the flipped classroom implementation. Each chapter included two to three grammar points (for

a total of 10 grammar points) and their respective videos. For each unit, students completed a pre-/post-test, a series of tasks from the homework menu, and grammar / vocabulary quizzes. The sequence of topics to be discussed in class as well as testing dates and other school relevant dates were distributed to the class in a calendar format on the first day of each unit. See Appendix D for examples of these class handouts.

On the first day for chapter 4, students completed both the MSLQ and the Pre-test for Chapter 4 in addition to normal class activities. Students were presented with the homework menu for Chapter 4 and reminded of the due dates as well as the dates topics would be covered in class. The technology survey was administered on the second day of class with some instruction and interaction with the chapter content. Students were again reminded of the need to watch the videos posted on Edmodo and to come to class prepared according to the schedule. After the first week, the class started with a short five-minute review as students raised questions followed by a 10-minute quiz on the topic covered in the video or material for that day. The quizzes were scanned into a pdf file and returned to the students for them to study. The scores and items were entered into a spreadsheet for analysis.

After grading the quiz in class, students either moved into groups to work on tasks listed on the homework menu or a class activity while another group reviewed the target lesson with the teacher an additional time. Once the class had reviewed the target concept, whole class activities ensued ranging from peer conversations, kinesthetic activities, video and listening tasks, and other practice as deemed necessary. The final 15 to 20 minutes of class time were used for open practice and individualized instruction. During this final segment, students completed optional surveys, homework menu items, and collaborated on projects and activities. I also used this period to sign off on completed items and give feedback, corrections, and coaching as needed.

At the start of each week, the students turned in assignments to document the required amount of points for his or her homework grade. As much of the grading was already done, students often received these assignments back the same day as they continued to work on new assignments. To capture selection choice over time by individual learners, students' menu selections were recorded along with their scores on that section into a spreadsheet. On post-test dates, class started with a short review to answer any student questions, followed by the post-test. (Students were alternately provided with either the grammar multiple choice, short answer or the vocabulary section to limit possible cheating as well as limit cross referencing from the test-rewrite.) After completing each section, students turned it in and took another section. Upon completion of the post-test, materials for the next unit were distributed and explained. The multiple-choice scores were entered into a spreadsheet for analysis and the open-ended questions were coded for errors and similarly entered.

Data Analysis

Consistent with an action research design, a preliminary analysis was performed to identify the background and technology experience of the learners. The purpose of this analysis was to determine if adjustment would be needed in class regarding the content delivery or practice activities, before students would be able to successfully engage in a flipped classroom.

CONTENT VIDEOS

The teaching component of the study utilized videos posted on the learning management system, Edmodo. Each video targeted a single grammatical point from the chapters, utilizing target vocabulary. Video development, the content of the individual

videos, assessment related to the videos and descriptive statistics for videos are reported below.

Video development

Multiple software programs were utilized in recording and posting the videos. A background *PowerPoint* presentation presented each target grammar point. In addition, a streaming video of the teacher via *CamDesk* allowed the students to see the teacher's expressions, hand gestures and to hear his oral presentation of the lesson while watching the *PowerPoint*. The resulting presentation was captured through *Google Hangouts*, and posted and edited on *YouTube*. The links to the videos were made private, so that only a student with the link could have access to the videos. These links were then posted on *Edmodo.com*, a common learning management system used by schools. Students had access to the videos a week before they were required to know the knowledge in class.

Microsoft PowerPoint system was selected for content instruction due to ease of use and accessibility. The program was already installed on the teacher's personal computer as well as the school computer, and most students were already familiar with this form of transmitting instruction. *PowerPoint* presentations allow the use of text, links, pictures, embedded videos and animation. Students had access to these presentations in addition to the video recordings.

The software program, *CamDesk* created a live video feed to accompany the presentations. The program worked independently of *PowerPoint* and was configured to always layer its video stream to the material presented in the top window. It could be resized to cover only a small corner of the screen to allow the full-sized *PowerPoint* presentation to be viewed behind it. The program allowed navigation on the windows

behind, permitting the teacher to click through the presentation, and use the cursor to highlight grammar.

Google Hangouts is a streaming video conferencing service hosted by *Google Plus*. The program allows multiple users to screen share, message, and conference, and automatically uploads the recorded video to *YouTube*. Meant to be a live streaming of an event, repurposing of the program to record a screen capture presentation for this study first presented me with three problems that had to be overcome. First of all, there isn't a way to pause recording, as the *Google Hangouts* program can only start and stop. Consequently, any errors in the recording had to be edited out or rerecorded. Secondly, popup announcements on the teacher desktop had to be muted beforehand so that they would not be captured. Finally, when *Hangouts* is used in conjunction with *CamDesk,* the video feed can only go to one of the programs, defaulting to whichever was running first. The quick solution was for *CamDesk* to be already running and streaming the video before *Google Hangouts* was initialized.

As *Google Hangouts* and *YouTube* are integrated, the videos recorded in *Google Hangouts* are automatically imported into a user's account in *YouTube*. In the case of the current study, the default settings were set to 'hidden link' so that the videos could only be accessed through a specific link and therefore would not be discoverable to the public. The video editing software on *YouTube* was used to stabilize image and sound, trim the beginning and ending of the videos, add text, and to embed hyperlinks to video resources. As the videos were classified as 'educational,' *YouTube* only permitted links to videos labeled 'educational'. Consequently, students could connect to other *YouTube* resources to help clarify or practice a particular point, instead of a website or non-educational video.

The learning management system, *Edmodo* allows for the embedding of videos, *PowerPoint* presentations, and multimedia, and generally offers the expected functions of

a Learning Management System. It allows integration with *Google Drive* and has versions for desktops and portable devices. In this study, it was used to track student use of the course materials and to host and grade quizzes.

Videos created for this study

Ten grammar-focused videos were created for this study. The videos began with a brief introduction by the teacher, followed by a PowerPoint presentation targeting the key grammar concepts of the chapters, including a streaming video of the teacher. The videos averaged 9:38, with the longest video of almost 13 minutes. An overview of the videos produced for this study are listed in Table 3.13 below (http://goo.gl/F4ZrEc includes the materials created for this study).

Table 3.13: Video Lessons.

Chapter	Title	Time	Slides
4A	Imperfect, regular verbs	11:11	25
4A	Imperfect, irregular verbs	7:35	15
4A	Indirect Object pronouns	10:16	20
4B	Preterite & Imperfect- Descriptions	9:59	12
4B	Reciprocal Actions	6:42	8
4B	Preterite & Imperfect	12:57	12
5A	The Imperfect: Other Uses	8:42	11
5A	Irregular Preterite: i → y verbs	10:08	9
5B	Irregular Preterite: Venir, poner, decir, traer	9:02	16
5B	Imperfect Progressive and Preterite	9:57	17

Video *4A Imperfect Tense: Regular verbs* is the first grammatical video of Chapter 4, focusing on conjugation. It presents the imperfect form for the first time. The video begins by showing students multiple examples of the imperfect form, its meaning and how to use it. As students are shown the meaning of the form, key phrases in context are highlighted. Textual enhancement was used to highlight the conjugation endings, key phrases associated with the form, and subject markers. At several points, students are told to pause the video and conjugate several verbs; they are then shown the correct answers. Several interactive-like questions are asked of the students throughout the video. The video concludes with a quiz over the imperfect. After the quiz is presented, the learner is told to pause the video and take the quiz. After a few seconds, I resume the video, giving not only the answers to the questions, but also highlighting contextual clues. At several points throughout the video, hyperlinks with further information appear on the side of the screen.

These links prompt the viewer to see a similar lesson from another teacher, work ahead on irregulars and review other content.

Each of the study videos follow a similar presentation style: a short introduction, contextualized examples using the target element, an explanation of grammar accompanied by interactive questions, a short grammar quiz, and an explanation of the quiz referring back to the video's grammatical explanation. In this final segment of each video, I discuss the answers to the quiz questions and explains why how a particular answer was derived according to the context. I try to intersperse humor throughout the videos, making references to classroom situations and attempting to relate to the current student population. The hyperlinks in the videos are intended to connect students to a video to help with the current grammar or to work ahead. For example, in the video to contrast preterite and imperfect, the viewer is invited to review the conjugation forms of these tenses.

It is important to point out that the chapter 4B may have been the most complex chapter regarding grammar. Up to this point, the imperfect was only presented as another way to look at the past. In this chapter, students now needed to decide between the two modes in addition to knowing how to conjugate. This was a new concept and took some time to comprehend. This difficulty prompted much discussion as described in the analysis chapter. Chapters 5A and 5B continued the contrast, while also introducing new irregular forms.

ASSESSMENT & ACCOUNTABILITY

Accountability for the students was integrated into the design through the use of regular assessment as well as regular checks on the Homework Menu. Assessment devices included a daily quiz and a pre-test and post-test for each unit. All of the items were listed

on a calendar for the students for each unit. This section discusses assessment and accountability tools.

The calendar (Figure 3.13) presented timelines for each unit, including daily topics, due dates for the Homework Menu, major assignment dates, and school events relevant to the course. The daily topic was also the topic of the corresponding quiz. The students were held accountable to completing the task of watching the video outside of the classroom by the foreknowledge that they would be assessed on that material the following day.

Regular quizzes were scheduled throughout the course, even previous to the current study. After a brief 2- 5-minute question and answer period, the quiz was the first agenda item of each day. The scheduling of the quiz toward the beginning of class was to reinforce the idea that the content needed to be learned prior to class practice. In addition to accountability, the quizzes were designed to assess the students' current understanding of the video content. These quizzes either targeted the grammar video from the previous night or were a review of the vocabulary targeted in the class the previous day. Most of the questions from the grammar quizzes were adaptations or direct quotes from the videos. Including such declarative knowledge served two purposes: to heighten the need to watch the video and to assess retention of declarative knowledge. The remainder of the questions were intended to challenge the learner to apply their knowledge to the new grammar, situations or contexts that were not directly addressed in the video. These questions served to assess applied knowledge and to ascertain whether they only parroted the examples or had a deeper understanding of the target concepts.

An effort was made to better understand the amount of increase by establishing a level of base knowledge for each student. To this end, a Pre-test and Post-test targeted concepts, grammar and vocabulary for both of the units covered in this study. By comparing the students' post-test with their individual base-line, the teacher could measure

the amount of increase in score for a particular concept, if the learner was guessing on the pre-test, as well as if the learner continued to maintain that knowledge.

Both the pre-test and post-test questions were generated from the *Realidades* 2 textbook. Utilizing the textbook and tests appropriate for the level, a multiple-choice test was created of the vocabulary, of the target grammar, as well as an open-ended test of the target conjugation forms. These sections were adapted from the testing software accompanying the textbook. Each of these sections in the pre-test were administered separately, in order to minimize copying concepts across sections, such as from a grammar question onto the open-ended portion. In practice, not everyone took the same portion at the same time, so that some were taking a grammar portion while others randomly took a vocabulary portion, to further minimize possible copying from classmates.

In order to minimize a potential skewing of the results of the follow up post-test, two different multiple-choice pre-tests were developed. Each pre-test targeted 10 vocabulary items and 10 grammar items from the unit, (five from each of the two sub chapters). The two tests corresponded similarly so that vocabulary question 1 on each of the pre-tests targeted a new infinitive, or each grammar test 1 targeted *yo* conjugation of the imperfect, etc., yet each with different prompts and vocabulary. Presented in the classroom, a student completed form A vocabulary, while another took form B grammar, etc. until each student had completed the three sections of their form.

The post-test was an amalgam of the two pre-tests for a total of 40 questions, presented in separate sections. There was a period of 4 weeks between the pre-testing and post-testing, so that even if a student remembered the prompt of pre-test A on the post-test, they would still have to complete the B portion, which tested similar concepts with different terms.

SUMMARY

The purpose of this study was to understand what happens when high school students learn Spanish within a flipped classroom environment. First of all, the study sought to ascertain the modifications necessary to flip this specific learning context. The second purpose was to describe the qualities and strategies of effective learners within a flipped high school Spanish classroom. A third goal was to understand individual student choices as well as classroom interactions in a flipped Spanish class. Lastly, the study sought to examine learning outcomes. The examination of learning outcomes revealed four groups of students who differed in terms of their learning styles and interaction. This finding will be discussed in detail in the next chapter.

Chapter 4: Analysis

The analyses in this chapter focus on the implementation of the flipped classroom, including peer interactions, learning assessments, student practice choices, and their reactions to the learning activities. Sub-groups of students and learning outcomes are also examined.

Analyses of Student Interaction

The classroom interaction analysis sought to determine whether individual students participated in the flipped learning environment differently. Of particular interest were the motivations and strategies of both effective and ineffective learners, as well as if and how individual student choices for practice related to Spanish learning outcomes. It was also unknown whether student access to and familiarity with technology would be related to their performance on tests and quizzes, prior experience, individual choices, or individual strategies for learning as measured by the MSLQ. Students were divided into groups based on two scores: their performance on the video quizzes and their involvement in the course based on self-reported data. Thus, there were four groups based on high and low performance and high and low-involvement.

As stated in the methodology section, students were assessed with a short quiz at the start of each class session. The purpose of the quizzes was twofold: to determine whether the students had learned the designated material outside of class and to provide intervention for those who needed it. These quizzes were focused on the grammatical content of the out-of-class video. Although sometimes there was a short review of the grammar of no more than five minutes before the quiz, the review would only answer specific questions posed by students about the video rather than explaining or (re)teaching the target grammar.

The mean score for all composite quizzes was 83% (*SD* = 0.2), with scores ranging from 45% to 98%. The quizzes had high reliability (Cronbach α =.99 based on 9 items). Taking the mean score as a middle point, the participants could be divided easily into two groups, a low-performance group and a high-performance group. The average score for the lower-performing group was 67% (*SD* = 0.2) and 90% (*SD* = 0.1) for those in the upper group. A low standard deviation, high reliability, and two clustered mean scores, appear to justify dividing the participants into these groups.

Every two weeks, students were asked to answer open-ended questions about their reactions to the weekly videos. In addition to understanding their perceptions of the flipped classroom, a major focus of these questions was to understand how involved the students were with the out of class resources as well as the in-class activities. An example of this questionnaire appears in Appendix C.

Students were asked how many times they viewed the weekly videos with responses ranging from 0 to 30 times. Importantly, some students preferred to view the videos a small number of times while others viewed them multiple times. Using these frequencies as an indicator of involvement, the participants could be divided into two clear groups. Half of the students averaged viewing the video fewer than two times (mean = 1.2) while the other half viewed the video considerably more times (mean = 4.5).

Performance and involvement clusters

Dividing students based on involvement and performance yielded four groups: high-performance-high-involvement (HPHI), low-performance-high-involvement (LPHI), high-performance-low-involvement (HPLI), and low-performance-low-involvement (LPLI). Findings regarding the four groups are detailed in Table 4.1 below.

Table 4.1: Performance and involvement

	High-involvement total N = 12 Quiz mean = 82.9% Video frequency = 4.6	Low-involvement total N = 9 Quiz mean = 82.1% Video frequency = 1.2
High-performance total N =14 Quiz mean = 90.4% Video frequency =3.0	High-performance, High-involvement N = 8 Quiz mean = 90.9% Video frequency = 4.9	High-performance, Low-involvement N = 6 Quiz mean = 89.6% Video frequency 1.1
Low-performance total N = 7 Quiz mean = 66.8% Video frequency = 2.9	Low-performance, High-involvement N = 4 Quiz mean = 66.7% Video frequency = 4.0	Low-performance, Low-involvement N = 3 Quiz mean = 67.1% Video frequency 1.4

The division of students into these four groups allowed an analysis of how students interacted with the flipped classroom experience offered by the study.

The Homework Menu

As described in the methods chapter, students were allowed to choose between several options to practice the target concepts. The points that the student earned for each of these chapters are listed in Table 4.2. The table lists the scores for the total student population as well as for the four subgroups defined above.

Table 4.2: Homework Menu Summary

Items	All	HPHI	HPLI	LPHI	LPLI
Ch4 Homework Menu	N=21	N=8	N=6	N=4	N=3
Mean score	87.3	97.4	97.7	87.6	66.3
● Vocab	36.9%	34.4%	32.6%	49.4%	36.3%
● Grammar	26.1%	31.4%	19.4%	27.0%	20.1%
● Survey	12.7%	13.0%	14.5%	10.7%	12.7%
● Challenge	1%	19.9%	16.4%	11.6%	20.5%
● Culture	13.1%	9.7%	13.3%	12.3%	16.3%
● Homework Passes	7	7	13	3	4
Ch5 Homework Menu					
Mean score	85.6	96.8	101.8	74.2	69.5
● Vocab	49.8%	41.6%	43.6%	54.6%	59.6%
● Grammar	24.0%	29.8%	27.5%	23.2%	15.3%
● Survey	8.4%	7.5%	11.5%	6.9%	7.7%
● Challenge	5.2%	4.6%	--	4.6%	11.5%
● Culture	7.8%	6.2%	12.4%	8.4%	4.1%
● Homework Passes	3	3	6	1	
Note: P=performance, I = involvement					

Participants tended to choose vocabulary options for both chapters. These options included making lists, flashcards, and PowerPoint presentations, completing crossword puzzles, composing sentences, competing in online games, and creating a board game. Each chapter had a slightly different menu choice, but the goal was to demonstrate practice and production of the target vocabulary. Simpler tasks such as making a list had a lower point value as compared to creating a poster. The majority of the student points for each chapter came from vocabulary-based activities.

Grammar was the second most popular choice for both chapters and included activities such as sentence creation, verb conjugation, and completion of workbook

activities. Again, points were awarded according to the difficultly of the task. Grammar activities accounted for a quarter of the potential points earned in each chapter.

Students' least frequent choices included feedback surveys about the flipped classroom, challenge tasks, and cultural focus activities. By completing the surveys, students could receive five points each week. Cultural tasks included readings with questions, essays, and research. These tasks tended to be difficult, but they also awarded students more points. Similarly, the challenge tasks were more difficult and also awarded more points. These included writing a short story with target vocabulary, illustrating a self-created comic, or creating a PowerPoint to teach the grammar or cultural point.

The last component of the Homework Menu was the use of passes for points. As stated in the methods chapter, these passes could be used for a variety of purpose, including purchasing a prize, as a bathroom pass or to earn five extra weekly points. As seen in Table 4.2 above, each of the high-performing groups had more passes than the low-performing groups combined. It is interesting to note that some students used a pass for points every week, while others never did.

Students remarked frequently that they enjoyed several aspects of the Homework Menu. They highly valued the freedom of selecting their own homework, the option to choose an activity that related to their skills and interests, and the ability to focus on these tasks in class with teacher and student help. Although some students actually stated, "I'm ok with a 70" and turned in a total of 70 points, others went well beyond the weekly minimum requirement of 25 points, earning extra credit for the course.

Table 4.3: Homework Menu: Progression of points by group

Activity types	4-1	4-2	4-3	4-4	5-1	5-2	5-3	5-4
Whole class	28.9	52.3	74.6	92.4	26.5	51.1	76.1	96.5
HPHI	31.8	57.0	80.1	103.1	30.2	55.8	91.3	114.9
HPLI	30.5	50.8	75.8	97.7	27.5	52.8	77.8	101.8
LPHI	26.9	56.9	75.4	91.7	23.2	50.9	76.7	99.7
LPLI	26.5	44.7	67.2	77.2	25.0	45.0	58.5	69.5

Note: P=performance, I = involvement

Note that the average number of points is very close to the minimum requirement of 25 weekly points. If students submitted the minimum points, they received full credit (100%) for that week; otherwise they received a pro-rated percentage. Note that for the first three weekly measurements for each chapter, all but one of the groups met the minimum requirement of at least 25 points. This may indicate that these participants had the goal of maintaining a high grade.

The Homework Menus also measured and tracked the individual choices each week. The goal was to determine whether the students had different patterns of selections throughout the weeks. The following summary gives the collective percentage of choices over the eight weeks of the study. These percentages reflect how many of the points earned[8] each week came from which categories.

[8] Some of the activities could be considered as representing more than one category, but a decision was made to use the most typical activity category, including it in the calculation of that activity cluster.

Table 4.4: Homework Menu: Progression of points by activity type

Weekly progression	Ch4-1	2	3	4	Ch5-1	2	3	4
Average points	29.7	23.7	22.7	20.1	27.4	25.1	29.8	21.9
Vocabulary	53%	32%	30%	16%	67%	55%	30%	10%
Grammar	24%	36%	23%	17%	19%	19%	34%	31%
Surveys	15%	12%	5%	14%	8%	8%	5%	18%
Culture	0%	2%	7%	34%	2%	8%	10%	21%
Challenging	6%	9%	25%	7%	3%	8%	21%	15%
Passes	2%	9%	10%	13%	2%	2%	1%	5%

What is most interesting about the activity choices over the progression of time is how student work on each chapter starts off with a large focus on the vocabulary, with low or no focus on culture or challenging activities. By the end of each chapter, however, there is a larger focus on the culture and challenge activities, distributing the attention and energy of the student to these more demanding activities. This appears to be most true of the vocabulary and culture activities, with the challenging activities following this pattern to a lesser extent. This shift of student focus seems to correspond to the organization of typical textbook activities that tended to include simple declarative knowledge activities at the start of a chapter with more analytic and evaluative topics later on. It should also be noted that the participation survey scores tended to be constant through the weeks. This may result from the fact that students were only allowed to turn in one survey a week, making surveys a constant source of points for some, while others didn't value the activity. It should also be noted that the grammar topic for each chapter showed more irregular patterns. It is possible that as students noticed "difficult" or "easy" grammar, they decided to invest their time accordingly.

It appears then that individual student choices regarding content, amount of effort, and variety was related to their performance and interaction with the course content as seen by the results from the Homework Menu.

The Perceptions Survey

In general, all students tended to perform and respond positively to the flipped classroom. Students seemed pleased with the experience regardless of their final grade. As described in the methods chapter, the perceptions survey targeted the areas of time investment, opinions about the flipped classroom and personal habits. The first five questions elicited their opinions of their personal investment outside of the classroom, while question 6 asked for their opinion of the course materials, questions 7-11 inquired about their habits within the classroom, and the final evaluative questions asked for feedback about whether they felt prepared or motivated. When segmented into the four groups, their scores showed some interesting characteristics as seen in Table 4.5 below and described later in this chapter.

Table 4.5: Perceptions Survey Summary

Questions		All	HPHI	HPLI	LPHI	LPLI
1. How many times did you view the video?		2.8	4.8	0.97	4	1.3
2. Follow connecting links		0.4	0.5	.01	1	0
3. Internet searches		2	3.5	1.25	1.43	1
4. Ask others for help		2.65	2.88	2.26	3.8	1.8
5. Weekly minutes studying outside classroom		106.9	105	49.38	244.3	102.5
6a. Most helpful materials	Total responses	45	16	17	8	4
	Video	64.4%	69%	82%	25%	50%
	Other People	13%%		6%	62%	
	Class Lesson	11.1%	19%	6%		25%
	textbook	8.8%	13%	6%	13%	
	Homework menu	2.2%				25%
6b. Least helpful materials	Total responses	6		6		
	Websites	67%		67%		
	Textbook	33%		33%		
Amount of time (per 230 class minutes)						
7. on the Homework Menu		43%	37%	43%	49%	38%
8. active in unit topics		62%	59%	64%	58%	66%
9. information gathering		13%	9%	9%	32%	19%
10. using the target language		13%	10%	14%	9%	20%
11. off task		10%	8%	12%	7%	15%
12. Videos prepare you for the classroom activities						
	Yes	80%	77%	94%	43%	100%
	Some	12.5%	8%	6%	43%	
	No	7.5%	15%		14%	
13. Feel more or less motivated to learn						
More		55%	69%	69%		50%
Same		32.5%	31%	31%	29%	50%
Less		12.5%			71%	
Note: P=performance, I = involvement						

GROUP ANALYSIS

This section discusses the traits and interactions of the four groups previously discussed as well as their performance across the various data collection devices.

High-performance-high-involvement — the "competitive" group

Hard workers, productive, organized and playfully competitive defined this group of the students (n = 8). On more than one occasion, this group of learners asked questions after having already produced the Homework Menu, quiz, or relevant assessment. Although they might have been concerned about future tests, none of the other groups asked questions after an assessment (unless about a specific quiz question they might have missed) but asked many questions before. Three members of this group went over and beyond what was required for the Homework Menu, creating elaborate posters, multi-scene dramas, Prezis, and other creative projects, requiring a large investment of time. Largely competitive, this group loved to hold the winning position on the Quizlet chapter competitions, Kahoot games, or with in-class review games, primarily competing with other members of this same group.

An interesting characteristic of the group was how many acknowledged contact with another language. More than half of the group noted that they had a parent who spoke a language other than Spanish or English, and one referenced a Hispanic nanny. Only one other group referenced contact with another language, the group that contained the Hispanic heritage learners. For the HPHI group, it may be that the experience of hearing multiple languages from a young age helped to influence this group in their language development, or that they were simply enthusiastic about language.

Technology survey

Averaging 5.4 devices per student, this group had similar average access to technology as the rest of their classmates. In fact, this group was very similar to the class average in regards to family possession of computer systems, reading devices, cell phones and support devices such as printers. Regarding their skills with the devices, this group is also without distinction. They were either close to the overall average or at least not on the

extreme on any of the data collection measurements. It appears that as a group, they felt comfortable using a variety of devices and for a variety of purposes but did not choose the extreme categories of "Very talented" or "Don't know how to use this." The members of this group reported "being talented" with the same frequency as they admitted to not knowing how to do something. It may be that they were balanced in assessing of their own limitations.

From the perspective of a HPHI group, it may be that this group simply viewed the technology as a tool. As such, they were willing to become more proficient as the need arose, as well as to devote as much time necessary to use the technology in the needed manner. Indeed, this group adopted and adapted available technology to meet their needs on more than one instance, such as creating a Kahoot game to tease the teacher. In any case, it is interesting to note that the mere availability and skill related to technology did not necessarily dictate or predict performance or frequency of as this group was high in both performance and frequency yet ranked themselves as "average" or "moderate" availability and skill on the technology survey.

The Motivation and Strategies for Learning survey

None of the composite scores on the MSLQ were extreme for members of this group. This may be due to a lack of homogeneity among the members; for example, on all but two scales there appears to be at least one person on either extreme. The two scales that had some homogeneity among the members were extrinsic goal orientation (X = 5.6, SD = 0.8) and rehearsal (X = 5.7, SD = 1.0). This was the highest average score for this group (81.12%), with very little variation among the members. Student preference for rehearsal is one of the uniting features of this group. This result is probably not surprising, since this group had reported a high frequency of use for the flipped materials and had performed

well on the assessment measures. The extrinsic goal orientation, though slightly lower than rehearsal (X = 5.6) had a similar low standard deviation (0.8) further indicating similarity within the group.

Regarding orientation to learning, like all the participants in the study, this group had a high extrinsic goal orientation (X = 5.6, SD = 0.8), a high control of learning belief (X = 5.5, SD = 1.7), and a moderate level of task value (X = 5.0, SD = 1.2), self-efficacy (X = 4.9, SD = 1.3) and intrinsic goal orientation (X = 4.3, SD = 1.7). Although these scores don't set the group apart from the other students, they have a positive attitude toward these ideas.

Though not their highest learning strategy, peer learning (X = 4.6, SD = 1.4) appears to be defining for this group. Their higher score on this scale separated them from the other groups' score (X < 3.4) and the entire overall group mean (X = 3.6, SD = 1.5). Given that this particular group had a strong preference for competitive games and viewed learning positively (all their learning strategies had a mean greater than 4.3), it follows that they also viewed their peers as resources. This attitude may set them apart from their peers who had wider variation on the scales.

The two lowest results for this group were for intrinsic goal orientation (X = 4.3, SD = 1.7) and critical thinking (X = 4.3, SD = 1.2). These results correspond well with their performance in the class as well as in class games such as competitions. Their critical thinking scores, however, were not too far from the class average (X = 4.2, SD = 1.2), which might suggest more about the age group and level of the course in general than of the students in this group.

The perceptions survey

These students frequently viewed the videos, asked many questions and continued to work at a concept until it was understood. Their hard work (frequency of 4.86 views per video) obviously paid off, as they had the highest quiz average (90.97%).

On the perceptions survey, it was noteworthy how they answered question 3: "How many Google searches did you complete to better understand the material?" While their answer might appear low (3.5), it was twice the average of their peers (1.47), showing that this group worked hard to seek out answers to any questions that arose. This group also found the videos to be much more helpful (69%), compared to the class average (64%), and far more helpful than the in-class lessons (19%) or the textbook (12%), suggesting that the flipped classroom was a good teaching approach for them.

This group focused most of their time engaged in unit topic activities (59%), while working on the Homework Menu (37%) was secondary. This group reported the lowest amount of time invested in the Homework Menu compared with the class (42%) overall, suggesting that their high investment of time was not in the production of Homework Menu tasks, but rather in comprehending the chapter topics. This appears to contrast with the high-investment, low-performance group which had the highest percentages on the Homework Menu. It may be that while both groups invested considerable time and energy in the course, this group focused on the comprehension of ideas, while their counterpart focused on the production of material. Lastly, this group had low values on information gathering (9%), using the target language (10%), and being off task (8%). The latter of the three reiterates clear priorities of dedication and hard work. However, in this case, they did not want to search for the answer, but work on using it instead. It was also interesting that they had such a low value on using the target language. While they were adept at using the language and had high scores to prove it, it may be that this group was more interested in

learning enough about the language to get a good grade but did not care not enough to continue using it.

This group was predominantly positive about how the videos prepared them for them class activities (77%), although some were mid-score (8%) and a few were negative (15%). They also reported feeling more motivated to learn after each class (69%) or feeling about the same (31%) stating that "after watching the videos I was prepared for the quiz." This motivation might be a sign of increased autonomy for this group in the flipped environment.

The Homework Menu

The HPHI group had extremely high points on the Homework Menu, focusing primarily on the basics of the chapter. They had a high overall percentage for both chapter menus (94.7, 96.8) focusing mainly on vocabulary and grammar. For example, for Chapter 4, vocabulary accounted for 34.4% of the points submitted and grammar for 31.4%. The challenging activities (19.9%) and surveys (13%) were in a distant second place and the culture focus only accounted for 9.7% of the total points earned by this group. For Chapter 5, these students similarly placed a higher emphasis on vocabulary (41.6%) and grammar (29.8%), but this time showed a clearer preference for vocabulary. For this chapter, surveys (7.5%), culture (6.2%), and challenging (4.6) activities were reported as peripheral or secondary to the other Spanish topics. It may be that their experience with chapter 4 taught them that vocabulary was more valuable in completing the chapters.

Breaking down the distribution of the activities by week, we see that students the HPHI group had a preferential pattern similar to the overall class pattern previously mentioned. Vocabulary had a large emphasis at the beginning of each chapter, then dwindled over the four weeks. In contrast, the number of challenging activities attempted

increased over time. It is interesting to note that all of the weekly scores were far above the minimum requirements of 25 weekly points. In the final week of each chapter, students were allowed to earn up to 105 points, where the extra points counted as extra credit. Clearly these students saw the advantage of this potential benefit.

Table 4.6: HPHI Homework menu: Progression of points by activity

	4-1	4-2	4-3	4-4	5-1	5-2	5-3	5-4
Weekly Scores	31.8	57.0	80.1	103.1	30.2	55.8	91.3	114.9
Vocabulary	43%	30%	34%	22%	64%	45%	28%	11%
Grammar	29%	31%	42%	32%	9%	35%	32%	58%
Surveys	12%	12%	3%	16%	17%	3%	2%	11%
Culture	0%	0%	9%	25%	0%	13%	18%	11%
Challenging	16%	20%	6%	0%	11%	0%	19%	0%
Passes	0%	7%	6%	6%	0%	3%	0%	11%

These high performing students appeared to have a pragmatic approach to grammar. The scores in Table 4.6 suggest that the group focused on grammar as needed, reducing efforts in other areas. Chapter 4 focused on the presentation of the imperfect, with limited contrasts with the preterite, while Chapter 5 contrasted preterite and imperfect throughout. The table shows that in Chapter 4, the students kept the focus on grammar consistently high, increasing the focus toward the middle of the chapter, while in Chapter 5 their focus on grammar increased toward the end. Thus, it appears that the group focused on grammar only as needed, in this case possibly to better understand the preterite and imperfect distinction for class assessments. This pattern was more obvious in Chapter 5, in which attention on activities with the exception of grammar activities took a dramatic decline in the fourth week.

Comparing the overall effort and the progression of points, it appears that this group took a pragmatic approach toward learning. In Chapter 4 they focused on the basic features of the chapter and only later attempted the more challenging and cultural activities. Their

work on Chapter 5 also reveals a pragmatic approach to focusing on grammar only and reducing their focus on all other topics in order to do so.

It is interesting that these students worked up to the challenging activities in Chapter 4, but were more sporadic in doing so in Chapter 5. It may also be possible that they were willing to look at more culture and challenging activities after determining the difficulty of the main components of a chapter. In some ways, the grammar in Chapter 5 was an extension and elaboration of the grammar in Chapter 4. Some of the topics (such as the contrast of preterite and imperfect) had already been discussed in class so it may be that this group determined that it was not necessary to focus as much on the grammar at first part of the chapter.

High-performance-low-involvement — the "seeking a challenge" group

Getting a good grade with minimal effort seemed to be the approach of this group of students (n=6). Their quiz average of 89.6% demonstrated that they knew just enough to get a high grade, achieved with a minimal effort of viewing each video a single time, (X = 1.1)

It is interesting to note the background of the learners composing this group. With the exception of one student, the entire group had gone through the two-year route of Spanish 1. The one exception was a heritage learner. Indeed, half of this group was composed of heritage language learners while the other half had very high grades in all of their classes. In fact, this group included more than one candidate for school valedictorian. The prolonged exposure of the heritage learners to Spanish prior to this class may have influenced how easily they mastered material.

Technology Survey

Reporting 5.7 devices per student, this group had close to the average number (5.5) of devices for the entire class. They reported computer systems (2.4 devices), reading devices (.4), cell phones (.8), and supporting devices (2.1) per person. Interestingly, unlike the other groups, everyone in this group owned a printer. This group also had the highest percentage of students claiming to be "talented" on the technology skills portion of the survey. With only six members in their group, they claimed to be talented at 25 technology skills versus only nine that they reported not knowing how to do. This finding may suggest that they are either very optimistic about their skills, very talented, or both.

It appears that limited access to technology did not limit these students' skill in using the devices that they did have available. With a collection of resources comparable to the other participants, they appear to have devoted the necessary time to master a wide variety of technology skills, many of which were relevant to the course. Indeed, this group reported the highest percentage of skills in MS Word (67%), PowerPoint (67%), the internet (83%), Quizlet (50%), and making videos (50%); they also reported limited knowledge of Publisher (50%), setting them apart from their peers. Although it is possible that their actual skill levels and their perceived skill differed, their breadth of technology knowledge and skills appears to surpass those of their classmates with the same amount of computer resources. It appears, then, that for these students it is not the amount of resources available, but rather what they did with them that made a difference in their success with the flipped classroom.

The Motivation and Strategies for Learning Questionnaire

This HPLI group had several interesting results on the MSLQ. On the whole, these students had the highest mean for organization (2.2). The group also more homogeneity on the MSLQ than the other groups. Their mean scores on six of the scales were within one

single standard deviation, suggesting that the members of the group had several similar strategies.

Regarding their motivation for learning, this group had a high mean on all six scales. They had the highest means for both extrinsic (X = 6.0, SD = 0.9) and intrinsic motivation (X =5.3, SD = 0.7). This motivation may have allowed them to compete with the HPHI group for the reward of the homework pass as well as to know that they beat the high performing group in classroom competitions. Their mean on the motivational scale of task value (X = 5.1, SD = 1.1) though moderate was the highest of all groups of participants, suggesting that this group thought more about the pragmatic nature of a task than their peers. Ironically, their mean for control of the learner beliefs scale was also the highest and had the lowest standard deviation (X = 6.2, SD = 0.7). The only other group with a higher mean on this measure was the LPLI group (X = 6.3, SD = 0.9). Apparently, strategies for effectively learning according to these learners did not require involvement. This group was very optimistic regarding their self-efficacy (X = 5.9, SD = 1.3), rating themselves almost a full point above any other group. They also had the lowest rate of test anxiety (X = 3.6, SD = 1.6) by almost two deviations. It may be that their low test anxiety combined with a high task-value and high control-of-learning-beliefs resulted in a low frequency of video views as they decided that frequency was not the key to learning in the flipped classroom context.

The remaining learning strategies scores for this group were neither extreme nor very different from those of the other participants, ranging from 3 to 5. Time/Study Environmental Management (X = 5.0, SD = 0.7) and Effort Regulation (X = 5.2, SD = 0.8) both had moderately high means. Perhaps more interesting was the group's low standard deviation on these measures, indicating that these scales were reasonably representative of the group. On the other hand, the organization scale (X = 3.7, SD = 2.2) was one of the

group's lowest scores and also had the highest variance, indicating that organization was not definitive of the group as a whole, nor a shared feature among its members.

The perceptions survey

Regarding the group's view of work outside the classroom, this group reported the lowest number of weekly minutes (49.38) studying Spanish outside of class. This number was half of the whole group (106.88) and a quarter of the LPHI group (244.29). These students did not invest a lot of time working on the course outside of class. They did however give the highest praise to the videos, with a vast majority (82%) stating that the videos were the most helpful for learning the course material, over the student presentations, the text, and other people (6% each). This was also the only group to critique the materials, giving opinions of a "poor" textbook (33%) and its accompanying website (67%). Their opinions of the regular course materials may give insight into how this group processes and evaluates information sources, and consequently why they invest very little time on what they see as poor resources and focus instead on better ones. In some ways, this might be the ideal group for a flipped classroom as they performed well, were able to reduce their time involved in homework, and efficiently evaluated resources. Ultimately, they viewed the flipped classroom experience positively.

Similar to their peers, this group reported a majority of their out-of-class-time was "engaged in an activity related to the unit topics" (66%) followed by working on the Homework Menu (43%). They also said that they had invested a similar amount of time using the target language (14%) and being off task (11%). They spent the least amount of time in information gathering (9%), which seems consistent with their lack of investment in the course.

This group was very positive about the video experience, with 94% stating that they felt prepared after watching the videos and only 6% felt that they were "somewhat" prepared. They stated that the videos helped with structure and expectations, responding "yes the video helps me understand what we are going to do and what the day will be like and when the class is actually taught I am not completely lost." Likewise, when asked if they felt more or less motivated to learn the material outside of class, this 69% of the group reported that they were more motivated to learn outside of class, stating "more motivated because the concepts are getting harder and require more time to learn."

The Homework Menu

This HPLI group was similarly interested in maintaining their weekly scores above the minimum 25 weekly points, but to a slightly lesser extent than the other performance group. It appears that this group's low-involvement is also manifested in their production on the Homework Menu, as they just barely pass the minimum participation level. The percentages in Table 4.7 below show that the weekly distribution of points is similar to the other high-performance group (Table 4.6) as well as to that of the whole class (Table 4.4).

Table 4.7: HPLI Homework menu: progression of points by activity

	Ch4-1	2	3	4	Ch5-1	2	3	4
Weekly scores	30.5	50.8	75.8	97.7	27.5	52.8	77.8	101.8
Vocabulary	57%	12%	27%	23%	73%	49%	23%	17%
Grammar	14%	47%	17%	5%	6%	11%	43%	51%
Surveys	16%	16%	7%	19%	15%	7%	7%	17%
Culture	0%	8%	20%	8%	6%	20%	23%	3%
Challenging	10%	0%	20%	27%	0%	7%	0%	0%
Passes	3%	16%	10%	19%	0%	7%	3%	10%

It should be noted that these students began both chapters with a very high emphasis on vocabulary, which left them little time for other activities. When comparing the

vocabulary and grammar percentages for both chapters it appears that the Chapter 4 grammar grabbed their attention in week 4-2. However, their attention to grammar reduces afterwards, allowing them to engage in the more "challenging" activities. This behavior contrasts with their later and more extended focus on grammar in Chapter 5, which similarly starts high and remains at that level. This may show that the students were aware of their faulty comprehension of Chapter 4. The grammar of Chapter 4 was much more form-focused, emphasizing conjugation and word order. While this does warrant attention, this type of activity involving declarative knowledge is on the lower end of Bloom's taxonomy. Chapter 5, on the other hand, deals with the subtleties of the difference between the preterite and imperfect as well as several irregular verb forms, requiring much more effort and thought. Considering that this group is made up of both heritage and academically proficient learners, the concepts of Chapter 4 would probably have been easier to learn than those in Chapter 5.

In sum, attention to culture and challenging activities appears to remain relatively constant through each chapter in this group. However, it appears that the group considers these activities as secondary to understanding the basics and focus their attention on vocabulary and grammar instead.

Low-performance-high-involvement — the "slightly frustrated" group

Repeated viewing of the materials and high involvement in the course yet with a low course average were defining features of this group of students (n = 4). In addition to a school-provided IEP for multiple learning issues, three of the four members of the group also reported employing a tutor to help with the content. This indicates that a considerable amount of time was invested outside of the classroom beyond the course materials. A possible explanation for the need of additional guidance is that these same three members

went through the one-year version of Spanish 1, showing that there was less total time devoted to exposure to the language as compared with other groups. The presence of IEPs and tutors however may also suggest that this particular group of students would have had problems no matter what format was used.

Technology survey

With 4.3 devices per student compared with the participant average of 5.5, this group had the lowest access to technology. Even though not many electronic readers were owned by all of the participants, this group had none and also had the lowest number of supporting devices. While they did have access to at least two computer devices, it appears that there was little else regarding access to technology.

This lack of access may also be related to their perception of having low skills, as only 8 students in this group claimed to be talented and 14 participants reported not knowing how to use a particular program. Whether from a pessimistic perspective or a true lack of talent, the group reported their answers on the lower end of the scale. The highest percentage skill of the group (50%) reported being talented using Quizlet, PowerPoint, and the internet.

It is interesting that the group reported being "skilled" in the three areas most relevant to the course. As they were classified as low-performance with high-involvement, it may be that their skill in these areas reflects their pragmatic and practical nature. From this same perspective, they claim to not be proficient in MS Publisher (100%) and using blogs (100%), two programs only distantly related to the course. Determining how to invest their time and skill may have influenced their use of technology as well.

The Motivation and Strategies for Learning survey

Although most of their scores were not extreme, the low-performance-high-involvement group was highly homogeneous on several scales and had few extreme scores. Five of the means had a standard deviation of less than 1, indicating that the LPHI group had similar values on several points.

Their highest motivation was extrinsic goal orientation ($X = 5.9$, $SD = 0.8$), meaning that, like the rest of the participants, they likely engaged in the classroom tasks for reasons such as competition, prizes, and performance. Also, like most of the other students, they had low variance on this scale, showing a shared motivation with the group and their peers.

While not quite an extreme value, this group had the highest test anxiety of the students ($X = 5.7$, $SD = 1.5$), almost a point above the other groups' means. As this was this group's second-highest score for motivation, it may be that anxiety was a major factor in their high involvement with the course content.

The highest learning strategy and overall score for this group was that of rehearsal ($X = 6.1$, $SD = 0.9$). This score is not only high, it also has a low standard deviation. The high mean suggests the importance of this scale to the group, and the low standard deviation indicates that the group feels similarly about the importance of rehearsal. Making lists and routinely memorizing key concepts appears to be an important value to these learners. Taken together with their motivation of task value ($X = 5.0$, $SD = 0.9$), it may be that this strategy of rehearsal is considered perhaps too highly, as seen in their performance on the homework menu, which is discussed below.

It is interesting to note the high emphasis on help seeking ($X = 5.9$, $SD = 1.2$) in this group. Combined with the low emphasis on peer learning ($X = 2.8$, $SD = 1.3$), it appears that although these students felt that they needed and wanted help to better understand a concept, they tend not to look to their peers for that help. This behavior is

consistent with their reported behavior outside the classroom, since this is also the group that reported using tutors in the perceptions survey. This is also consistent with their background of multiple IEPs, which indicated that they needed some form of intervention beyond normal instruction. It appears that this group had unmet learning needs and looked outside of the classroom to fill them.

Considering that this group is also defined by low performance, it may be that one or more of their strategies may be off focus from the rest of their peers. The three highest learning strategy scales include rehearsal (X = 6.1, SD = 0.9), effort regulation (X = 5.9, SD = 1.4), and help seeking (X = 5.9, SD = 1.2), and the lowest is peer learning (X = 2.8, SD = 1.3). In a similar line of logic, one might regard departure from the student mean to indicate faulty focus or misappropriation of strategies. The group only had three learning strategies more than a point away from the class mean: Rehearsal (X = 6.1, SD = 0.9, class mean 5.1), Elaboration (X = 5.5, SD = 1.3, class mean 4.5), and peer learning (X = 2.8, SD = 1.3, class mean 5.0). As peer learning may not have worked for this group in any case, it follows that they also recognized that fact and were looking to other strategies.

The perceptions survey

The perceptions survey offered the most insight concerning this group's habits and reactions to the course. Even though this group invested a large amount of time (an average frequency of four video views), their average grade was low (66.7%). The sheer amount of time they invested in the course (244.29 weekly minutes) was double the overall student average (106.8). Likewise, they tended to ask more people for help (3.8), which was double that of their LPLI counterparts (1.8). Their frustration was evident in their assessment of the materials used in the course. Only 25% of the responses were positive about the videos, and none of them endorsed the in-class presentations. The textbook earned only 13%

approval. The most helpful resource, in their opinion, was other people (63%), but in their case "other people" must have referred to their tutor.

Like their classmates, this group felt that they engaged in an activity related to the unit (58%) and working on the Homework Menu (49%) was reported in second place. As their performance was low, working on the Homework Menu was a way to boost their overall grade, which may have been a priority for them. This preference is also noted by comparing their percentage with that of their peers (42% average), making them the highest-ranking group focused on the homework menu. It is interesting that they put such a high value on information gathering (32%) while at the same time not placing value on the class lesson. Indeed, they reported using much more time on information gather than their peers (13% average). It may be that since they valued their tutor over the teacher that they also sought information from that same tutor instead of the teacher. It is also interesting that they were the lowest in using the target language (9%). They were the only group then to focus more of their time learning *about* the target language than actually *using* the language, which may also be linked to their poor performance.

This was the only group that wasn't very sure if the videos helped them for the class activities or not. Although 43% responded that the videos were helpful, several added "yes, but I still have trouble." Another 43% weren't sure if the videos helped, offering comments like, "They are okay. It's frustrating to study all in class, go home and study and study in study hall and then go home and have to spend another hour online to prepare." Those who stated "no" (14%) commented on having computer issues as being a problem.

This was the only group where no members felt motivated outside of class. Only a few members' motivation didn't change (29%), and an alarming majority (71%) reported that they felt even less motivated outside of class, stating "I am exhausted after spending

an hour and a half to learn new information and then go home and learn more" and "I feel frustrated because I spend so much time studying and I still struggle."

Clearly this group was frustrated with the flipped course. Not finding productive answers to their questions, focusing their energies on learning about the language and doing homework, but not on producing the language did not lead to good results. Unfortunately, they were not succeeding and viewed their investment of time as "frustrating."

The Homework Menu

Even though this group is considered low-performance, they only dipped below the weekly 25-point requirement a few times. They hovered on the minimal threshold of points to receive a passing grade at each measurement. The multiple zeros between the two chapters seems to suggest that students attempted fewer activity-types overall, with lower diversity of activities in the second chapter. This seems to indicate either a clear preference for certain activities or a poor strategy for learning. Interestingly, the group also had the widest range of points on the last week of each chapter.

Table 4.8: LPHI Homework menu: points over time.

	Ch4-1	2	3	4	Ch5-1	2	3	4
Weekly Scores	26.9	56.9	75.4	91.7	23.2	50.9	76.7	99.7
Vocabulary	47%	58%	47%	20%	72%	63%	31%	11%
Grammar	40%	13%	32%	31%	21%	28%	59%	11%
Surveys	14%	8%	0%	20%	0%	9%	10%	22%
Culture	0%	0%	0%	29%	0%	0%	0%	33%
Challenging	0%	17%	7%	0%	0%	0%	0%	24%
Points	0%	4%	14%	0%	7%	0%	0%	0%

The group had one of the highest focuses on vocabulary of the participants. Vocabulary activities took a majority of their attention during the first two weeks of both chapters. Unlike the other groups, the focus on vocabulary persisted longer, and had a

slower rate of decline. This focus on vocabulary may be connected to their value on the repetition strategy from the MSLQ.

Low-performance-low-involvement — the "just not clicking" group

With a background comparative to the other groups, this small group of students (n = 3) came from both Spanish 1 and 1B. One of these students had an IEP with minimal accommodations in the class. These accommodations did not appear to be sufficient to view this student or the group in general any differently than the other participants. A unique feature of this group is that they were clustered together for all of their classes throughout the day. This means that they were all on the same learning path and were all taking the minimal degree plan. It may be that their pattern of low performance was consistent through their classes.

Technology Survey

The LPLI group had the highest access to technology, claiming an average of seven devices per person compared to the overall student average of 5.5. With more supporting devices (3), a cell phone per member, average number of reading devices (.7) and computer systems (2.3), these students clearly had more access than the other students.

Their perceptions of their technological skills, however, were not commensurate with their access to devices. Claiming to be "talented" in only four skills and reporting not knowing how to do eight, the group saw themselves on the lower end of the ability spectrum. Like most of their peers, all the members of the LPLI group claimed to not know how to use Prezi and MS Publisher, but unlike their classmates, they reported only an average rating for MS Word and PowerPoint, two very common programs. Either the group had a pessimistic view of their skills or a realistic view of not having many skills.

It is interesting that this group had such a high number of devices, only a moderate to low level of reported skill, combined with a low performance in general. While unlikely, it is possible that the group had become too distracted with the devices and was unable to focus on the task of learning the material. It may also be that they were dependent on the devices for "looking up an answer" but failed to learn from the experience. In any case, the group performance on the Spanish tests demonstrated that the availability of a device is not a guarantee for learning.

The Motivation and Strategies for Learning Questionnaire

The low-performing-low-involvement group had one of two types of MSLQ mean scores: their mean scores either tended to be less than 0.3 points away from the overall student mean or were the highest or lowest mean of all the participants. Additionally, of the nine learning strategies, seven had a mean for this group that was lower than the overall student mean. This type of score distribution is often indicative of the presence an outlier, which may not be the case here. Instead it may be that the group simply placed a lower importance on utilizing strategies for learning.

The highest motivation for the group was control of learning beliefs (X = 6.3, SD = 0.9), much higher than the class average (5.5). The results on this scale indicated a student belief that outcomes were dependent on their own efforts rather than from other sources. This was an unusual feature of this group, as low-performing students frequently blame the class, the teacher, the materials, and a host of other external factors. However, this group not only had the lowest scores in the Spanish assessments, but also believed that learning outcomes depended on them rather than others.

Although this group's average task value was mid-range (X =3.9, SD = 1.6), it was also a full point lower than the other groups" or the overall student average (X = 4.9, SD =

1.2). This seemed to suggest that the group had a lower evaluation of the classroom tasks and activities. It was not a great surprise that these LPLI students tended to have a lower view of the task value. By not wanting to engage in a task, they may not have received the same exposure as the others in the class, thus reducing their potential for a higher grade. Not wanting to be involved in classroom tasks in general and having a low involvement are consistent features of this group.

Like the rest of their peers, the group had a high emphasis on extrinsic goal orientation (X = 5.6, SD = 1.8). Excelling at trash-talk, the members of this group engaged in competition with their peers and saved up their reward class money for a special purpose. In fact, the external classroom reward system was effective for class management and disciplinary situations with a student from this group on more than one occasion.

Regarding the variance on the MSLQ within the LPLI group, there were only a few scales that seemed to set them apart from the rest of their classmates. The scale of Time/Study Environmental Management (X = 5.0, SD = 0.3), though not a high score, had very little variation within the group. Likewise, Metacognitive Self-Regulation (X = 3.9, SD = 0.4) showed a moderate tendency, with a high consensus among the group members. Although neither of these mean scores indicate preference for a particular learning strategy, it is interesting how similar the group is on both of the self-management measurements. On the other hand, the group was found to be very divided on the learning strategies of Peer Learning (X = 3.3, SD = 2.0) and Rehearsal (X = 5.2, SD = 2.0).

The perceptions survey

A large warning sign from this group came on the perceptions survey. Not only did this group have a low frequency of video views (1.3), they also didn't report following the links (0), asking for help (1.8), or searching for answers (1). Their time studying outside of

the classroom (102.5) was comparable with the average time (106.88) reported by other students. However, if these students didn't fully comprehend the material, this study time may have been misguided or misinformed, further exasperating the problem.

The group rated the videos as the most helpful resource (50%) and saw the lessons and the Homework Menu as being equally valuable (25%). This was the only group to include the Homework Menu in their ranking. They were also the only group not to view the textbook as a positive resource. It may be that they enjoyed the freedom to choose their practice instead of being confined to the textbook.

Like their classmates, the LPLI group reported the majority of their time "engaged in an activity related to the unit topics" (66%) followed by working on the Homework Menu (38%). Although they only reported that 15% of their time was off-task, as their teacher, however, I would have to say that this estimate was low. Compared to their peers, this group reported having the highest percentage of time off-task, which in my opinion, was true and probably higher. Off-task students is a common warning sign for high-school classroom management that can quickly spiral to multiple problems. From a second language acquisition perspective, more time and practice on the target concepts will give better results which may have been a factor in their poor performance.

Interestingly, all of these students felt that the videos prepared them for the class activities. Only half felt more motivated to learn after viewing the videos while the other half did not. As these students did not perform well on the quizzes and the Homework Menu, it may be that they preferred communicative activities, practice, and class interaction which they rated more highly. These activities were simply practice and did not have a grade to reflect their performance. In my opinion however, they did not do well with these either.

The Homework Menu

The low-performance-low-involvement group seemed to have a difficult time with the Homework Menu. They started off well on both chapters, though not as strong as the other groups, but did not turn in the minimum required points in the latter half of the chapter. This group was consistently below the minimum threshold of 25 points. Although the group average never dipped below passing, the Homework Menu was not as helpful to their grade nor to their comprehension of the chapter concepts as it could have been.

Table 4.9: LPLI Homework menu: points over time.

	Ch4-1	2	3	4	Ch5-1	2	3	4
Weekly scores	26.5	44.7	67.2	77.2	25.0	45.0	72.0	83.0
Vocabulary	63%	26%	11%	0%	60%	63%	37%	0%
Grammar	12%	56%	0%	0%	40%	0%	0%	5%
Surveys	19%	9%	11%	0%	0%	13%	0%	23%
Culture	0%	0%	0%	75%	0%	0%	0%	36%
Challenging	0%	0%	67%	0%	0%	25%	63%	36%
Passes	6%	9%	11%	25%	0%	0%	0%	0%

Similar to their peers, the bulk of points for this group came from the vocabulary sections at the start of each chapter. Unlike the other groups, however, they had an unusual pattern of emphasizing a different section each week. Instead of a slow decline or returning to one of the basic activities as the other groups did, this group appeared to be searching for the best strategy for completing their tasks. This group also shows the most "zeros" for activities, meaning that they didn't perform any work on a particular focus that week. Thus, they focused on fewer activities overall. In addition to a smaller variety of activities, they have a slowly declining weekly sum, meaning that they did not receive the complete point credit each week. The group was selecting fewer choices and doing less work in those areas.

It is interesting to note that this group had the widest range of activities in Chapter 4. Although they did not focus on the main components of vocabulary and grammar, they instead devoted more attention to a wider variety of activities than their classmates, maintaining the highest attention devoted to culture and challenge activities of all the participants. In Chapter 5, however, they continued to undertake the challenge activities section, reducing their cultural focus slightly from Chapter 4. As this group had the lowest performance overall and a very low involvement rate, a stronger focus on the basics would logically have helped their overall understanding of the content. Why they would focus on challenging and cultural activities when there was clearly a gap in their basic understanding is unclear. Apparently, they were motivated by more than just a grade and understanding the basic material.

Summary of the Analyses

As seen in the above analyses, the four clusters of students evidenced varied interactions with the flipped Spanish classroom. Student choices ranged in variety of activity, time on task, and amount of effort on task. These choices provide insight into their learning styles and preferences, their motivation toward learning, and their learning effectiveness within the flipped classroom environment.

ANALYSES OF LEARNING OUTCOMES

The following analyses sought to understand students' differential responses to the flipped classroom through a measurement on a pre- post-test of the materials.

Results of the pre- post-tests

As stated in the methodology chapter, a pre-test was administered before each of the two chapters and a post-test was administered upon their conclusion. To help control

for cross-test contamination, two separate pre-tests with ten vocabulary questions, ten grammar questions, and an open-ended section were administered for each chapter. The two post-tests were a combination of both of the pre-tests. The following table displays how the class and the 4 sub-groups performed on the tests.

These analyses sought to determine the improvement (if any) in the scores from the pre-test to the post-test. The measurement of "improvement" meant moving from a wrong answer on the pre-test to a right answer on the post-test. "No improvement" meant that an answer remained incorrect. "Right the first time" indicated students who were right on both tests. "Right to Wrong" was the final category, indicating correct answers from the pre-test were changed to wrong answers on the post-test.

Table 4.10: Pre and Post-Test results

Items	Class	HPHI	HPLI	LPHI	LPLI
Ch4 Vocabulary	N=21	N=8	N=6	N=4	N=3
• Pre-Test	45%	38.8%	75.0%	30.0%	23.3%
• Post-test	71%	80.6%	84.2%	41.3%	46.7%
• Score change	25.5%	41.9%	9.2%	11.3%	33.3%
• Improved:	46.7%	58.8%	51.7%	31.3%	45.0%
• No improvement:	10.3%	3.1%	0.8%	18.8%	18.3%
• Right the first time	20.9%	19.4%	37.5%	15.0%	11.7%
• Right to Wrong	4.9%	0.6%	5.8%	5.0%	8.3%
Ch 4 Grammar					
• Pre-Test	47%	53.8%	61.7%	27.5%	26.7%
• Post-test	62%	74.4%	76.7%	36.3%	36.7%
• Score change	15.2%	20.6%	15.0%	8.8%	10.0%
• Improved:	40.2%	51.3%	49.2%	28.8%	31.7%
• No improvement:	9.3%	4.4%	8.3%	11.3%	13.3%
• Right the first time	20.6%	28.8%	29.2%	11.3%	13.3%
• Right to Wrong	4.0%	3.8%	5.0%	3.8%	3.3%
Ch5 Vocabulary					
• Pre-Test	46%	37.5%	68.3%	32.5%	40.0%
• Post-test	73%	76.3%	96.7%	37.5%	51.7%
• Score change	26.9%	38.8%	28.3%	25.0%	11.7%
• Improved:	46.7%	59.4%	62.5%	20.0%	45.0%
• No improvement:	15.4%	8.8%	0.8%	28.8%	23.3%
• Right the first time	22.3%	18.8%	34.2%	16.3%	20.0%
• Right to Wrong	3.8%	1.3%	0.8%	6.3%	6.7%

Table 4.10: Pre and Post-Test results, cont

Ch 5 Grammar					
● Pre-Test	39%	46.3%	50.0%	35.0%	3.3%
● Post-test	69%	73.1%	87.5%	37.5%	41.7%
● Score change	29.8%	26.9%	37.5%	2.5%	38.3%
● Improved:	45.7%	52.5%	63.3%	28.8%	38.3%
● No improvement:	18.9%	11.3%	4.2%	25.0%	35.0%
● Right the first time	15.3%	24.4%	19.2%	12.5%	5.0%
● Right to Wrong	3.4%	1.3%	1.7%	7.5%	3.3%

Instead of the low grades that I expected on the pre-tests, several of the students did well on both of them for both vocabulary and grammar. The largest gap between the pre- and post-test for the entire class was for the Chapter 5 grammar, which included comparing preterite and imperfect, irregular preterite and the imperfect progressive. As these are not intuitive concepts, the pre-test scores were low. The gap from pre-test to post-test for both vocabulary and grammar was similar between the chapters, with the Chapter 5 grammar gap being only slightly larger. This may indicate that more material was learned between the Chapter 5 pre- and post- assessments.

There was marked improvement on the post-tests with students answering about twice as many questions correctly than they had on the pre-tests. This finding suggests that many students had improved in their understanding of the assigned material by the time of the second assessment. Discouragingly, although student performance improved from pre-test to post-test, post-test scores only ranged from 62% to 73% indicating that student control over the material was not strong. Additional scores, such as sentence creation and verb conjugation, were averaged into the post grade improving the grade. However, as all of the pre-test scores for writing were zero, there is no improvement score to report here.

The class did better on vocabulary than grammar in both Chapters, with the highest score change occurring in the Chapter 5 grammar (29.8%) and the lowest in Chapter 4

grammar (15.2%). It may be that the Chapter 5 vocabulary was more intuitive or transparent, as it had the highest score correct on the pre-test (22.3%) while Chapter 4 grammar had the lowest score (9.3%). All of the chapters had a low "guessing" rate as the movement from correct to incorrect ranged from 3.4% to 4.9%. Apparently, the most difficult material to learn was the grammar in Chapter 5 as it had the highest rate of no improvement (18.9%) as compared with the lowest rate of no improvement in Chapter 4 vocabulary (10.3%).

High-performance-high-involvement

The HPHI group did very well across the tests, and was the group with the highest score change from the pre-test to the post- test. They did better on both Chapter 4 components than those of Chapter 5, which is probably understandable since the Chapter 5 materials were more difficult. They also tended to have fewer guesses (changing answers from right to wrong) than the other groups, in both chapters. They were also rather intuitive or analytical in getting the grammar correct for the first time in Chapter 4 (28.8%) and Chapter 5 (24.4%), while their scores were lower for the vocabulary. They appeared to be rather teachable as the "no improvement" score remained low, though lower for Chapter 4.

High-performance-low-involvement

The HPLI group included heritage speakers and academically proficient learners, which may explain their doing so well on the pre-tests, as well as their overall improvement on the post-tests. This group had the highest number correct on the pre-tests. They also had the highest mean score on the post-tests of all the groups. The vocabulary section for Chapter 4 included concepts about childhood like toys and common pets. It may be that the heritage speakers in recalling their own childhood also recalled some of the terms and grammar associated with talking about childhood, resulting in a very high pre-test score.

This group appeared to learn vocabulary rather well, as the no improvement score bordered zero (0.8% for both chapters). The group also made the highest improvement in Chapter 5, on both grammar and vocabulary. There were several irregular verbs in Chapter 5 as well as a few false cognates which may account for the improvement of this group while still remaining difficult for the other groups.

Low-performance-high-involvement

The LPHI group had the smallest score change on three of the post-test measurements and the smallest average improvement across all four measurements. As a group they did better on the Chapter 5 tests, but only to a small degree. They may have had a stronger base of knowledge since they had a slightly higher percentage of getting the answer right the first time in Chapter 5 for both vocabulary and grammar. On the other hand, there were more mistakes for this group in Chapter 5 on the posttest. When comparing both vocabulary sections and both grammar sections, it becomes apparent that this group gradually performed worse. In vocabulary, their improvement scores decreased (31.3 --> 20), while their "no improvement" scores increased (18.8 --> 28.8), as did their number of correct to incorrect scores (5.0 --> 6.3). The LPHI group decreased their rate of improvement on three scores: there was no increase of "improvement scores" from the Chapter 4 to the Chapter 5 in grammar test (28.8%), the score of "no improvement" doubled (11.3 -->25), as did the "right to wrong" score (3.8 --> 7.5). These three scores indicate that the group's rate of improvement lessened between the two test administrations. Importantly, this was the only group that decreased its improvement scores between the two tests. The three other groups either maintained or increased their improvement scores.

Low-performance-low-involvement

With scores slightly better than the other low-performance group, the members of the LPLF group raised their post-test grades from Chapter 4 to Chapter 5 on both vocabulary and grammar. The improvement component of the score change is very similar to the class average, showing a very minor growth between the two chapters. The only trend that this group showed was an increase in the "no improvement" score on both vocabulary and grammar. At the same time, they decreased or maintained their correct to incorrect choices, but only slightly. In sum, the LPLF group showed minor improvements in learning the material between the two chapters. This was the lowest rate of improvement of the four groups.

CROSS-GROUP COMPARISON

This section discusses differences and similarities among the groups.

Technology Survey

In a comparison of the access to technology and related skills across the groups, it is interesting to note how the groups shared features with each other. Both of the high-performance groups had an average number of devices but a wider breadth of knowledge and skills than the low-performance groups.

Both of the high-performance groups saw themselves as more "talented" in using MS Word, the internet, and Quizlet, all of which are very common tools for the flipped classroom. At the same time the low-performance groups had the highest ratio of not having a technological skill to that of being talented in that area. This discrepancy was even more pronounced for lesser-known programs such as MS Publisher and Prezi.

The low rating for MS Publisher and Prezi was interesting for the low-performance groups. Even though the other groups had high percentages of not knowing how to use MS

Publisher, the low-performance groups were the only groups where 100% of the members claimed to have no knowledge of the program. As MS Publisher is not a well-known program for high school settings, a low rating was not surprising. However, the fact that none of them were familiar with it was surprising. They also had the fewest members not knowing how to use Prezi, contrasting with the high-performance groups, which not only had a lower score in not knowing, but moreover had some level of "talent." Not surprisingly, when given a choice to use the aforementioned programs for the homework menu, the high-performance groups used a variety of programs while the low performance groups either used MS Word and MS PowerPoint or elected to do something else.

It appears then that, Spanish performance and self-perception of technology skills were somewhat related in this study. For high-performance learners, it may be that the desire to learn the material motivates them to learn new technology or that knowledge of new technology skills facilitates organization or productivity in learning. In terms of low-performance learners, it may be that a low level of skills with relevant programs did not allow the student to work as effectively as they needed to or would have liked to. Having a low level of technology skills might be an indicator that a student might need some coaching or assistance in the content material as well.

The Motivation and Strategies for Learning Survey

In comparing the groups, there were several instances where the average variation among the participants was extremely low (time management SD = 0.8, extrinsic goal SD= 1.0) and others with much higher average variation (Organization SD=1.9, Rehearsal 1.6). I consider both of these results to be good signs. On the one hand, I wanted to make sure that there were some cohesive elements to the class, and I tried to cater course content to the extremely high or low scores of the categories that had low variation, hoping that most

of the students would likely connect with the instruction. On the other hand, I also tried to offer some task variation and cater content to individual learners and groups in the areas that had the most variation since not every activity and approach was likely going to address the needs of students who had those particular orientations.

An interesting point contrasting both of the high-involvement groups was their similarity on the MSLQ. For the most part, there was less than .8 difference on all of the motivation scales. All of the strategies however had a higher separation, with the exception of effort regulations, which only had a .5 difference, with HP preferring the strategy. This was the only strategy on which the HP sub group had a higher score than their counterparts. The largest difference was on the scale of elaboration, with a difference of 1.4. It is possible that their differences in these areas may account for their differences in performance, three of which are noted in Table 4.11.

Table 4.11: Comparison of performance on the MSLQ

High-involvement groups	C	HPHI	LPHI
Control of Learning Beliefs	5.5	5.5	4.3
	(1.3)	(1.7)	(1.7)
Self-Efficacy for Learning & Performance	4.9	4.9	3.5
	(1.2)	(1.3)	(1.1)
Peer Learning	3.6	4.6	**2.8**
	(1.5)	(1.4)	(1.3)

It is interesting to note that the HPHI group had a very similar score to that of the class on the first two scales of the MSLQ, indicating that it was the low-performing

subgroup that differed from the class average. Having a comparatively lower view of their own self-efficacy, as well as a lower belief that their efforts will result in a positive outcome, may have some influence on their overall performance in the flipped classroom. Most interesting was the low-performing group's low view of peer learning. Not only did the lower performing group not view dialogue with peers as helpful, but the high-performing group valued peer learning more so than the overall student average. The differing orientations and willingness to learn from peers may also be related to the group performance.

Interestingly, both of the low-involvement groups scored similarly for much of the MSLQ. Yet there were several points that had a greater than one-point difference of the means on three of the scales, as highlighted in Table 4.12 below:

Table 4.12: Comparison of performance on the MSLQ

	C	HPLI	LPLI
Task Value	4.9	**5.6**	3.9
	(1.2)	(1.1)	(1.6)
Test Anxiety	4.8	3.4	4.9
	(1.2)	**(0.9)**	**(0.9)**
Rehearsal	5.1	3.6	5.2
	(1.4)	(1.6)	**(2.0)**

With respect to Task Value, the high-involvement groups were within .1 of the overall student mean, while the low-involvement groups were markedly different, as seen in Table 4.12. Here it appears that the higher performing half ranked the Task Value as being much more important than their lower performing counterparts. This finding is

interesting as the four groups were formed based on frequency and involvement with the course material. Viewing the videos repeatedly was obviously not a high value for either of the low-involvement groups, but perhaps for different reasons. It may be that although the high-performing group placed a higher value on learning the course material (task value), they also placed a low value on rehearsal (X = 3.6, SD = 1.6), for them, repeatedly viewing the videos was not crucial. In a similar manner, the low-performing group did not repeatedly view the videos, possibly because of their motivational orientation that the task value was not as high, or they simply got frustrated.

Another major difference between the two low-involvement groups was their scores on test anxiety. The higher performing group (X = 3.4, SD = 0.9) did not place nearly the emphasis on tests as did the lower performing group (X = 4.9, SD = 0.9). Interestingly, these groups were 1.5 points away from each other, but had low within-group variation on anxiety. The high-performing group on this variable from the overall average, but the low-performing group was similar to the overall average as well as the averages for the other groups. Indeed, both higher performing groups had lower test anxiety than their lower performing high and low involvement groups. One possible explanation is that they were used to being successful in school, so had lower test anxiety. Another possibility is that their anxiety was actually average, it was their counterparts who had more anxiety due to learning issues.

The Perceptions Survey

The perceptions responses are crucial to evaluating the success of this implementation of flipped instruction. First of all, it is interesting to note that both of the high-performance groups gave more frequent feedback on the surveys, with each member of these groups participating multiple times. The lower performing groups gave only one

or two responses throughout the course. Even though a bonus grade was awarded on the Homework Menu for participating in this survey, it was apparently not as attractive to the lower performance groups.

Regarding the home activities, both of the high-involvement groups stood out, but in different ways. The high-performance group seem to be more interested in autonomously seeking understanding through their high number of internet searches, while the lower performing group preferred going to a tutor or other helpful person.

It is interesting that both of the high-involvement groups had members who did not feel prepared for the class, even though some of them did well on the quizzes. As the low-performing side also reported a high percentage of information gathering activities (32%) as compared to the other groups (13%) and a very large amount of time studying outside of the classroom (244.3 minutes weekly), it may be that their focus while studying outside the class was misplaced. However, as neither of the high-involvement groups acknowledged feeling unprepared, it may be that the LPHI group employed rote memorization, a strategy that did not apply equally well to all parts of the quizzes. It may also be that they had the false expectation that multiple views of the videos would translate into success on the quizzes.

The Homework Menu

Successful performance was a defining characteristic on the Homework Menu. Both of the high-performance groups tended to have the same patterns: High involvement with vocabulary at the start of the chapter, declining through the weeks. They also tended to begin working on culture and challenging activities as the weeks progressed. They tended to focus on grammar as needed, depending on the difficulty of the grammar of the week. The low-performance groups had more gaps in their focus, meaning that they didn't

complete some of the sections in a given week. Both low-performance groups started the week with a strong emphasis on vocabulary and focused on cultural items only during the last week, rather than throughout the chapter.

The low-involvement groups seemed to share a sporadic interest level. Jumping to new activities during a week defined the low-performance subgroup, but the high-performance subgroup also shifted their focus as the grammar became more difficult

Pre- and Post-tests

In comparing the four subsections of the tests, the high-performance groups outperformed the low-performance groups on both the pre- and post-tests. The scores in the categories of "right the first time" and "right to wrong," however, appear to not be related with performance but instead with something else, as the scoring trends of the two performance groups were not consistent, and not related to performance.

The high-involvement groups tended to make more mistakes with the vocabulary in that the score of "same answers wrong" was higher in the high-involvement than in those of the low-involvement groups. Evidently the low-involvement groups used other options apart from video repetition to study the vocabulary.

As discussed previously, two groups had very different scores from the overall student means and the trends discussed above: the HPLI group and the LPHI group. In addition to the group features discussed previously, it is interesting to note that these two groups have almost opposite scores on every measurement for every test. This may simply be further evidence that the four groupings of students are truly unique and separate from each other.

SUMMARY

This chapter sought to understand students' differential responses to the flipped classroom and their previous experience with technology, as well as to better understand the Spanish learning outcomes and the participation behaviors related to students' individual learning strategies. To this end, three analyses were performed on the data collected from the participants in this study. The analysis of student interaction discussed the underlying variables of involvement and performance, resulting in four subgroups. The group analysis showed how these four groups performed on various measurements. Finally, the analyses of learning outcomes compared performance on pre- and post-tests.

Chapter 5: Summary

The purpose of this study was to better understand learning interactions and outcomes of high school students learning Spanish within a flipped classroom environment. This chapter focuses on four themes. The first is to understand what defines an effective learner within a flipped high school Spanish classroom, focusing specifically on their qualities and strategies. Secondly is to understand how individual student choices of practice relate to Spanish learning outcomes in a flipped learning environment. Regarding outcomes, the study also sought to understand the relationship between student responses to the flipped classroom and their previous experience with technology. The final focus is to understand the extent to which learning outcomes and participation relate to individual learning strategies.

The following chapter reviews the findings from the various analyses in the previous chapter. The discussion first targets salient conclusions to the above sub-questions then describes how the findings relate to the larger picture. What emerges from the discussion is the successful development of autonomous learners in this setting. The chapter closes with discussion of implications and limitations, as well as recommendations for future research.

Choices & Strategy Effectiveness

A key part of understanding the variation of learning interactions in the flipped classroom environment is through a closer inspection of the qualities and strategies of both the effective and the ineffective learners. The preliminary analysis revealed that the combination of two variables best explained variation among the students: involvement and performance. The combination resulted in four groups; high performance with high involvement, high performance with low involvement, low performance with high

involvement, and low performance with low involvement. As noted in the analysis chapter, each of the four groups professed a different disposition toward learning and employed a variety of strategies.

The high-involvement group had the highest variety of preferred strategies. Not only did the high-involvement group have the highest number of "preferred" strategies (those scoring higher than 75%) on the MSLQ, but more than half (53%) of the participants received this rating, which contrasts starkly with participants who had a low frequency of preferred strategies (19%). Likewise, the high-involvement group also reported a higher number of different kinds of activities on the Homework Menu. One would think that the variety of strategies would also relate to success in this context. However, the second performance variable divided the involvement group into high and low performance, showing that having a variety of learning strategies did not necessarily imply effectiveness. Effective learners in this context appear to utilize multiple learning strategies or a wider collection of homework examples.

The analysis of the four groups in the flipped classroom context provides some insight into understanding student interactions. Much of the behavior of the high-performing with high-involvement group was anticipated. They produced the best works, usually got the highest scores and invested the most time. The result of their large investment of time paid off. Likewise, the low-performing-low-involvement group achieved expected results. They didn't invest time or effort, and consequently didn't achieve a high understanding of the material or a high score on the assessment. The results from two remaining groups were somewhat perplexing. How does a student not invest time and still receive a high score? In a similar line of thought, how can a student invest a huge amount of time and receive very little result from the effort? The analysis revealed that the first of these unexpected groups, high-performance and low-involvement, was composed

of high-achieving students in other classes as well as a large amount of heritage learners. The group was composed of a mix of talent for learning in general and students who already had experience with the language. This group either had a disposition for learning, a background in the language, or both. The group analysis revealed that the students in the low-performing with high-involvement group were misfocusing their efforts. They appeared to spend an inordinate amount of time on the vocabulary when they should have been targeting the grammar, as well as reviewing older concepts. This group, as well as the low-performance-low-involvement group, may need additional guidance from the teacher in the course. These two groups would seem to suffer from mismanagement of time and effort and may need focused lessons targeting time management in addition to the learning strategies previously discussed.

It appears then that the low-performing groups mismanaged time, had too narrow of a focus on only one language feature or a combination of these traits. The results suggest that the effective learners had a range of learning strategies at their disposal, which they used to select the best methods to practice the target concepts on the Homework Menu. A variety of strategies in addition to effective choice of time and investment yielded an increased understanding and consequently a higher grade.

LEARNING OUTCOMES & TECHNOLOGY

With the ever-increasing access to technology and language resources, classroom teachers can adopt and adapt new practices at higher rates than ever before. Whether to address an arising issue, integrate a school standard, or jump on a recently popular bandwagon, teachers are constantly adopting, adapting, and discarding methodologies. Some of these practices may come from theory or research, others may be passed on from mentors and coworkers, and others may be promoted through media or word of mouth.

In the case of the flipped classroom, much of the teaching segment is transmitted via electronic means. This could be as simple as a YouTube video, but might also be an embedded video within a more complicated assessment program. The latter requires an increased investment in understanding and appropriately utilizing said technology, and herein lies the issue. As the technology increases to appropriately transmit a lesson, the question arises as to the effectiveness and capability of the students to appropriately utilize said technology. Optimistically, the current study found that prior exposure to as well as ownership of a number of devices did not positively or negatively affect the flipped classroom experience. On the other hand, student exposure to and use of different software packages appeared to be linked to their performance.

Lai, Shum and Tian (2016) address this issue of experience and self-directed use of technology for language learning through a combination of strategy training, exposure, and pedagogy. After the 12-week study with undergraduate EFL learners, the researchers found that students showed a greater willingness, skill and frequency of use as well as some new insights into the process of using these technologies. The three stages of training included explicit pedagogy, technical strategy, and reflection and practice, which together equipped the students to use these computer applications for their own personal development. Frequency of use appeared to be a determining factor in the study, with those who more frequently used the technology to learn the language also experiencing greater gains. In the present study, experience and exposure to a wider array of technology similarly prepared the students for success. Consequently, in addition to focused training and practice, it is important to encourage students to use the technologies frequently and for adequate periods of time.

CONCLUSIONS

We return to the two initial questions proposed for this study of Spanish learners within the flipped learning environment: what are the learning outcomes and how do student interactions vary? Student choices appear to be related to Spanish learning outcomes and interactions in this flipped classroom environment. In this case, two features of an effective learner included having a background of multiple strategies for learning as well as utilizing varied procedures for implementing these strategies. As these choices are indicative of autonomous learning, they may also support learner investment.

Learning outcomes in this study were not influenced by the quantity or access to electronic devices, as was originally thought, but through student experience and familiarity with relevant programs, such as MS Word, Chrome browsers, or PowerPoint. Only those students who ranked themselves highly with relevant classroom programs showed a higher performance with the material. From the perspective of the variables of performance and involvement, it may be that the investment of time and proficiency with relevant technology may benefit students in similar circumstances. The opposite may also be true since those students who ranked themselves poorly with common classroom programs also performed poorly. It may be that these students also felt inhibited in using the technologies for flipped classroom Spanish learning.

RESULTS

Autonomous learning

One of the revealing relationships of this study on flipped learning is that between the method and autonomous learning. The flipped classroom encourages and at times requires students to control their learning environment, their practice with the concepts, and to self-evaluate. All three of these features can empower a sense of autonomy, and with

the proper guidance can lead learners to becoming autonomous learners of language (Benson, 2013).

Autonomy is a shifting of responsibility of learning from dependence on the teacher to independence of the learner and is often described as "the capacity to take charge of, or responsibility for, one's own learning" (Benson, 2013, p.10). The idea of taking charge of one's own learning is "to have and hold the responsibility for all the decisions concerning all aspects of this learning" (Holec, 1981, p.3). This can include establishing objectives, content, progression, methods and technique, as well as monitoring and evaluating one's own language learning. Autonomous learners are capable of making more significant decisions regarding their (language) learning process, management, and organization. The capacity to take responsibility reflects the learner's "control over the cognitive processes underlying effective self-management of learning" (Benson, 2013). This psychological dimension emphasizes the cognitive control and competencies of the language learner. The third dimension of autonomy encompasses control over the content of learning. Largely situational, control over content is a social negotiation with isolated learning on the one end and the release of control to others on the other end. Considering that language learning is enhanced through interaction, a learner must move away from isolated learning, without releasing all control of content. Autonomy, from this perspective, emphasizes three dimensions of control: learning management, cognitive processes, and learning content.

One of the biggest benefits of a flipped classroom is the opportunity to offer more choices to the learner. Depending on the context, these choices may include when and how often to review a concept, choices regarding follow-up and additional resources, and choices of how and when to implement or practice an idea. An important gap in the literature on language learner autonomy is that of the connection of performance with autonomous choices. Indeed, Chalupa and Haseborg (2014) encourage future studies to

"examine whether the motivation derived from making autonomous learning choices leads to higher achievement." In the present study, the effective learners were those who reported a wider variety of learning strategies as well as those who practiced a wider variety of tasks. In other words, these students made choices that led them to higher achievement.

LIMITATIONS

Although every effort was made to reduce the effect of uncontrolled variables, this study is not without its limitations, which includes context, technology, and data collection procedures.

Regarding the context, the study involved students at a small private high school. Not only did this choice result in a small sample size, but the conclusions reached within this context may not be applicable or even relevant to other settings. Considering that the data were collected from such a specific context, it may be that homogeneity of the population further reduces generalizability of the findings. In addition, as stated in the methodology chapter, students were allowed to have their data removed from analysis at any point during the study. Several students decided to take this option, which further reduced the number of participants.

The study was also limited in the technology available. The technology utilized within this study was meant to reflect a typical classroom, and the hardware and software utilized in the study were part of the school context. Alternate forms of software were available at the start of the study but not adopted because of financial limitations.

The majority of measures in this study depended on participant self-reports. Therefore, the possibility of response set and/or social desirability of responses must be considered. Social desirability must especially be considered with respect to the student responses with respected to how much they interacted with the flipped materials.

PEDAGOGICAL IMPLICATIONS

This study found that a flipped classroom approach was viable and reasonably effective in a high school Spanish class, but the findings also indicated that different types of students functioned differently in the flipped environment.

The combination of the involvement and performance variables in addition to the student background, homework choices, responses to surveys, and responses to the motivation for learning and strategies for learning questionnaire offered several important pedagogical implications for the implementation of flipped classrooms in high school Spanish classes. Each performance-involvement group displayed different strengths and weaknesses, preferences for flipped learning, and in-class practice.

The members of the high-performance-high-involvement or "competitive group" were easily recognized by their knowledge, high energy, and creativity. The group possessed an average number of devices and appeared to be realistic regarding their self-evaluation of technology skills. They not only had a wide range of learning strategies, but also made good choices in language practice. The members of this group were perceived by other students as being competitive and knowledgeable about Spanish. Classroom interventions that worked well with this group were gamification of practice, such as races to the board to write sentences, use of portable white boards for vocabulary competitions, online games such as Kahoot or Quizlet, as well as differentiation to make assignments more complex. This group responded well to looking up additional resources, doing research about a topic, and doing additional projects catering to their interests. This group appeared to become bored with activities that focused on simple declarative knowledge or rote memorization. The group also did well creating resources including class notes, grammar presentations, or cultural activities such as readings, reports, or presentations. Future classroom interventions with this group might include a wide array of resources to

both teach and practice a concept, gamification of practice, and individualized or differentiated resource creation.

Students in the high-performance-low-involvement group were among the most flexible to changes in the class structure. With their strong background in academics and Spanish, they quickly understood Spanish concepts, and produced just enough in response to assignments to demonstrate comprehension. As half of the students in this group were heritage learners of Spanish and the rest were especially high performing in other academic subjects, cultural activities were a good match for them. These activities piqued the interest of the heritage learners and challenged the high academic learners. Activities that might work well include readings, reports, or presentations on cultural topics. Activities of this nature would align with their interests and abilities and challenge them to become more involved with a course. The combination of low-involvement with high-performance reaffirmed the need to provide clear parameters and rubrics for assignments in order for the members of this group to be more effective. This HPLI group easily showed their knowledge of the target content through their performance, enjoyed games and competition and often tended to be the winners. The class games mentioned previously also worked for this group, though it was necessary to make some aspects more difficult or occasionally utilize cultural themes. Differentiated tactics might include targeting bonus or regional vocabulary, making the grammar more complex with embedded clauses, or even reducing the amount of time for their activities.

The low-performance-high-involvement group required the most attention and guidance from the teacher, due to their misguided use of strategies. Games and activities that required quick responses did not work well with this group. Fortunately, detailed projects and activities that required planning and effort were more effective. A good strategy to help them succeed was to create study tools. Some of these included making

conjugation cards in multiple tenses for common verbs, creating and labeling a drawing of the chapter vocabulary, and summary paragraphs of cultural readings. These students excelled in activities focused on vocabulary, declarative knowledge, and compositions that implemented replication from a model. As noted in the analysis and discussion, these students often struggled with misfocused attention and misuse of learning strategies, leading to a lack of comprehension and low performance. Support for these learners should focus on specific learning strategies, step-by-step procedures, and reduced distractions. Spot comprehension checks during an activity were also useful. When given the option, members of this group would request explicit instruction for a complicated Spanish topic. During oral activities, this group benefited from ongoing comprehension checks, repeated explanations, and clear examples. When designing written activities for this type of learner, teachers should use clear step-by-step instructions, rubrics, and representative examples, especially for complicated processes.

The low-performance-low-involvement group also required substantial teacher attention. The combination of lack of comprehension and lack of interest made it difficult for these students to participate in activities at the same level as the rest of the class. This group benefited from strategy training, activities catered to their unique interests, and concise examples and directions. However, when given the option, this group rejected explicit instruction, benefiting more from repeated practice and increased exposure to the language. These students also benefited from the games probably because games offered them the opportunity to hear target Spanish forms repeated.

Taking into account the background and interests of the four groups made it difficult to find a single activity that met the needs of all of the students. The Homework Menu did allow students to choose their own practice methods. Importantly, games were beneficial to keep the entire class involved with the target Spanish forms. Clear

instructions, concise examples, and a variety of activities focused on written and oral communication in peer and small-group formats should be used to meet the needs of all students.

Recommendations for Future Research

Autonomy was not the original goal of the present study but became an interesting development. Consequently, an area of future research might involve directly targeting the development of learner autonomy within the flipped classroom especially for high-school learners. Autonomy is often viewed in the literature as a characteristic of adults in non-academic environments. It is considered normal if an adult decides to study a concept on their own, to become somewhat of an expert in a particular area. It is also common for a person to turn to a YouTube video to find a specific strategy or method on how to solve a problem such as tiling a kitchen or replacing an air filter. At the same time, it is much more unusual for school-aged children to seek out and learn a concept on their own. While some studies address the development of autonomy within younger students, there is little reported in the area of language development at this age. Research on the development of language learning autonomy among school-aged learners would be an important contribution to the literature.

New technology has made it even easier to not only flip a classroom but to incorporate accountability into the design of flipped instruction. Recently Google has updated the web application, Google Forms, to allow self-grading quizzes and the embedding of video content. Microsoft PowerPoint already includes video embedding but has recently added the inclusion of a quiz feature. These applications are now readily available and require minimal training. Embedded quizzes on these platforms would likely increase accountability by forcing learners to answer questions before continuing. Both

applications could also steer users to help texts or additional resources based on answers to the questions, which would further support autonomous development.

Reflecting on the design of the study, I recall that multiple students mentioned that they preferred to see my own videos as they learned the target concepts as opposed to those of another teacher from the internet. Teacher-created lessons versus web-available lessons will obviously have a different level of professionalism and relate to the students differently. Future research could examine the effect of the classroom teacher versus a web resource on student performance and motivation. This is an interesting point in the area of resource development as teachers are often encouraged to utilize already-made materials as they begin to develop flipped modules and resources.

A third recommendation is to increase the amount of exposure, explicit training, and discussion on technology skills in the foreign language classroom. These recommendations regarding relevant technologies are in line with Lai et al. (2016) and could help equip students to use these applications for their personal development. Practice with these technologies may also prove effective for reinforcing learning strategies. This study found that effective strategy choices appeared to depend on already having a variety of learning strategies and knowing which strategy would be most effective for a given purpose. The approach proposed by Lai et al. (2016) of explicit pedagogy, the use of technical strategy, and reflection and practice may prove to be effective not only for technology training, but for strategy training in general.

A final recommendation is to broaden the scope of this study in the future. It should be replicated with other languages, different levels, and different school contexts. As additional studies target the flipped foreign language classroom, my hope is that we will gain a greater understanding of this tool and the impact it has on foreign language learners and learning.

Appendices

APPENDIX A: MSLQ QUESTIONS GROUPED BY SCALE

Motivation Scales

Intrinsic Goal Orientation:

1. In a class like this, I prefer course material that really challenges me so I can learn new things.
16. In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.
22. The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.
24. When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.

Extrinsic Goal Orientation

7. Getting a good grade in this class is the most satisfying thing for me right now.
11. The most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade.
13. If I can, I want to get better grades in this class than most of the other students.
30. I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.

Task Value

4. I think I will be able to use what I learn in this course in other courses.
10. It is important for me to learn the course material in this class.
17. I am very interested in the content area of this course.
23. I think the course material in this class is useful for me to learn.
26. I like the subject matter of this course.
27. Understanding the subject matter of this course is very important to me.

Control of Learning Beliefs

2. If I study in appropriate ways, then I will be able to learn the material in this course.
9. It is my own fault if I don't learn the material in this course.
18. If I try hard enough, then I will understand the course material.
25. If I don't understand the course material, it is because I didn't try hard enough.

Self-Efficacy for Learning and Performance

5. I believe I will receive an excellent grade in this class.
6. I'm certain I can understand the most difficult material presented in the readings for this course.
12. I'm confident I can understand the basic concepts taught in this course.
15. I'm confident I can understand the most complex material presented by the instructor in this course.
20. I'm confident I can do an excellent job on the assignments and tests in this course.
21. I expect to do well in this class.
29. I'm certain I can master the skills being taught in this class.
31. Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.

Test Anxiety

3. When I take a test, I think about how poorly I am doing compared with other students.
8. When I take a test, I think about items on other parts of the test I can't answer.
14. When I take tests, I think of the consequences of failing.
19. I have an uneasy, upset feeling when I take an exam.
28. I feel my heart beating fast when I take an exam.

Learning Strategies Scales

Cognitive and Metacognitive strategies: Rehearsal

39. When I study for this class, I practice saying the material to myself over and over.
46. When studying for this class, I read my class notes and the course readings over and over again.
59. I memorize key words to remind me of important concepts in this class.
72. I make lists of important terms for this course and memorize the lists.

Cognitive and Metacognitive strategies: Elaboration

53. When I study for this class, I pull together information from different sources, such as lectures, readings, and discussions.
62. I try to relate ideas in this subject to those in other courses whenever possible.
64. When reading for this class, I try to relate the material to what I already know.
67. When I study for this course, I write brief summaries of the main ideas from the readings and the concepts from the lectures.
69. I try to understand the material in this class by making connections between the readings and the concepts from the lectures.
81. I try to apply ideas from course readings in other class activities such as lecture and discussion.

Cognitive and Metacognitive strategies: Organization

32. When I study the readings for this course, I outline the material to help me organize my thoughts.
42. When I study for this course, I go through the readings and my class notes and try to find the most important ideas.
49. I make simple charts, diagrams, or tables to help me organize course material.
63. When I study for this course, I go over my class notes and make an outline of important concepts.

Cognitive and Metacognitive Strategies: Critical Thinking

38. I often find myself questioning things I hear or read in this course to decide if I find them convincing.
47. When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence.
51. I treat the course material as a starting point and try to develop my own ideas about it.
66. I try to play around with ideas of my own related to what I am learning in this course.
71. Whenever I read or hear an assertion or conclusion in this class, I think about possible alternatives.

Cognitive and Metacognitive strategies: Metacognitive self-regulation

33. During class time I often miss important points because I'm thinking of other things. (REVERSED)
36. When reading for this course, I make up questions to help focus my reading.
41. When I become confused about something I'm reading for this class, I go back and try to figure it out.
44. If course materials are difficult to understand, I change the way I read the material.
54. Before I study new course material thoroughly, I often skim it to see how it is organized.
55. I ask myself questions to make sure I understand the material I have been studying in this class.
56. I try to change the way I study in order to fit the course requirements and instructor's teaching style.
57. I often find that I have been reading for class but don't know what it was all about. (REVERSED)
61. I try to think through a topic and decide what I am supposed to learn from it rather than just reading it over when studying.
76. When studying for this course I try to determine which concepts I don't understand well.
78. When I study for this class, I set goals for myself in order to direct my activities in each study period.
79. If I get confused taking notes in class, I make sure I sort it out afterwards.

Resource Management Strategies: Time and Study Environment

35. I usually study in a place where I car, concentrate on my course work.
43. I make good use of my study time for this course.
52. I find it hard to stick to a study schedule. (REVERSED)
65. I have a regular place set aside for studying.
70. I make sure I keep up with the weekly readings and assignments for this course.
73. I attend class regularly.
77. I often find that I don't spend very much time oi. this course because of other activities. (REVERSEP)
80. I rarely find time to review my notes or readings before an exam. (REVERSED)

Resource Management Strategies: Effort Regulation

37. I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do. (REVERSED)
48. I work hard to do well in this class even if I don't like what we are doing.
60. When course work is difficult, I give up or only study the easy parts. (REVERSED)
74. Even when course materials are dull and uninteresting, I manage to keep working until I finish.

Resource Management Strategies: Peer Learning

34. When studying for this course, I often try to explain the material to a classmate or a friend.
45. I try to work with other students from this class to complete the course assignments.
50. When studying for this course, I often set aside time to discuss the course material with a group of students from the class.

Resource Management Strategies: Help Seeking

40. Even if I have trouble learning the material in this class, I try to do the work on my own, without help from anyone. (REVERSED)
58. I ask the instructor to clarify concepts I don't understand well.
68. When I can't understand the material in this course, I ask another student in this class for help.
75. I try to identify students in this class whom I can ask for help if necessary.

APPENDIX B: TECHNOLOGY SURVEY

Electronic Device Worksheet

The purpose of this worksheet is to acquire information about the availability and understanding of electron devices. Please indicate which of the following electronic devices you have access to on a regular basis (because you own them, your family does, or you can use them frequently). Check all that apply and how many (if more than one) as applicable.

- ☐ Desktop computer
- ☐ Smartphone
- ☐ Tablet PC
- ☐ I-pad
- ☐ I-pod
- ☐ Laptop
- ☐ E-reader
- ☐ Kindle Fire
- ☐ Kindle
- ☐ Nook
- ☐ Printer
- ☐ Scanner
- ☐ Digtal camera
- ☐ Other:

How well do you know and plan to use your device(s) this year? Mark the following (NA) 0-10 (high)

	Laptop	Tablet PC	I-pad	E-reader	Smart phone	Other main device: _____
Can work at home on this device						
Might bring to school occasionally						
Can bring to school regularly						
Has apps for school						
Has internet service at home						
Can access personal email						
Unlimited text						
Unlimited data						
Favorite Social media:						
Favorite program:						
Favorite app:						

What app, program or device would you like to learn better? Why? What would you use it for?

In the following program, indicate your level of ability, check all that apply:

Program/skill	I use this a lot & am very talented	I use this frequently	I've tried to use this a few times	I don't know how to use this very well
Microsoft Word				
PowerPoint				
MS Publisher				
Internet searches				
Prezi				
Quizlet				
Make a video				
Use blogs				
Google Drive				
Other:				
Other:				
Other:				

Mr. Abels' Digital Learning policy

New technologies appear almost monthly and we use them for a variety of purposes, in fact many of us use them on a daily basis for leisure or recreation. Smart phones, laptops, Kindles and I-pads are only a few of the many possibilities, each with their own great apps and features, especially for the classroom. I want to encourage the use of electronic devices in the classroom as long as they are being used for the classroom *and* at the direction of the teacher. You are welcome to take notes, record the class (after permission), use online resources or other applications as they become available. ***However***, if you use your electronic device in the classroom for *anything* other than current classroom activities (Facebook, gaming, etc), you will lose this privilege for the remainder of the nine weeks (or longer), your device ***will be*** sent to the office, and you ***will*** receive consequences as determined by school policy.

We have read and understand this policy as well as the possible consequences.

Student printed name: Parental Signature: Date:

APPENDIX C: PERCEPTIONS SURVEY

Outside the classroom
Think about what you did with your time outside of this classroom.

1. How many times did you view the week's video(s)?

2. How many connecting links did you follow for more information?

3. How many Google searches did you complete to better understand the material?

4. How many times did you ask a person (teacher, classmate, relative…) for help in understanding?

5. In your estimation, how many total minutes did you spend studying Spanish outside of the classroom in the last 7 days?

6. Of all the materials you viewed this week, which was the most helpful and why? Which were the least helpful and why? (i.e. videos, websites, other people, ...)

Classroom time
Think about what you did in our classroom over the past seven days

7. How many minutes of the 230 weekly minutes did you spend working on the homework menu?

8. How many class time minutes (230 max) did you spend engaged in an activity related to the unit topics?

9. How many class time minutes did you spend asking questions or gathering more information about the topics?

10. Regarding classroom time... How many class time minutes did you spend using the target language?

11. How many class time minutes did you spend off task (talking to a friend, doing math homework, staring into space…)? What kind of things did you do?

12. Do you think that the videos prepared you for the classroom activities this week? Explain.

13. Did you feel more or less motivated to learn the material after performing in class? What did you do about it?

APPENDIX D: CLASS HANDOUTS

Chapter 4

Homework Menu
Calendar of Deadlines
4A Study Guide
4B Study Guide

Chapter 5

Homework Menu
Calendar of Deadlines
5A Study Guide
5B Study Guide

Spanish 2 – Chapter 4 Homework Menú _____

Below is a collection of homework possibilities to complete before the chapter 4 Test. Select which projects from the following menu you will complete and hand in each Monday.

Please make sure that your points not only add up to at least 100, but must have **one** from **each** of the following sections (20 pt deduction). With so much additional time, I will **not** accept late work.

Vocabulary Choices for each chapter

5-20	Complete the vocabulary handouts for each chapter, or create 30 flashcards each.
5-10	Write 10 original sentences using the vocabulary and tenses from each chapter.
5-10	Make a crossword or word search with 20 words with appropriate clues.
10-20	Draw a picture with at least 20 words per chapter and label them.

Grammar for each chapter

5-10	Complete the preview handout for each chapter (see the weebly for the handout).
5-10	Take the chapter review quiz on line – jdd-0408(4A), jdd-0418 (4B), print your scores
10	Modify existing verb cards to include the imperfect conjugations (10 cards total)
20-40	Complete the workbook for each chapter: (20 points per chapter or 2pts/page)

Creative projects:

5+	Complete a chapter survey on line (only once per week)
15	Write a short drama incorporating 40 chapter terms vocabulary (any combination of 4A +4B)
15	Create a comic strip for Act 20, p143 or Act 20 p172 include captions and speech bubbles
20	Create a poster/prezi/powerpoint of your childhood at least20 sentence +10 pictures

Cultural projects:

15	Complete the *Adelante* reading p203+, do the questions & internet activity (jdd-0407)
15	Complete the *Adelante* reading p228+, do the questions & internet activity (jdd-0417)
15	4A Oral presentation (205) **or** 4B written presentation (231)
30	Compare and contrast a holiday with that of another country. 2 page Spanish essay.
*	_____ (Negotiate with Mr. Abels)

Due dates –

- 25 points due next Monday
- 50, 75, then 100 points each week
- Chapter 3 Test the following class

**Note – due dates land on Mondays
*** Staple this sheet with your choices indicated to the top of your work each time.

Calendar of Deadlines & Topics for Chapter 4
Be sure to watch videos or read up on topic *prior* to class as there *may* be a quiz.

Jan 6 - 10	No school	Welcome back Review final & plan for Semester 2	Vocabulary chapter 4
Jan 13 - 17	25 points due 4A Vocabulary focus	4A Grammar – Imperfect tense – Regular verbs	4A Grammar – Imperfect Tense – irregular verbs
Jan 20 - 24	50 points due 4B Vocabulary focus	4A Grammar – Indirect object pronouns	4B Grammar – preterit & imperfect
Jan 27 - 31	75 points due 4B Vocabulary focus	4B grammar – Reciprocal actions	4B Grammar – preterit & imperfect
Feb 3 - 7	100 points due Chapter review	Ch 4 Test	Vocabulary chapter 5

Additional resources:

- Señor Jordan Videos: http://www.senorjordan.com/los-videos/
- Quizlet for Spanish 2: http://quizlet.com/class/439840/
- Mr. Abels Weebly - http://rrcaabels.weebly.com/
    - Note I will add links to class videos to this site as we progress

Additional resources will be posted on the Weebly and Edmodo as they become available.

Español 2 - Capítulo 4A **Señor Abels**

Cuando éramos niños

I have the following objectives for this chapter: Test: jdd- _ _ _ _

1. Talk about activities that you used to do as a child
   a. Discuss childhood toys and games
   b. Describe what you were like as a child
2. Discuss to or for whom something is done
3. Understand cultural perspectives on childhood songs.

As a scrapbook brings to your mind wonderful childhood memories, this study guide is meant to help remind you of the main elements of the chapter. The objectives above are broken down into smaller questions or tasks below. As you work through them, please:

- Write the page number where you found the answer or did a similar activity in the text in the left margin. This will help you find it again when you go back to study.
- Write the web code from PHSchool.com for each additional practice section. This will provide similar test or quiz questions and tasks to help you test your knowledge.
- Note that the number in parenthesis before each question or task. This tells you which objective it is matched to.

Thank you, *Señor Abels*

Page

(1) Know all the vocabulary words & be able to use numbers. jdd-_ _ _ _, jdd- _ _ _ _

(1) Complete the vocabulary study guide, include 'new' words from the review (p182)

(1) How do you conjugate the imperfect tense? jdd- _ _ _ _

mirar	

comer	

(1) Use the imperfect to talk about actions that happened _____in the past.

(1) The book lists the following expressions to indicate situations that could indicate the imperfect, as they imply something that happened _____in the past.

_____ _____

_____ _____

_____ _____

_____ _____

(1) The **only** irregular verbs in the imperfect are the following: jdd- _ _ _ _

_____ _____ _____

(2) An indirect object tells ____ whom or ____ whom an action is performed. Indirect objects pronouns are used to _____ or _____ an indirect object noun. Use ___ + name, noun or pronoun to help clarify ____ and ____.

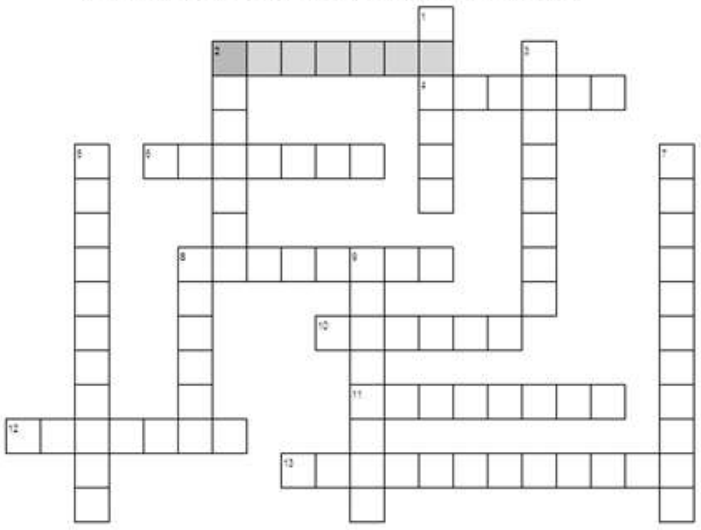
(3) In class, several children's songs were presented. Which of these was your favorite? Do you remember all the words? Write the lyrics to one of them here:

(1-3) How would you answer the following questions? Can you think of others? Feel free to discuss your answers and questions with the class!

¿Cómo eras de niño(a)? ¿Cómo te portabas? ¿Qué te gustaba hacer de pequeño(a)? ¿Qué coleccionabas? ¿Con quién jugabas de niño(a) y con quién compartías tus juguetes?

Crossword:

Can you complete puzzle with chapter vocabulary?



Vertical:

2. oso de ___
4. el patio de ___
6. ¡Qué mal ___!
8. ¡Ya va a ___ al perro otra vez!
10. ___ a la cuerda
11. de o para niños
12. Por lo ___, no se permite llegar tarde.
13. no obedece

Horizontal:

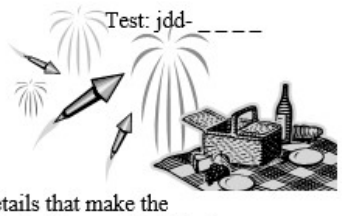
1. ¡Es ___! No le gusta el chocolate.
2. niño ___
3. No es una bicicleta, es un ___.
5. Me gusta ___ monedas.
7. plural de colección
8. una ___ de oro
9. niña ___

Español 2 - Capítulo 4B **Señor Abels**

Celebrando los días festivos

I have the following objectives for this chapter: Test: jdd- _ _ _ _

1. Describe holiday celebrations
2. Talk about your family and relatives
3. Describe people, places, and situations in the past
4. Talk about how people interact
5. Understand cultural perspectives on holidays and special events



Celebrations with their different customs bring to mind all the wonderful details that make the celebration so special. Similarly this review is intended to draw your attention to the specific list of objectives above. The objectives above are broken down into smaller questions or tasks below. As you work through them, please:

- Write the page number where you found the answer or did a similar activity in the text in the left margin. This will help you find it again when you go back to study.
- Write the web code from PHSchool.com for each additional practice section. This will provide similar test or quiz questions and tasks to help you test your knowledge.
- Note that the number in parenthesis before each question or task. This tells you which objective it is matched to.

Thank you, *Señor Abels*

Page

(1-5) Know all the vocabulary words & be able to use numbers. jdd-_ _ _ _, jdd- _ _ _ _

(1-5) Complete the vocabulary study guide

(3) In keeping the preterit and imperfect separate, use following chart jdd- _ _ _ _

The imperfect is used	The preterit is used

(2,4) Sometimes the reflexive pronouns ____ and ____ are used to express the idea - "(to) _____" These are called reciprocal actions.

The following are a list of verbs that ***can*** be used as reciprocal actions:

(1-3) How would you answer the following questions? Can you think of others?

1. ¿Cómo celebrabas tu cumpleaños cuando eras niño(a)?
2. ¿Cómo eran tus parientes favoritos?

3. ¿Cuál era tu día festivo favorito cuando eras niño(a)?
4. ¿Qué actividades hacías con tu pariente favorito?
5. ¿Cómo saludas a tus parientes?

Word Search:

Can you find our chapter vocabulary words here??

H E F G V A Z Y R A B R A Z A R V G K F
L B J B C L C J E F E S T I V O M S E R
A Q X H P A U H P L K E I X P O A S D E
L D U J W E M A V Y H O D J S R R N R C
W T B B F X P B D A A N R D T Í J A Q U
Í J W E D E L Í G G N L T N E Í X L K E
C Z Q F S F I A J W H T E R R J O R S N
H Y B Q W A R U R Z I I I F D K Z E L T
A N I U U A R Q F A M X B G S F N D G E
R Y D D L Z V Q B N N N X E U O Í E F M
L Y U A Q M O X U H B N T D I A Í D U E
A E G R E U N I R S E S W N D M A O P N
R E L O R O O T H Í I M U H P L P R S T
R I V Í U B W H F H H E S S E T K Z X E
B T M I E Q C S C E R K V I S R O D O M

1. ¡Qué rica comida! Quiero ___ al chef.
2. Hay muchos parques ___ de donde vivo.
3. La cultura china es muy ___.
4. dar un beso
5. Quiero ___ con mi amiga.
6. plural de chiste
7. ___ años
8. El 4 de julio es un día ___ en los Estados Unidos.
9. lo opuesto de casi nunca
10. Si recuerdo bien, ___ un letrero en la entrada.
11. Charlaban ___ caminaban.
12. dar un regalo
13. ¡Qué buen chiste! No pueden parar de ___.
14. plural de reunión
15. ___ con amigos

Spanish 2 – Chapter 5 Homework Menú _____

Below is a collection of homework possibilities to complete before the chapter 5 Test. Select which projects from the following menu you will complete and hand in each Monday (dates on back).

Please make sure that your points not only add up to at least 100, but must have **one** from **each** of the following sections (20 pt deduction). With so much additional time, I will **not** accept late work.

Vocabulary Choices for each chapter

5-30	Vocabulary handouts, 30 flashcards, quizlet highscore, make a crossword / word search
10 ea	Draw a picture or make PowerPoint with at least 20 words per chapter and label them.
10 ea	Find an article with current vocabulary, underline/highlight 10 terms.
20	Create a board game targeting 50 terms, should have rules and all pieces necessary to play.

Grammar for each chapter

5 ea	Complete the preview handout for each chapter (see the weebly for the handout).
5 ea	Write 10 original sentences using the vocabulary and tenses from each chapter.
5 ea	Take the chapter review quiz on line – jdd-0508(5A), jdd-0517 (5B), print your scores
10	Write the present, preterit & imperfect for the following verbs: decir, traer, conducir, venir, oír, leer, destruir, vestir, dormir & creer (be sure to check the conjugations in a resource)
20-40	Complete the workbook for each chapter: (20 points per chapter or 2pts/page)

Creative Writing projects:

15	Write a short drama incorporating 40 chapter terms vocabulary (any combination of 5A +5B)
20	Create a 6 panel comic strip with dialogue/description (see p266) incorporating 20 target terms.
20	Create a poster/prezi/powerpoint of an accident or heroic act (minimum of 15 sentences)

Cultural projects:

5 ea	5A *Adelante* reading p256+, 5B Adelante reading p282+ Answer in complete sentences.
10 ea	Complete any of the following internet activities jdd-0506, jdd-0516
30	Research a disaster in an Hispanic country, write a 2pg paper using target terms & grammar.
*	_____ (Negotiate with Mr. Abels)

Due dates –

- 25 points due each Monday
- Totals 50, 75, then 100 points each week
- Chapter 5 Test the following class

**Note – due dates land on Mondays (mostly)
*** Staple this sheet with your choices indicated to the top of your work each time.

Calendar of Deadlines & Topics for Chapter 5

Be sure to watch videos or read up on topic *prior* to class dates as there *may* be a quiz.

Feb 2 - 6	Review for Test	Ch 4 Test	Vocabulary chapter 5
Feb 9 - 13	25 points due 5A Vocabulary focus	Vocabulary & Culture day	5A Grammar – p248 Preterit & Imperfect
Feb 16 - 20	Presidents day No school	50 points due 5A Grammar - p250 Irregular preterit	5B Grammar – p274 Irregular preterit
Feb 23 - 27	75 points due 5B Vocabulary focus	5B Grammar – p277 Imperfect progressive	Ch 5 Grammar Review
Mar 2 -6	100 points due Chapter review	Ch 5 Test	Vocabulary chapter 6

Additional resources:

- Señor Jordan Videos: http://www.senorjordan.com/los-videos/
- Quizlet for Spanish 2: http://quizlet.com/class/439840/
- Mr. Abels Weebly - http://rrcaabels.weebly.com/
  - Note I will add links to class videos to this site as we progress
- Edmodo - www.edmodo.com
  - Note surveys, videos and other resources will be posted here primarily

Additional resources will be posted on the Weebly and Edmodo as they become available.

Capítulo 5A **Español 2**

Un acto heroico

Your textbook has these four objectives at the beginning of the chapter (p239). Test: jdd-_ _ _

1. Discuss emergencies, crises, rescues & heroic acts & weather conditions
2. Describe past situations and settings
3. Understand cultural perspectives on natural disasters and legends

I'll add …

4. Conjugate and appropriately use new grammar.

In the event of an emergency, everyone needs to have a clear plan to follow. This guide is similarly intended to guide you through the main points of the chapter. The objectives above are broken down into smaller questions or tasks below. As you work through them, please:

- Write the page number where you found the answ er or did a similar activity in the text in the left margin. This will help you find it again when you go back to study.
- Write the web code from PHSchool.com for each additional practice section. This will provide similar test questions and tasks to help you test your knowledge.
- Note that the number in parenthesis before each question or task. This tells you which objective it is matched to.

Thank you, *Señor Abels*

Page

(1) Define all the vocabulary words. jdd-_ _ _ _, jdd- _ _ _ _

(1) Complete the vocabulary study guide, include 'new' words from the p290.

(2,4) The verb *haber* has two use: in the preterit, _____ says an _____ took place, while in the imperfect, _____ describes an extended _____ in the past

(2,4) In keeping the preterit and imperfect separate, use following chart jdd- _ _ _ _

The imperfect is used	The preterit is used

(2,4) The following phrases are also used with the imperfect to describe states of being:

(4) Irregular preterit forms with ___ vowels in a row, change the middle ___ to a ___

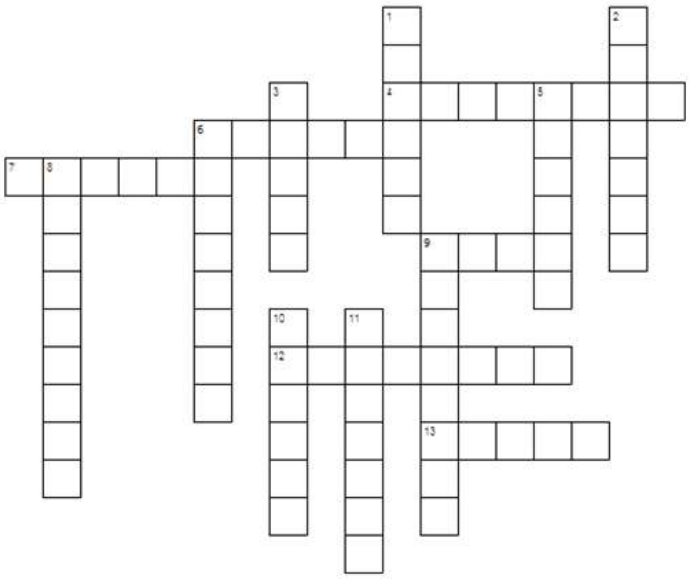
Capítulo 5A **Español 2**

Un acto heroico

(1,3)Read through the cultural articles in the chapter. How are these events similar to US culture? How are they different?

(1-3) Write a short paragraph of a news report about a weather disaster.

Crossword from this chapter:



Across

4 subir la ___
6 ___ la luz
7 Si lo molestas te va a ___
9 Quiero escribir sobre mi ___ Voy a escribir mi autobiografia
12 ___ de apartamentos
13 Va a ___ mucho este invierno

Down

1 No está vivo
2 Katrina Andrés Wilma
3 a ___ de
5 ___ por teléfono
6 Escribe un ___ sobre el incendio
8 Elizabeth Vargas es una ___ de televisión
9 Un héroe es alguien ___
10 Se cortó el dedo Está ___
11 Es el mejor cantante de rock ___ ___

Capítulo 5B **Español 2**

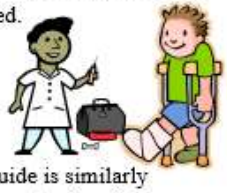
Un accidente

Your textbook has these four objectives at the beginning of the chapter (p239). Test: jdd-_ _ _ _

1. Describe an accident scene, as well as what you were doing when it occurred.
2. Talk about injuries and treatments
3. Understand cultural perspectives on health

I'll add …

4. Conjugate and appropriately use new grammar.



In the event of an emergency, everyone needs to have a clear plan to follow. This guide is similarly intended to guide you through the main points of the chapter. The objectives above are broken down into smaller questions or tasks below. As you work through them, please:

- Write the page number where you found the answer or did a similar activity in the text in the left margin. This will help you find it again when you go back to study.
- Write the web code from PHSchool.com for each additional practice section. This will provide similar test questions and tasks to help you test your knowledge.
- Note that the number in parenthesis before each question or task. This tells you which objective it is matched to.

Thank you, *Señor Abels*

Page

(1) Define all the vocabulary words. jdd-_ _ _ _, jdd- _ _ _ _

(1-3) Complete the vocabulary study guide, be able to label body parts or pictures

(1,4) The following verbs (and those like them) are irregular jdd- _ _ _ _

Infinitive	Stem
decir	
	estuv-
poder	
	pus-
tener	
	traj-
venir	

Irregular preterite endings	

Example verb

(1,4) The progressive can be used with the imperfect to show something ongoing in the past. It uses the _____ tense of the verb _____ + the present _____

AR Verbs → stem + -ando for example Estoy _____

ER Verbs → stem + -iendo for example Estoy _____

IR Verbs → stem + -iendo for example Estoy _____

Two irregular forms for the present participle:

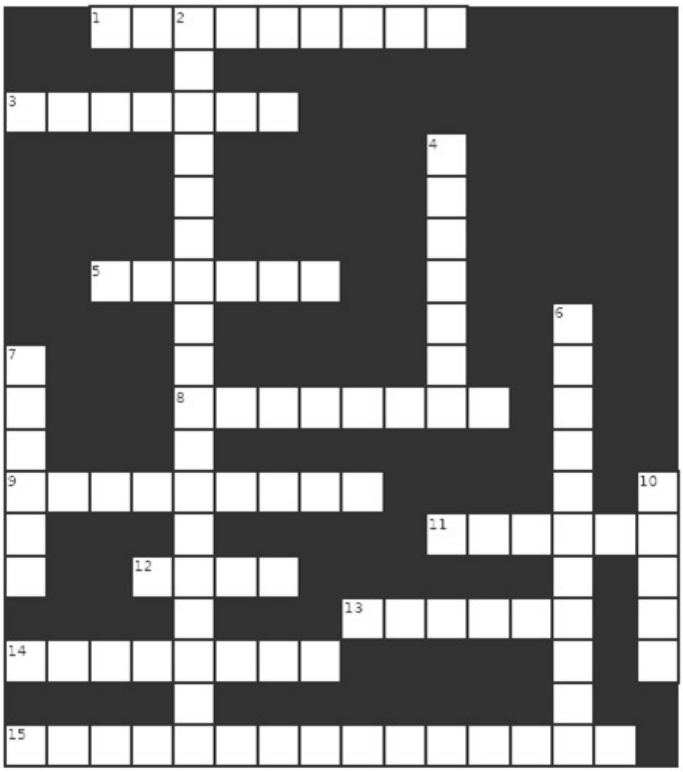
- Verbs with ___ vowels in a row, change the ___ to ___
- ___ stem changing verbs, take the ___st vowel of the stem change.
  - Dormir → _____ morir → _____
  - Servir → _____ sentir → _____

Capítulo 5B **Español 2**

Un accidente

(1,3) Read through the cultural articles in the chapter. How are these events similar to US culture? How are they different?

(1-3) Write a short paragraph of a recent trip to the doctor. What happened



Horizontal

1. Te recetó estas porque te dolían mucho las rodillas
3. La parte del cuerpo en el medio de la pierna
5. La parte del cuerpo entre la cabeza y el cuerpo
8. Una persona fuerte tiene muchos de estos
9. Una persona que ayuda al médico
11. Un líquido rojo que sale cuando te cortas
12. Te pusieron esto porque te rompiste el hombro.
13. La que te da la doctora para comprar tu medicina
14. pastillas, antibióticos o inyecciones
15. Te dieron esta porque no pudiste caminar

Vertical

2. Te llevaron rápidamente allí en ambulancia
4. La parte del cuerpo entre el pie y la pierna
6. Es una foto, pero de los huesos
7. La parte del cuerpo entre la mano y el brazo
10. Te pusieron esto porque te cortaste y perdiste un poco de sangre

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