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Jennifer Vojtko Rubí  
*University of Iowa*

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LEARNING HOW TO LEARN: STUDENTS' INTERACTIONS WITH THE ONLINE  
COMPONENTS OF A FLIPPED SPANISH LANGUAGE PROGRAM

by

Jennifer Vojtko Rubí

A thesis submitted in partial fulfillment  
of the requirements for the Doctor of Philosophy  
degree in Second Language Acquisition in the  
Graduate College of  
The University of Iowa

August 2017

Thesis Supervisors: Associate Professor Judith Liskin-Gasparro  
Associate Professor Renita Schmidt

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Graduate College  
The University of Iowa  
Iowa City, Iowa

CERTIFICATE OF APPROVAL

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PH.D. THESIS

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This is to certify that the Ph.D. thesis of

Jennifer Vojtko Rubí

has been approved by the Examining Committee for  
the thesis requirement for the Doctor of Philosophy degree  
in Second Language Acquisition at the August 2017 graduation.

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Pamela Wesely

To Ezra, Lola, and Rafa

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## ABSTRACT

Using a grounded theory approach, the purpose of this research study is to generate a *learning-how-to-learn* training model for learners in flipped language course. The model is grounded in the interactions and comments from college students enrolled in an elementary Spanish I class at a large Midwestern university. The study participants video recorded themselves on two occasions during the semester as they worked online to study and learn new vocabulary. Twice during the semester the participants discussed with their classmates how they approached the online course work, offering tips and suggestions to one another. Finally, the participants met with me individually to view recordings of themselves working online and to reflect on their behaviors.

The study addressed research questions pertaining to (a) their online interactions with three online components, (b) the insights gained from discussing their online interactions with their peers, (c) the insights gained from watching and reflecting on video clips of themselves working online, (d) the support needed to help learners learn in a flipped course. The grounded theory analysis of the three data sources—recorded think-aloud sessions, focus groups, and individual sessions with the researcher— provides a clear picture of how students learn in an online environment and what support they need to become more effective language learners in a flipped course environment

The study identified communication as the core construct that emerged from the data. Communication was found to be central to the types of support that learners in a flipped course need and essential to the *learning-how-to-learn* training model. The training model considers the learner as well as the director and instructors and communication at each level is vital to the learners' understanding of flipped learning and subsequent interactions. Autonomy, guidance,

and reflection are the three concepts that support the core construct by addressing ways to support learners.

A major contribution of this study is to explore the culture of flipped learning from the students' perspective, since previous research on flipped learning is weighted toward the instructor side. The findings suggest that training in a flipped course be ongoing to increase communication and in-class to bridge the disconnect between face-to-face time and online time. The pedagogical implications, which consider the entire language program from the program level to the classroom level, describe ways to guide learners in building their autonomous learning skills and practices, along with the practice of reflection, both of which are fundamental to learning in a flipped course. The need for ongoing and in-class training is presented in addition to pedagogical implications at the program level, instructor level, student level, and the classroom level.

## PUBLIC ABSTRACT

In 2012, the Spanish General Education Program in a large Midwestern university completed its transition from face-to-face courses in which students met daily with their instructor (a graduate student teaching assistant) in a classroom to a blended format, in which 40 percent of the course material was moved online and classroom time was reduced to three days a week. In addition, the distribution of the course material followed a model termed *flipping the classroom*, in which instructor presentations and initial practice of new vocabulary and grammatical structures were moved online, and classroom time was devoted to student-centered activities to foster communication skills. For the majority of college students, a flipped class constitutes academic culture shock: It will most likely be the first time they must take responsibility for learning new course material online on their own and then be held accountable for that learning when they participate in application and extension activities in face-to-face class sessions.

The purpose of this qualitative study is two-fold. First, it identifies which out-of-class resources students use, analyzes how students use them to construct meaning how their online study behaviors change during their first semester of learning Spanish, and from where the new behaviors arise. Second, based on the observed online behaviors and discovery of the types of support students need, I develop a training model for effective learning in flipped Spanish language courses.

The analysis of the three data sources---recorded think-aloud sessions, focus groups, and individual sessions with the researcher suggest that the learning-how-to-learn training model be ongoing to increase communication and in-class to bridge the disconnect between face-to-face time and online time. The pedagogical implications, which consider the entire language program

from the program level to the classroom level, describe ways to guide learners in building their autonomous learning skills and practices, along with the practice of reflection, both of which are fundamental to learning in a flipped course.

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## LIST OF ABBREVIATIONS

ES1	Elementary Spanish I
GEP	General Education Program
GIP	Grammar Interactive Presentation
ISR	Individual Session with the Researcher
MSL	MySpanishLab
RQ	Research Question
RTAs	Recorded Think-Aloud sessions
TA	Teaching Assistant
VIP	Vocabulary Interactive Presentation
VT	Vocabulary Tutorial

# **CHAPTER 1**

## **Introduction**

The change in the Spanish General Education Program at a large Midwestern university from traditional, face-to-face courses to courses using a flipped format has revealed the surprising reality that the students, despite their twenty-first-century technology skills, do not know how to shift their study practices from reliance on the instructor to self-regulated learning. The purpose of this qualitative study is to identify the types of support students need to become effective learners in a flipped learning environment and then to develop a training model for effective learning in flipped Spanish language courses. The model is grounded in close investigation of students' observed online behaviors throughout one semester. Additional sources of data include small focus groups and individual sessions with the researcher. The findings of this investigation are interpreted through constructivist, sociocultural, and information literacy frameworks which, in turn, will allow me to discover which out-of-class resources students use, how they use them to construct meaning, as well as how their online study behaviors change over the course of the semester and from where the new behaviors arise (from peers, from the researcher, or from trial and error). The findings will be applicable not only to the foreign language context, but also to other disciplines that employ flipped learning, such as math and the sciences.

This first chapter introduces the research problem, the research questions, the rationale and the significance of the research. Then it outlines the conceptual frameworks that underpin the study. The chapter concludes with key terminology for the study.

### **Context of the Problem**

In my experience as a language teacher, I have always been interested in knowing what students do outside of class to prepare for class. On the first day of teaching a blended, fourth-

semester Spanish class, I was explaining to my students the materials that they needed to purchase and I was showing them how to access the online workbook and the eText. As I was showing them the eText, they looked at each other and began to whisper. To my surprise, many students, who had been using this same book for the past three semesters, were unaware that an eText actually existed. One student, bewildered at the existence of the eText, stopped me, and said, “Wait. What? We have an e-book?” While I was excited that I was able to show them the features of the eText, I wondered how the students were preparing outside of class, especially in the first-semester course where students were now using a flipped textbook that no longer contained grammar explanations, for example. The fact that students were not aware of the eText after three semesters of study raised two areas of concern. First, what were students in the first-semester class doing to prepare themselves for face-to-face classes when they do not have any reference material (grammar explanations or Spanish–English vocabulary lists) in their printed text and they do not know how to find it, and other resources online? Second, as instructors, what were we doing to help our students not only become aware of the resources they have, but to also show them how to use the resources effectively to support their learning of Spanish?

In the 1960s and 1970s, in a traditional teacher-centered language learning environment, class time was dedicated to the teacher explaining grammar rules and then students working on grammar drills during class. Students listened, took notes, conjugated verbs, and then referred to those notes and verb conjugations as they completed their homework assignments at home. In the 1980s and 1990s, many foreign language courses experienced a shift from the traditional, teacher-centered model with a focus on the grammar translation method, to classrooms that were more student centered and supported by communicative language teaching and approaches that were influenced by sociocultural theory (Brandle, 2002; Levine, 2004; Luke, 2004). Instructors

in these courses actively sought ways to engage their students during class by using the language in authentic tasks. Most recently, the shift in teaching attempts to move beyond communicative language teaching by incorporating more culturally and intellectually rich, meaning-making activities, even at the beginning levels. With the rise of technology, blended courses, which combine face-to-face learning with computer-mediated instruction, provide language teachers and students with opportunities to explore additional options for presenting and learning information. One form of blended learning is flipped learning which reverses the traditional learning environment by delivering instructional content, such as new linguistic information and mechanical exercises, outside of class, typically online, and reserves face-to-face time for communicative activities that logically follow from the online work.

While flipped learning provides a viable delivery method to address the development of deeper learning and critical thinking skills, the shift from a traditional learning environment to a flipped learning environment can be challenging for many students. For years, students have studied in a traditional teacher-centered environment where students develop and build study skills (taking notes, reading activity, searching a text) and complete activities with the guidance of their instructor and collaboration with their peers during face-to-face time. Then outside of class, they complete a very a specific set of homework problems to extend the higher-order learning on their own. For the majority of college students, a flipped class will most likely be the first time in their academic careers where they have had to be responsible for the learning the material first, on their own, online and then truly be held accountable for that material during face-to-face time where they are expected to participate in higher-order-thinking activities.

According to Estes, Ingram and Liu (2014), a reasonable expectation for students is that they should be able to learn, recall and comprehend the subject matter at a basic level by working

online and then use higher order thinking skills to apply, analyze, evaluate and create during class time. Therefore, by focusing on the lower levels of Bloom's taxonomy outside of class time, instructors can focus on the upper levels of Bloom's taxonomy and provide meaningful activities that allow students the opportunity to apply their knowledge of the content area and develop critical thinking skills during class.

From Bloom's taxonomy perspective, direct instruction happens online and outside of class and engages students in lower levels of cognitive work such as gaining knowledge, remembering, comprehending, and applying basic knowledge. The face-to-face time is then dedicated to student-centered learning activities that address the upper levels of Bloom's taxonomy such as analyzing, evaluating, and creating as they are collaborating with their peers and guided by their instructor (Enfield, 2013; Lemmer, 2013; Rowe et al., 2013; Tune et al., 2013; Ruiz-Debbe, 2014; Vazquez, 2014). In a traditional, teacher-centered classroom, the lower levels of Bloom's taxonomy are addressed during class time as the instructor introduces new content. This delivery model leaves very little, if any time, to reach higher-order thinking skills, which then requires students to work on their own as they attempt to complete more difficult extension exercises that are designed to develop critical thinking skills. Figure 1, taken from Maite (2015), shows how Bloom's taxonomy can be applied in a traditional classroom and a flipped classroom.

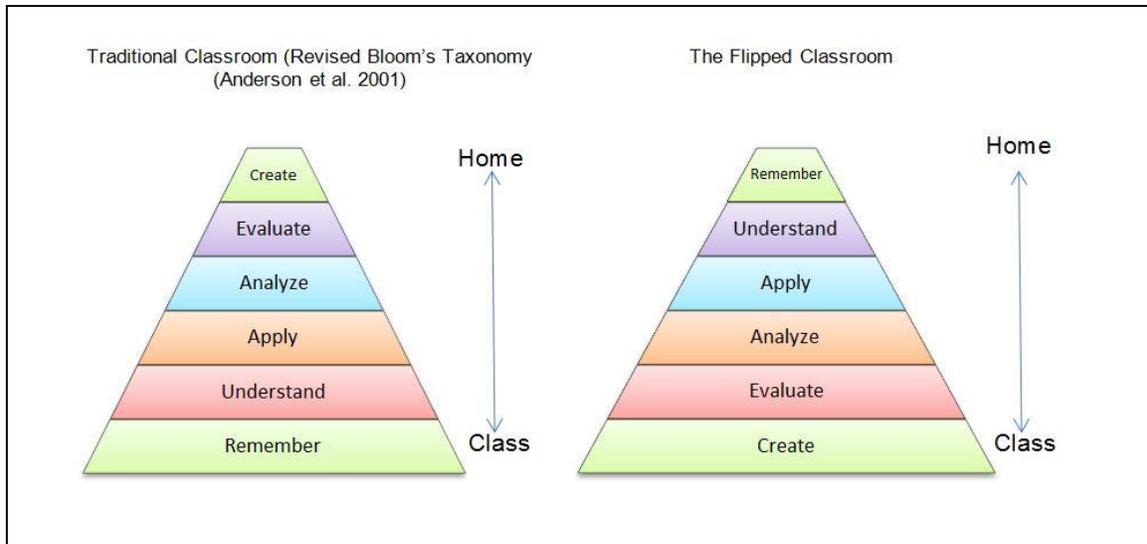


Figure 1. Inverted Bloom's Taxonomy (Anderson et al., 2001; Brame, 2013; Maite, 2015)

in the flipped classroom taken from Maite, 2015

While learning basic content outside of class should be a reasonable expectation, the addition of a complex online component as well as a change in the learning culture, tends to complicate feasibility of this expectation. Developing a *learning-how-to-learn* framework for a flipped learning environment is based on the lack of student readiness for and understanding of flipped learning and the lack of guidance provided to students in a flipped learning environment, particularly in the online, outside-of-class portion. In 2004, Beasley & Smyth argued that students were not prepared for autonomous learning in online learning environments because they did not know how to take advantage of their learning opportunities in that environment. Although their study is more than a decade old, the findings from this current study are similar.

Most often, students are only provided with resources to *access* the online information (e.g., an access code), but not necessarily strategies on how to use the tools and resources located behind the access code to maximize their learning. In an online environment, which is often framed in constructivist learning theory, learners have access to an abundance of information on

which to construct meaning by exploring and engaging with the content (Smith, 1991). This information can be welcoming for some students, yet overwhelming for others (Smith, 1991; Tobias, 2006). On one hand, the available resources allow for the ability to tailor learning to individual needs as all the resources can be used in flexible ways in accordance with students' preferences. On the other hand, learners rarely have sufficient information literacy skills on how to use and take advantage of the abundance of online resources to tailor their learning and construct meaningful, conscious connections between what they know and the new information that they encounter in addition to testing hypothesis and developing strategies for learning (Chenoweth, Ushida and Murday, 2013). Additionally, the very abundance of material may prove overwhelming to learners, particularly those who may not know how to use it effectively nor have the metacognition necessary to plan, monitor, and evaluate their own learning outside of class (Tobias, 2006). In many cases, becoming an autonomous learner is often an outcome of flipped learning, but, it is also, most often, a prerequisite for successful flipped learning.

The issue of being prepared for autonomous learning, however, goes beyond general information and digital literacy skills and knowing how to interact with the material online or being able to locate and use tools. The findings show that students view outside-of-class work as a set of problems that they now do prior to class rather than after. Their mindset remains that homework equals a grade and therefore must be completed rather than having an understanding that the design behind flipped learning is to assist them in developing and building a repertoire of skills. These skills are similar to the set of skills they would gain with the guidance of a teacher, but now to a large extent, the student becomes the teacher. Therefore, the culture of what it means to learn in a flipped environment and the perceptions held by students also factor into the students' readiness and the rationale for this study.

## Research Questions

The purpose of this study is to create a *learning-how-to-learn* framework for flipped language learning that is empirically grounded in the observed out-of-class behaviors of first semester students enrolled in a flipped and blended Spanish course as well as small focus groups and individual sessions with the researcher where participants viewed recordings of their online interactions and discussed them.

The research questions addressed in this study are:

1. How do students who are enrolled in their first flipped Spanish course construct meaning while working with the online components of a Spanish language program?
2. What insights about learning in an online context emerge from discussions with peers?
3. What insights about learning in an online context emerge from conversations in which learners view and talk about video clips of their online activity?
4. What types of support do students need to understand and participate in flipped learning?

To answer the first research questions, I observed the online behaviors of students in an Elementary Spanish I course two times throughout the semester via screen-capture software. Students completed their regularly assigned out-of-class work in the online interactive learning modules and thought-aloud as they were doing so. These recordings are called recorded think-aloud sessions (RTAs). For the second question, in small focus groups, students answered two different prompts. In the first prompt, students discussed with one another how they worked through their online work in preparation for that day's class. In the second prompt, students provided suggestions to a hypothetical new student on how to complete a set of online work. For the third question, students met with me prior to an upcoming recorded think-aloud session to specifically view video clips of their online interactions and more generally to discuss their online behaviors in a semi-structured interview. To answer the fourth question, data from the RTAs were triangulated with data from the small focus groups and semi-structured interviews to

identify support structures that are needed. Data was analyzed using grounded theory to lead to a better understanding of students' online interactions.

### **Significance of the Study**

The study is situated in a post-secondary Spanish course at a large midwestern university. The delivery format of the elementary Spanish course is a blended, flipped format in which the students meet face-to-face three times a week and then complete work online that prepares them for the face-to-face time. The content of this research provides insights on students' resource use as they prepared for their face-to-face class sessions. The study discovered information about the tools and resources students use and ways they use them to construct their own language learning throughout the duration of one semester. Research on flipped learning is heavily weighted toward the instructor side and the learner is not the topic of much discussion. According to Cresap (2013), the challenges for the learner appear minimal; however, this research challenges that thought by taking into consideration the firsthand accounts of students as they journey through flipped learning. Having an understanding of students' experience as well as listening to the voice of the student have the potential to help them learn (Bruce, 2008; Conole, de Laat, Darby, and Dillon 2006; Conole, 2008). While the objective of this study was not to create yet another guide for teachers on how to implement flipped learning, the framework may be considered a pertinent resource that could be taken into consideration when designing a flipped course since the learner has often been left out in the design process. The findings and recommendations from this study are significant for students enrolled in flipped and blended learning environments across disciplines, but specifically in language learning.

The findings may also interest instructional designers and e-book designers as they will provide an evidence base for learner-centered design and e-textbook improvement. A

sociocultural perspective emphasizes the material aspects of digital information and posits that the way in which a webpage is structured and functions, for example, will influence the conditions for interacting with it (Limberg, Sundin & Talja, 2012). Although this study used a particular platform to discover how students are learning, the findings extend beyond technical skills and provides a holistic view of how students use online resources to highlight the variation in learning strategies and approaches and identify the sources of learning.

### **Study-Specific Terminology**

This section provides definitions of some key terms that are used throughout the study.

**Blended/Hybrid:** a combination of face-to-face and online instruction. These terms are often used interchangeably in the research; however, in this study blended will be used since flipped learning is often seen as a branch of blended learning (Flipped Learning Network, 2014; Abeysekera, Lakmal & Dawson 2015).

**Flipped learning:** an instructional strategy and a type of blended learning that reverses the traditional educational arrangement by delivering instructional content, often online, outside of the classroom. It moves activities, including those that may have traditionally been considered homework, into the classroom. In a flipped classroom, students watch online lectures, collaborate in online discussions, or carry out research at home and engage in concepts in the classroom with the guidance of the instructor (Abeysekera, Lakmal, and Dawson 2015).

**Learner Training:** a “process aimed at the construction of knowledge and skill base that enables language learners to use technology more efficiently and effectively in support of language learning objectives” (Hubbard, 2013, p. 164)

## Overview of the Study

There is a lack of knowledge about the way in which students interact with the online components of a flipped course as well as their understanding of such a course. This chapter presented an introduction to the research topic, the purpose of the research as well as explained the need for research, specifically, as related to the learner in flipped learning. This chapter also described the purpose of this study as wanting to develop a grounded theory that will describe and explain the types of support students may need in a flipped environment. The remaining chapters are organized as follows:

Chapter 2 presents an overview of previous research that informs this study. The first part of the chapter provides an overview of the theoretical frameworks that guide this study—constructivist learning theory, sociocultural theory, and information literacy theory. Together, these frameworks serve to guide the analysis of learner preparation outside of class and the development of a *learning-how-to-learn* framework for this study. Following the frameworks, an extensive review of literature on flipped learning is presented followed by a review of the types of preparation and training that students receive to engage with these online resources. Throughout the chapter, previous research on students' interactions in online environments is also presented.

Chapter 3 addresses methodological considerations. The first section explains the context of the research site. The second part of the chapter provides information about the students who participated in this investigation and is followed by an explanation of the data collection procedures and the methods of analysis used to carry out this project. This chapter specifically focuses on the evolution of grounded theory and why it was chosen for this study in addition to how the method was applied to the current research.

Chapter 4 presents the findings of the analysis of the participants' interactions with the online components as well as comments gathered from working with their peers and from viewing and commenting on video clips of themselves. The findings are presented under the areas of the phenomenon as experienced by the participants enrolled in an elementary level, flipped Spanish course.

Chapter 5 presents the challenges that three focal participants faced, how they overcame those challenges, and what influenced any changes in their interactions. This chapter draws on examples from the recorded think-aloud session, as well as ideas that were brought up in the focus groups and the individual sessions with the researcher.

Chapter 6 focuses on the interpretations and theoretical renderings of the findings and presents the *learning-how-to-learn* model which is grounded in participant interactions with the online components in a flipped course and their understanding of learning in a flipped course. A summary of key findings along with limitations and recommendations for future research are presented.

## **CHAPTER 2**

### **Literature Review**

Chapter 2 provides an overview of the empirical investigations that have informed this study as well as the theoretical underpinnings that will guide this investigation. In this dissertation, I propose to create a learning-how-to-learn framework for flipped language learning that is empirically grounded in the observed out-of-class behaviors of first semester students enrolled in a flipped and blended Spanish course. The first semester students are enrolled in their first flipped Spanish course. Before continuing, however, it is important to consider the role of the literature review in a grounded theory study. Consistent with grounded theory method, this preliminary literature review involves consideration of a range of issues surrounding the phenomenon of interest in the study—students' experience in flipped learning. The literature review relates to aspects of the broad research topic, which is student's experience in and understanding of flipped learning from their perspective, and serves to set the stage for the subsequent chapters. In subsequent chapters, literature will be included as a source of data (Glaser & Strauss, 1967) and will be woven into the discussion throughout the study. This preliminary literature review discusses relevant literature in three main areas—theoretical frameworks, blended and flipped learning, and learner training.

I begin the chapter by highlighting the main components of constructivism, sociocultural theory, and information literacy theory which together form the theoretical frameworks that I will use to interpret the findings of this investigation. Next, I provide an overview of blended and flipped delivery models, including reasons for switching from a traditional model to a flipped model and issues that arise from the implementation of a flipped model. I conclude this chapter with a discussion of various learner training models that have been created to guide students

through the development of certain aspects of their learning, including pedagogical, technical, metacognitive, and strategy-based skills, as well as the development of learner autonomy.

### **Theoretical Frameworks**

This section of the literature review will highlight the principal components of the three frameworks that will guide the interpretations of this study—constructivism, sociocultural theory, and information literacy theory. Constructivism sets the scene for the flipped learning environment where the expectation is that students are the manufacturers of their learning and make decisions about what type of input they focus on and deem important, the amount of time they spend on it, as well as the order in which they approach it to create their learning environment outside of class. Their out-of-class learning has implications on their face-to-face class meeting which is where they are expected to apply the knowledge they learned outside of class to communicative, learner-centered activities in which they are expected to participate in class. The ways in which students construct their meaning can also be viewed through a sociocultural lens and an information literacy lens. From a sociocultural perspective, students are engaged in higher order thinking skills and assisting or being assisted by peers during face-to-face time. Outside of class, students are using the computer as a mediational tool as they study Spanish. Lastly, while a constructivist environment is intended for students to be the manufacturers of their learning, students need to have information literacy skills to identify, select, and use the variety of resources available to them while they are studying Spanish online. Therefore, I will begin with a discussion of constructivism followed by an overview of sociocultural theory with an emphasis on three aspects of cognitive development—computer as a mediation tool, regulation, and scaffolding—and close with information literacy from a sociocultural perspective. Each framework will also be accompanied by an overview of related empirical evidence.

#### Constructivism

This section will first examine the use of constructivism as one framework for the current topic including a history of constructivism, the roles of teachers and students in a constructivist

environment and the role of autonomy in constructivist learning. Then, it will focus on learner behaviors in computer aided language learning (CALL) environments.

**Overview.** Constructivism, a learning theory with roots in Socratic dialogue, is based on the observation and scientific study about how people learn (Candy, 1991). Socrates asked directed questions that led his students to realize the weaknesses in their thinking. It also has roots in psychology and philosophy and is influenced by the work of Piaget, Vygotsky, and Bruner. Piaget's focus on math and logical concepts, accompanied by the concept of cognitive structure, is central to constructivism. Vygotsky, in contrast, focused on the learning context and on language learning by children. His approach affords social interaction a fundamental role in the development of cognition.

As constructivism originates from different conceptual and philosophical paradigms, two different schools of thought have emerged—cognitive constructivism and social constructivism. In cognitive constructivism, influenced greatly by Piaget, the focus is on the individual. Cognition occurs in the mind of the individual, and each individual makes sense of new information and experiences on his or her own (Duffy & Cunningham, 1996). Piaget refers to this as schema accommodation, in which the schema is a base mental model of something that the learner knows. As this schema is challenged with new information and experiences, these need to be incorporated into the individual's mental model. In cognitive constructivism, the learner is viewed as the active agent in learning, and not a passive recipient of instruction. In line with its name, proponents of constructivism strive to help learners construct meaningful representations of the real world (Jonassen, 1991). Knowledge cannot be transferred; it must be constructed (Florin, 1990). Cognitive constructivists look at how individuals create mental

representations and problem-solving abilities by using tools, information resources and input (Wilson, 1996).

While cognitive constructivism focuses on the individual, social constructivism, associated predominantly with Vygotsky, emphasizes the socially and culturally situated context of cognition in which knowledge is constructed in shared endeavors (Duffy & Cunningham, 1996). One essential notion in Vygotsky's social construction of knowledge is the zone of proximal development, which is "the distance between the actual developmental level as determined by independent problem-solving and the higher level of potential development as determined through problem-solving under the guidance of another human being" (Block, 2003, p. 101). Social constructivism emphasizes the role of language and culture through which learners' experience, communicate and understand reality. Knowledge is constructed through social action and is also the result of social processes where learners test their own understanding against those of others, such as teachers or more advanced peers.

**Learner and Teacher Roles.** In constructivist learning theory, the learner is placed in the center of the learning process. The main assumption is that individual learners construct meaning and create sense of their world based on their previous experiences. Learners can reflect on their past experiences and, when they encounter something new, they reconcile it with their previous ideas, ask questions, explore, and assess what they know. Constructivist learners are not recipients of knowledge, but are manufacturers, architects and agents of learning (Collentine, 2000) who are engaged in authentic situations (Felix, 2005) where they have to make decisions about what forms of input they will focus on to create their own learning environments. The teacher should form an adequate model of the students' ways of viewing an idea and then must

assist the student in restructuring those views to be more adequate from the student's and teacher's perspective.

In a study on teacher-assisted versus independent individual viewing of a foreign language video, Mills, Herron and Cole (2013) suggested that a combination of both exploration and choice on the part of the learners and guided scaffolding from the teacher had a positive effect on the students' self-efficacy and attention, as well as on their overall comprehension during the video viewing. They note that teachers play an essential role in encouraging autonomous video-viewing activities. The teacher needs to help students organize and plan the task by monitoring their learning before, during and after the task. Furthermore, the instructor should encourage students to reflect on their progress.

**Learner Autonomy.** A key feature of constructivism lies in the idea that learners should discover and transform complex information on their own with the intention that it will become part of their internal schema (Qi, 2012). Holec (1981, p. 3) defined learner autonomy as the ability to take charge of one's learning and take responsibility for all the decisions concerning all aspects of learning. By this, he meant that the learners initiate and manage their learning by setting priorities and goals. The definition of learner autonomy has expanded throughout the years to define more precisely what learner autonomy is and is not as well as how to acquire learner autonomy. Starting with Little's principle in 1994, he states that "all genuinely successful learning is in the end autonomous" (pg. 431) which mirrors the idea that autonomy in language learning may emerge from constructivism, but not without assistance from the instructor. Little (1996) is adamant that autonomy is not synonymous with self-instruction nor is it something that teachers do to students. While the responsibility of learning lies primarily with the students, teacher intervention is not prohibited, and as Benson (2001) and Little (1996) suggest, for

students to begin the process of becoming autonomous, the teacher needs to assist them by promoting autonomy through practices that encourage and enable learners to take more control of their learning. Sinclair (2000) created a list of 13 aspects of learner autonomy, found in Appendix A, which list the ideas mentioned by Holec (1981), Little (1995, 1996), and Dam (1995), but further clarifies autonomy as a construct of capacity that is not necessarily innate nor is it simply a matter of placing learners in situation where they should be independent. It requires conscious awareness of the learning process and includes conscious reflection and decision-making, and it is not promoted solely through teaching students strategies. An important point that Sinclair included, that was originally stated by Dam (1995), is the idea of willingness which emphasizes that students will not develop autonomy unless they are willing to take responsibility for their learning.

Zimmerman (2002) also states that autonomous learning requires planning, monitoring, and evaluating one's learning and using learning strategies. From Zimmerman's perspective, learners should be thought of as explorers who seek answers to questions and are engaged in discovery learning and should, therefore, first be taught strategies on how to do learning in a constructivist environment.

Benson (2001) further explains what is meant by taking charge of one's learning by highlighting three levels of control for learner autonomy: control over learning management, cognitive processes, and learning content. Control over learning management encompasses certain behaviors that learners employ to manage, organize, and plan their learning, such as self-monitoring, self-assessment, metacognitive strategies, and cognitive strategies. These behaviors make up an important part of effective self-directed learning, which is key to learning how to learn languages and for forming a learner-centered environment for language learning (Hanak-

Hammerl & Newby, 2004). A learner-centered approach gives learners the opportunity for self-directed learning but also involves them in the decision-making process of the daily management of their learning. “Only if students are given the opportunity to take a certain degree of control over the planning and assessment of classroom learning and only if they are supported appropriately in doing so, will they have the chance to acquire the ability to develop control over all three aspects relevant for learner autonomy—learning management, cognitive and content aspects of learning” (Schuchlenz, 2003, p. 30). Control over cognitive and content aspects is slightly more difficult to achieve because it is based upon the opportunities that they have to make the decisions regarding cognitive and content. Since most of the curriculum is often pre-determined, control over cognitive and content aspects is challenging.

As Sinclair (2000) outlined, complete autonomy is an idealistic goal. Little made it clear that autonomy is not synonymous with self-instruction. Students will require help from the teacher to learn how to set goals and how to self-monitor their learning, and then they will be able to better plan, monitor, and evaluate their own learning. In a constructivist CALL environment, learners interact with the input, and most often, there are built-in learning modules and self-assessments that provide opportunities for students to begin to organize and monitor their own learning and exercise learning independence (Sinclair, 2000). A constructivist environment encourages the use and development of metacognitive skills that focus on how to learn that can be transferred from one area to another. Additionally, a “learning-by-doing” approach promotes independent student learning in the building of understanding (Mills, Herron, & Cole, 2013).

Yet, while, online environments are designed with constructivist principles in mind, instructors often prey to “naïve constructivism” (Windschitl, 2002), a situation in which they

place faith in their students' ability to structure their own learning without adequate guidance, and instead equate activity with learning. This section has outlined the basic tenants of constructivism including the roles of the teacher and the learner and the role of autonomy in a constructivist environment. A constructivist environment has the potential for students to engage in autonomous learning, but according to Holec (1981), Little (1995, 1996), Dam (1995), Sinclair (2000), Benson (2001) and Zimmerman (2002), learners need guidance to be successful in a constructivist environment and to develop autonomy over their learning. The next section will discuss the empirical evidence related to the constructivist learning theory in CALL research.

Research on CALL from a constructivist perspective tends to be oriented toward design principles and the features that should be incorporated to create an online constructivist learning environment (Alonso, Lopez, Manrique, & Vines, 2005; Narciss, 2006; Ning, 2015; Tudini, 2015), or a Wiki (Wang, 2014; Woo & Reeves, 2007) or a mobile assisted language learning (MALL) environment (Osifo & Radwan, 2014; Sherif, 2015) or an Intelligent CALL environment (Felix, 2004). Considerable research has been done on tracking user behaviors in CALL environments, which are considered, for the most part, constructivist environments where the students have some control over their learning and with the features they choose to use. While some of this research tends to be older or deals with applications and software that may be outdated or no longer exist, we are provided with insights as to what college students learning language do and perceive to be beneficial in a constructivist learning environment. This section will first discuss tracking students' behaviors and will then be followed by a review of the literature on students' online behaviors including their navigational patterns and resource use to point out two overarching themes regarding student behavior online suggested by the literature.

**Tracking Student Behavior.** Close examination of student activity has long been recognized as crucial in L2 classroom research (Swain, 1998). To investigate what students are actually doing in CALL, computer based tracking built into software allows the researcher to directly investigate behaviors in an unobtrusive manner (Garrett, 1995; Hwu, 2013). A good tracking system can provide insights into when and to what extent learners engage with CALL features that are designed to provide L2 input (Collentine, 2014), document the effectiveness of CALL applications (Ma, 2014), improve ineffective ones (Chun, 2014) and promote the development of learner autonomy as well as metalinguistic reflection (Chun, 2014). The following review of research on online behaviors includes only studies in the field of college-level L2 learning that have been conducted using script-based or screen-based tracking. While self-reported data are also valuable, students' stated behavior may differ from their actual behavior as recorded by computer tracking (Hwu, 2013).

Observing student online activity through tracking is “unobtrusive, accurate, and objective, automatic and computer based” (Hwu, 2003, p. 9). It provides a clear, discrete view of students' actions as they engage in language learning tasks, allows direct observation of students' actions which can confirm or deny language learning principles, and most often students are either not aware that they are being tracked or the use of the software is unobtrusive, as opposed to other techniques such as video recording or think aloud protocols (Hwu, 2013). When working with CALL materials, tracking software provides a blueprint of learners' behaviors in several learning environments as well as insights into when and to what extent learners engage with CALL features that provide input (Collentine, 2014).

Moreover, tracking provides guidance on how to best use CALL materials to promote L2 acquisition (Chun, 2014). Tracking software allows the researcher to carefully examine input

enhancement, negotiation of meaning, corrective feedback, noticing the gap, sociocultural learning, hypothesis testing and metalinguistic reflections (Chun, 2014), as well as help understand what learners do with CALL materials, the available features, and their process of learning (Fischer, 2007). A good tracking system can document the effectiveness of CALL applications (Ma, 2014), identify useful design features and improve ineffective ones (Chun, 2014), discover ways to promote learner autonomy (Chun, 2014) and verify student self-reported data with actual recorded data (Hwu, 2013).

Fischer (2007) states that tracking offers an ethnographic perspective on the interaction between CALL and learning, but he also claims that it has the potential to increase the ecological validity of SLA research as it can approximate a real-life situation that is under investigation. Chun (2014) adds to the ecological validity of tracking by stating that it can help demonstrate how learners interact with and influence their environment; it also allows researchers to look beyond the language classroom to study how learners develop the L2 and develop themselves as multilingual speakers.

**Online Behaviors.** Student online behavior can be linear, organized, and conservative while others are more exploratory in nature, and yet others are chaotic and show disorganized behavior (Desmarais, Duquette, Renié & Laurier, 1997; Fischer, 2012; Horney, 1993; Nelson, Bueno, & Huffstutler, 1999; Roussel, 2011; Weinberg, 2007). The use of tracking data in CALL has shown that some students tend to take the quickest path through a program to finish what is required (Collentine, 2000; Fisher, 2012; Fouh, 2014; Hwu, 2007; Weinberg, 2007). They do not stray much from the path that they are familiar with, rarely pay attention to the basic components of the program (Cardenas-Claros & Gruba, 2009; Garrett, 1995; Hegelheimer & Tower, 2004), do not use the materials as expected (Chun, 2014; Collentine; 2000; Felix 2005; Pujolà, 2002),

and are not comfortable using help features or managing feedback (Hsu et.al., 1993; Pujolà, 2002). However, student behavior also varies due to student ability. The next few pages will show that first, there is diverse variability in how students work in an online environment and second that students tend to make only minimal use of valuable software components. The suggested possibilities regarding these actions will also be provided.

Student online browsing patterns are diverse. In a linear browsing pattern, the learner typically completes the activities as they are presented and does not stray from the activity until it is completed. This could include not accessing help options, either because students are afraid of consequences (Dworman & Rosenbaum, 2004) such as getting lost and not be able to get back to the task, getting distracted and not getting back, losing an attempt on an assignment as well as some may or because they do not know how to access help or think they can figure out the task on their own. Students are also generally motivated by practical considerations and tend to spend more time on activities that are assigned for credit than on those that are not (Weinberg, 2007). Hegelheimer & Tower (2004) found that options mandated by the teacher, such as microphones and headphones, were used more often than other features to which the students were not introduced explicitly, such as the glossary. In general, vocabulary glosses and repetition options are often ignored in listening comprehension (Cárdenas-Claros & Gruba, 2009) even though they provided learners with an alternative way of viewing the input that could increase its saliency for them. Narciss (2006) investigated the way students used *StudyDesk*, which is a set of tools for monitoring learning. She discovered that students used task- and content-related learning activities, such as marking, note taking and elaboration, but very few students utilized the monitoring tools to track and evaluate their learning process and outcomes. In addition to not using the monitoring tools, students also rarely used the help and feedback options. Hsu et al.

(1993) found that students did not go beyond the assigned task to explore alternative correct answers in an English grammar program. Unlike Hsu et al. (1993), Pujolà (2002) found that students did use the help options, but only those that were immediately relevant; they disregarded less immediately applicable strategy-training components that were incorporated for metalinguistic reflection. Students who take a linear pattern seem to access only what is readily available, easily accessed and immediately relevant (Cárdenas-Claros & Gruba, 2009; Hegelheimer & Tower, 2004; Pujolà, 2002). They do not search for alternatives even if they know about them and their benefits to improved learning (Cobb & Stevens, 1996). Even after training to use the help options in a reading program, Cobb & Stevens (1996) found that the students still did not take advantage of them outside of class. A linear pattern to learning does not seem to be a productive approach to learning.

A chaotic browsing pattern often shows that activities are interrupted or left unfinished as the learner moves across the program menus. This type of browsing could suggest a variety of behaviors. For example, it is possible that the student may not be able to establish learning objectives or apply effective strategies. Students leave the activity because it was difficult, because they were bored or because they encountered a technical problem (Desmarais et al., 1997). Another possible reason for the chaotic pattern is that students are trying to compensate for lower level language ability by searching out different perspectives of the same concept (Ercetin, 2003). Low performing learners tend to follow a chaotic navigational pattern and choose many different options that do not necessarily help them, and focus on the wrong aspect of a lesson (Hegelheimer & Tower, 2004). For example, Collentine (2000) reported that participants overutilized the digital videos and underutilized the exemplar contemplation slides in his study. The videos were intended to set the stage, whereas the slides contained the most

important aspects of the lesson. However, due to the lack of metacognitive or linguistic skill or explicit instruction from the instructor, students may have believed that interactivity would directly lead to learning (Hegelheimer & Tower, 2004; Windschitl, 2002). Ma (2007) noted that lower performing students tended to quit an exercise before getting the correct answer and Fischer (2012) reported that low performing students were less willing to correct their initial responses, displaying chaotic browsing patterns. Most recently, Fouh (2014) suggest that students on a whole do not have sufficient practice to know how to use the tools and feedback options that are available to them to improve their learning. Unlike a linear pattern where students go from point A to point B with no problems, but never look at point Z along the way, a chaotic pattern tends to show that students are unaware as to how to approach learning in an online environment and may stop at point Z, but not know what to do there.

More than a decade ago, Tergan (1997) and Collentine (2000) concluded that students tended to exhibit linear patterns of learning in a constructivist environment as the most identified approach to learning. However, more recently some studies have reported that students are exhibiting more exploratory browsing patterns in which students try to take full advantage of a program and see all its features before beginning (Desmarais et al., 1997) and are therefore more successful (Collentine, 2011, 2014; Hegelheimer & Tower, 2004; Roussell, 2011).

Hegelheimer & Tower (2004) found that students who accessed the options, such as fast forward, rewind, repeat, fast forward, or pause in a CD courseware program had more success at answering comprehension questions. Furthermore, high proficiency students preferred accessing options that actually helped them correctly answer the questions while low proficiency students assumed more input is better and used a variety of options that resulted in cognitive overload by viewing audio-visual information and textual information simultaneously. In investigating

student online behaviors in a listening task, Roussel (2011) found that the students with better comprehension skills often listened globally first and then split the task into chunks of meaning, a strategy that Roussel attributed to their well-developed metacognitive skills. Furthermore, students who interacted more purposefully with the program and used more of its options were better able to recall difficult words (Roussel, 2011). Collentine (2011) found that exploratory behaviors increased students' exposure to input and she hypothesized that that exposure would then lead to more complexity in output. In 2014, she proved her hypothesis in a task-based 3-D world where she reported that students more information input did tend to lead to not only more language production, but in more linguistic complexity, especially in clausal structures.

This research suggests that high-performing learners who have more metacognitive skills and linguistic skills are able to better handle the demands of learning in an exploratory environment (Ma, 2007; Roussel, 2011). They can often plan better, use more elaborate strategies (Roussel, 2011) and tend to choose options that will help them with their activities (Hegelheimer & Tower, 2004). Regarding feedback, Hwu (2007) found that problem-solving hints worked well for high-performing learners as they typically had more metacognitive skills to deal with them, but did not work well for learners with weaker metacognitive skills. Heift (2002) reported similar results in an earlier study and cited that low-performing students became frustrated when they needed to seek out their mistakes and correct them (Heift, 2002) as opposed to the mid to high performers who corrected answers until they got them right. Therefore, a high degree of learner control tends to be more appropriate for a proficient or a more experienced learner (Ma, 2007), but a typical language course is not comprised of only high performing learners.

The empirical research reviewed in this section suggests two themes. First, there is a variability in the way in which students work in an online environment. Some exhibit linear patterns of learning while others exhibit chaotic or exploratory behaviors. Second, and most importantly, is that it appears that students make only minimal use, if any, of software components that have the potential to be instrumental to their learning. This raises the issue, then, about how learners are constructing meaning on their own using the resources available to them. They tend to rush through a program or activity to get to the end and may not be aware of the potential benefits to taking advantage of its features. Higher performing learners may take advantage of some features, but not all the time and not all the features, but may have a better sense of knowing which features are more suited for the task at hand, while lower performing learners may use features that do not actually benefit them at all and equate activity with learning (Windschitl, 2002). It appears, though, that most recently, high-performing students are beginning to develop more exploratory patterns which may lead to more successful learning. Linear browsers tend to miss, intentionally or otherwise, key features of the program, while chaotic browsers do not know how to handle the information when they see it.

**Design Issues.** In relation to the design issues, I will first discuss the Cognitive Theory of Multimedia Learning (CTML) and then the Cognitive Load Theory (CLT) as they both influence the design decisions.

Mayer (2001) states that multimedia materials should be designed in accordance to how the mind learns and what evidence shows as the best features that promote learning. The CTML is derived from both how people learn (science of learning) and how to design instruction (science of instruction). The CTML is based on three main assumptions: dual channel assumption, active learning, and limited capacity for processing. The dual channel assumption

states that words and pictures that are presented to a learner through a multimedia presentation are processed along two separate channels, the verbal channel, and the visual channel. The second assumption is that learning is active and humans engage in cognitive processing to construct a mental representation of their experience. The last assumption is that we have a limited capacity for processing, which refers to the limited amount of information that can be processed at one time in each channel in working memory. The learning process involves all three assumptions. First the words and pictures enter via the sensory memory through the ears and the eyes. Then they are actively selected by the learner from the sensory memory and enter the working memory where they are organized into a verbal model and a pictorial model. Due to a limited capacity for processing in working memory, each channel can only process so much information at a given time. Then the verbal model and the pictorial model are then integrated with prior knowledge that the learners retrieve from long term memory, but the actual integration occurs during working memory. Because so much is happening in working memory, it is important not to overload the working memory, which leads to the next important concept of cognitive overload. When one channel becomes overloaded, working memory is exceeded and learning is hindered.

The Cognitive Load Theory was introduced by John Sweller, an educational psychologist. Sweller proposed that working memory is critical as it enables new information to be integrated into long term memory, but also has a very limited duration. For information to reach long term memory, it has to be retrieved and processed in working memory. After gaining new information, it can be further improved through practice until it becomes automatized and no longer requires a conscious effort to perform the task. At that time, it then frees up space in the working memory for new information. During learning, the cognitive load is placed on working memory.

There are three types of cognitive load: intrinsic, extraneous, and germane. Intrinsic load is caused by the natural complexity of the material that needs to be learned and processed. The load cannot be manipulated. Extraneous load, on the other hand, can be manipulated. It is caused by a method or an activity that splits attention between multiple sources of information. Essentially, it could be said that it is caused by poor design of the task and/or the multimedia environment. The extraneous information is not central to the material that needs to be learned, and therefore can be manipulated (removed, simplified). Lastly, germane load enhances learning as it is where schema acquisition and automatization occur.

For efficient learning, cognitive load should not exceed its capacity. Split attention effect states that when each source of information is essential for understanding the represented subject matter, learning improves when multiple sources of information are integrated rather than separated. The dual coding theory states that combining verbal and graphic material in learning should increase probability that words will activate images and vice-versa. Having text and a picture may impose a slight cognitive overload for the learner as both the text and the visual image will enter through the eyes and into the working memory. Once it is in the working memory, the learner will most likely mentally pronounce the words of the images and can get the words into the verbal channel. Once there, “they are processed like spoken words so when verbal material has to enter through the visual channel, the words must take a complex route through the system” (Mayer, 2005, pg. 14). While this does cause some extra work, the benefits of including a text and picture far outweigh the cost. By having both a verbal representation and a visual representation, the learner now has two ways to retrieve the information. And like the dual coding theory says, combining verbal and graphic material should increase the probability that words will activate images and vice-versa. Furthermore, this redundant information aids in

language learning since the learner might not have enough linguistic knowledge to figure out the text meaning and can rely on the picture for support (Samur, 2012). Plus, there is enough processing time for the picture that the redundancy effect will not hinder learning. Hopefully, nor the picture nor the text will create an extraneous load for the learner, but will aid the learner into developing two access paths that can be integrated into long term memory. Lastly, the students also have the option of choosing their preferred mode.

Taking these ideas into account, designers should make attempts to increase redundancy (text and picture), regularity and explicitness (Pardo-Ballester & Rodriguez, 2010) and make annotations salient, keep the explanation to a minimum and select appropriate images (Aldera & Mohsen, 2013). Instructional materials should be designed to decrease the extraneous load and increase the potential for germane cognitive load.

**Summary.** This section examined the use of constructivism as a framework for the current study. A constructivist environment encourages higher level thinking, develops problem-solving skills, activates engaged learners, concentrates on learning how to think, and understand and may be transferable from one learning area to another. A properly designed online environment allows students opportunities to manage and evaluate their learning from the resources that they are provided. However, based on empirical evidence of students' online behaviors, not all learners take advantage of those learning opportunities suggesting that a linear or a chaotic approach to learning in an online environment may be not be most beneficial for students. The next section focuses on three constructs of sociocultural theory that will also inform the results of this study.

#### Sociocultural Theory

Sociocultural theory (SCT) is based on the social constructivist paradigm, which considers that individuals share knowledge as it is constructed socially through interaction. It

explains how learners develop the ability to independently mediate their mental and communicative activities over time. SCT places mediation as the central construct of the theory and language as the most powerful tool that mediates language. Studies in computer aided language learning (CALL) have also emphasized the use of the computer as a tool to mediate collaborative learning (Arnold, Ducate & Kost, 2009; Gánam Gutiérrez, 2006; Lee, 2010; Kessler, 2009; Oskoz & Elola, 2014). The following sections will emphasize three constructs of sociocultural theory—computer as a mediation tool, regulation, and scaffolding.

**Overview.** Sociocultural theories describe learning and development as embedded within social events and occurring as a learner interacts with other people, objects, and events in a collaborative environment. Cognitive development cannot be separated from the social, cultural, and historical contexts from which development emerges and it is mediated by tools such as language, materials, signs, symbols, or the computer (Gánam Gutiérrez, 2006). Vygotsky emphasized that human mental abilities emerge twice, “first on the social level, and later, on the individual level; first between people (interpsychological) and then inside the learner (intrapsychological)” (Vygotsky, 1978, p. 57). Ellis and Barkhuizen (2005) note that what learners can do alone, they must first do collaboratively with others through scaffolding. Successful learning occurs when learners can internalize the knowledge and develop higher mental function (Vygotsky, 1978), meaning that they can shift knowledge from the social context to their own minds. For learners to make that shift and internalize knowledge they often get scaffolding from objects and others to help regulate their learning. In sociocultural theory students do mental activities such as attending, predicting, planning, monitoring and inferencing through the mediation of tools or through dialogue with others. In the current study, reaching

these mental activities, which are similar to the upper levels of Bloom's taxonomy, is a key component to outline how students use their online tools to construct meaning outside of class.

**Computer as a Mediation Tool.** From a sociocultural perspective, in computer aided language learning, the computer is also seen as a tool by which language can be mediated through collaborative activities and the design of the online environment support learning (Gánam-Gutiérrez, 2006; Meskill, 2013; Meskill & Anthony, 2010).

The functions of a tool will influence the conditions for interaction. MSL does not provide a tool for students to collaborate with each other, but other tools such as the highlighter, bookmark feature, glossary, verb conjugator, feedback hints, hyperlinks as well as the tutorials are designed to help students regulate their cognitive development to a point where they can complete the activity on their own. For example, in this dissertation study, students who follow the order of the tasks on the assignment calendar on MySpanishLab could be said to be object regulated as they are using the assignment calendar, a tool within MSL, to assist in their learning. They still need to rely on something since they do not yet know how to go about learning a particular concept. The inseparable relation between action, physical as well as linguistic, and tool is central in a sociocultural perspective (Saljo, 1999). When students seek information online, they can use sophisticated tools in a manner that was not possible years ago, but also in a way that undergoes design changes and updates consistently. While there are a variety of tools, a sociocultural perspective also implies that tools bear limitations. The glossary tool does not, for example, provide a context in which the word can be used.

Electronic tutors and feedback have also been used in educational settings to facilitate and guide students through the learning process (Heift, 2002; McLeod, 2014). Advances in intelligent computer aided language learning (ICALL) have begun to make strides in

programming individualized feedback, which to some extent can be viewed as scaffolds, but vary in their degree of specificity and their adaptability to individual learners (Cotos, 2011). ICALL employs natural language processing that usually consists of a grammar and a parser which performs a linguistic analysis on the written language input. When learner errors are discovered, the program generates specific feedback explaining the source of the error (Heift, 2002) by providing appropriate and meaningful negative feedback. Cotos (2011) reported that ICALL is effective when it is individualized, points to the type of error, explains the error in detail and leads to self-correction.

In a flipped classroom model, students have the potential to receive two types of feedback—on the computer and in the classroom. In the classroom, the teachers and the peers provide the scaffolds whereas the computer software provides the scaffolds outside of class. In class, the feedback and assistance should be devoted to detecting errors in thinking (Barrett, 2014; Educause, 2012). To paraphrase Barrett (2014), during class time, students are solving problems that require higher-order thinking skills and not template problems and therefore as in our classrooms, we guide students to learn how to think and we learn what they have trouble with. In such a way, we can then determine the type of assistance needed. Burch (2013) suggested that when class time is dedicated to discussing content and addressing misinformation, more emphasis could be placed on how students were thinking (Burch, 2013). The less controlled environment of the flipped class also encourages a more informed and self-formed act of learning, because students can lead the questions and debates about content (Cacciamani et al., 2011).

The research illustrates that the way in which an environment is designed and supported will influence the way in which students interact with it. The next sections will focus on using

online resources, peers, and experts to show the process of how students can become self-regulated learners in an online environment by developing higher order thinking skills.

A common goal of flipping the classroom is to focus the active learning environment on developing critical thinking skills (Bergmann & Sams, 2012; Burch, 2013; Driscoll, 2012) which include higher-order thinking skills, such as metacognitive skills. A flipped classroom affords more time for student inquiry and involvement through active learning, which in turn develops problem solving techniques and critical thinking skills. The development of problem solving techniques and critical thinking skills will lead toward independent learning, or from a sociocultural perspective, self-regulated learning. As students have questions while they are working outside of class, they can chat or text with their classmates on a social media site or seek out other sources of information which guides students to not only rely on the instructor as the only source of information, but to begin to develop a community of practice with their peers (Cacciamani Cesareni, Martini, Ferrini, & Fujita, 2012). Cacciamani and colleagues (2012) suggested that educators gradually help in the development of student's critical thinking skills towards independent learning throughout a course. The next few pages focus on the computer as a mediational tool, regulation, and scaffolding, which are three constructs of sociocultural theory that describe the process of how students can become independent learners.

**Regulation.** The first construct that is key to this study is the process of regulation. Learners move through three separate stages of regulation in the process of cognitive development—object, other and self. Various resources control these stages of regulation, including objects, others and, finally, the individual's mind. In a flipped classroom, for example, at first, learners may use objects, or tools, to assist in their learning as exemplified by the calendar tool in MSL. Next, the learners may receive assistance, or scaffolding, from a more

experienced other who serves as an expert to help mediate learning. Then when they can complete the task on their own, without assistance, students are said to be self-regulated. They have internalized the information when they have developed sufficient higher-order thinking skills to complete the task on their own, without assistance. As students are attempting to self-regulate, they tend to use private speech, which is audible and directed at the self, and inner speech, which is also directed at the self, but is inaudible (Ortega, 2009).

Higher order thinking skills are developed through mediation by others and tools while students are learning in the zone of proximal development. Cacciamani and colleagues (2012) reported that students in a blended psychology course started to exhibit a high level of agency and began think critically only when they started to rely on one another and the criticisms of their own ideas, rather than solely on the ideas of their instructor. Their results showed that while students were exposed to content knowledge by listening, reading, and watching, it was not until they experienced and did something with that knowledge that they learned it.

**Scaffolding.** The next construct that is important to how students learn in the context of this study is scaffolding. According to Block (2003), scaffolding takes place in interaction involving two or more people in which at least one person acts as a mentor and the other as a relative novice (p. 101). Donato (1994) also notes that peers can provide scaffolding. The case may be that one learner is more advanced in language learning and therefore can scaffold his or her peer on strategies in that area and the other peer may be more comfortable with technology and can scaffold the other in that area.

In a flipped classroom the teacher, along with peers, act as the scaffold into higher-order thinking while the student is independently guided through the process with work, readings and assignments done outside of class. Researchers have found that peers are able to provide

scaffolds for each other in both online contexts and face-to-face contexts. Lee (2010) explored how corrective feedback using text chats was negotiated during a collaborative social activity in which scaffolding engaged learners in various types of error correction. She found that students could scaffold each other's errors. Although not in a computer-mediated environment, Ohta (2000) also examined the effect of corrective feedback, but in a classroom. She found that through scaffolding, assistance was provided when learners made errors and that the more proficient learner could assist the less proficient learner in a form-focused activity. These two studies support Donato's (1994) claim that peers, and not just teachers, can mediate learning.

**Summary.** This section examined three constructs of sociocultural theory —computer as a mediation tool, regulation, and scaffolding -- as a framework for the current study. A sociocultural perspective considers knowledge to be shared by individuals as it is constructed socially through interaction. Based upon theoretical and empirical research, the computer as a mediational tool can support collaborative learning to promote language development as outlined using wikis and ICALL technology. In addition to the computer as a mediational tool, a flipped learning environment has potential to help students develop critical thinking and metacognitive skills as they move through stages of regulation depending upon the design of the environment. The next section focuses on information literacy theory from a sociocultural perspective that will also inform the results of this study.

#### Information Literacy

For the context of this study, students are working in a flipped course with an online constructivist environment with a variety of resources to use, but another component of this study is to discover the type of skills students have or need to use those resources effectively for learning Spanish. From the research on students' online behaviors, a mindless pattern of clicking-to-click does not benefit learning. Rather, the research showed that students who

approached a task globally and discovered the resources available were more successful. Therefore, this section will discuss information literacy which has been described as a way of “engaging with and learning about subject matter” (Bruce & Candy, 2000) or as an “approach to learning” (Limber, 2000; Lupton, 2004). Zurowski first defined information literacy in 1974 in relation to the work-place and defined an information-literate person as someone who could use a wide range of information sources to solve problems at work. The following sections will provide an overview of information literacy including an information literacy framework and relevant points from the framework that have potential to inform this study. Then, it will discuss information literacy from a sociocultural perspective.

**Overview.** Information literacy research has primarily been conducted within the context of library practice and the definition set forth by the American Library Association (ALA) Presidential Committee on Information Literacy (1989) deals with the ability to search for, select, critically evaluate, and use information for solving problems in various contexts. According to this definition, people are considered information literate when they need information and are then able to identify, locate, evaluate, access, and effectively use the information to address and help resolve personal, job-related, or broader social issues and problems (Association of College and Research Libraries, 2015). Throughout the years, information literacy has become associated with acquiring technical skills and more recently to include metaliteracy, or the ability to successfully create and share information online (Mackey & Jacobson, 2010).

**Framework for Information Literacy for Higher Education.** The Association of College and Research Libraries (ACRL) (2015) developed the Framework for Information Literacy for Higher Education which grows out of the idea that students have a greater role in

creating new knowledge and instructors have a greater responsibility in designing a curriculum that fosters student engagement. The ACRL identifies six interconnected core concepts in the framework and further outlines options for implementation. The framework also depends on the core ideas of metaliteracy, which in addition to the traditional information skills such as access, locate, understand, and use, requires continuous adaptations to the emerging technologies and an understanding of the critical thinking and metacognitive skills required to participate successfully in digital environments (Mackey & Jacobson, 2010). The six core concepts include: (a) Authority is constructed and contextual (b) Information creation as a process (c) Information has value (d) Research as inquiry (e) Scholarship as conversation and (f) Searching as strategic exploration. For the current study, the last concept-- searching as a strategic exploration--will be discussed at length. For a review of the other five concepts, see Association of College and Research Libraries (2015).

The ACRL states that “searching for information is often nonlinear and iterative, requiring the evaluation of a range of information sources and the mental flexibility to pursue alternate avenues as new understanding develops” (p. 9). They also describe what learners who are developing their information literate searching abilities look like. Information literate individuals first determine the scope of the task, identify interested parties who might produce information about a topic and determine how to access it, brainstorm, and select the best source when searching, match information needs to appropriate search tools, refine needs and search strategies, understand of information to access relevant information, use different types of searching language and manage search processes and results effectively (ACRL, 2015). While this description focuses specifically on searching strategies, this can be extended to look at how a learner uses resources in an online environment as well. Students working in an online learning

management system have the opportunity do very similar tasks to complete their work. They have an assignment and need to determine how to approach the assignment and gain necessary knowledge to complete the task by deciding what tools (videos, written grammar explanations, verb conjugator, glossary, hyperlinks) are best and determining how and in what order to access them. Then when completing the assignment, students have to manage the results effectively which could be thought of as how they handle the feedback or hints provided during or after the task.

**Cognition and Metacognition.** While the ACRL outlines what the learner needs to be information literate, the process of becoming information literate requires a high level of cognitive and metacognitive ability (Goldman, Braasch, Wiley, Graesser and Brodowinska, 2012; Rott and Gavin, 2015) as well training not only in the general sense of acquiring research skills (Omeluzor, Bamidele, Onuoha, Alarape, 2013), but more specifically in content areas (Gross & Latham, 2012; Latham & Gross, 2008; Maybee, Bruce, Lupton and Rebmann, 2013). In the context of this study, which intends to discover the types of skills learners already have and the skills they need in an online language learning environment, information literacy training for content areas is of particular interest.

Acquiring information literacy skills requires cognitive and metacognitive skills. In investigating processes by which better and poorer learners engage in text processing and reading strategies when given multiple text sources, Goldman et al. (2012) investigated the processes by which better and poorer learners engage in during a reading task in their native language. Rott and Gavin (2015) did a conceptual replication study of Goldman et al.'s 2012 study, but in the context of L2 learners of German and investigated the use of text processing and research strategies of better and poorer L2 learners. Both studies reported that better learners

tend to show more metacognitive skills such as engaging in more sense-making, self-explanation, comprehension-monitoring processes than poorer learners as well as varied reading strategies (Rott & Gavin, 2015) and goal-oriented navigation (Goldman et al., (2012).

**Key studies.** To help improve learners' information literacy skills, Omeluzor, Bamidele, Onuoha, Alarape (2013) recommended training students in information literacy skills and Suleiman (2012) and Omeluzor et al. (2013) reported on the outcomes from information literacy training. Suleiman (2012) found that 96% of participants agreed that a training class helped them increase their searching skills and all the participants found that the training helped them use an online library catalogue better. However, findings reported by Omuluzor et al., (2013) were not as positive. They found that after attending the information literacy skill training program, over half of the participants reported that the training did not help them select or use a wide range of sources in their discipline area. Latham and Gross (2008) posit that information literacy skills are essential, but some students either do not see the benefit of general information literacy classes because they are not specific to their subject area and therefore students view the classes as very little value to them. Gross and Latham (2012) also mentioned that despite training, generic or more specific, students may lack the motivation to want to learn or they may overestimate their abilities.

Content specific information literacy has been suggested by Maybee, Bruce, Lupton and Rebmann (2013) as informed learning, a pedagogy that focuses on learning content through engaging with information practices. Hughes and Bruce (2012) state that informed learning draws together information literacy expertise from the context of library science and disciplinary expertise from the content topic. In their study of 15 college students in an upper level writing class, Maybee et al, (2013) found that students experienced an informed learning lesson in three

qualitatively different ways—a new way of learning both how to conduct research and writing that would lead to new understandings, techniques for completing the assigned paper, or as general steps involved in conducting research. They concluded that students who coupled learning to use information with understanding new perspectives on language emphasized meaning making as a result from using information.

Barrette (2001), a forerunner in what could be content specific information literacy skills, combined technical training and pedagogical training to help her language students learn Netscape Navigator. Based upon the students' responses to a computer literacy questionnaire, she designed language or cultural activities that integrated the use of certain online tools. For example, she designed an online treasure hunt for language learning and cultural information. The activity guided the students through basic navigation and searching to find the necessary information. By the end of the semester, the students' gains in computer literacies and knowledge improved. Han (2015) reported similar results among his adult students in a flipped ESL class. They developed strong information literacy skills and improved their speaking abilities through their use of learning to navigate and use the course management system and Google Voice. Han stated that due to their gained information literacy skills, they could transfer those skills to a broader context, the Internet, as they knew where and how to locate relevant tools and materials.

These studies highlight a need for a) students to acquire metacognitive skills and technical skills to develop information literacy skills, and b) training that is specific to the students' content areas. The research on information literacy is very limited regarding L2 learning environments. Except for Rott and Gavin's study (2015) and Han (2015), research in

information literacy is primarily limited to the context of library and research skills. The next section will focus on the link between information literacy and sociocultural theory.

#### Information Literacy from a Sociocultural Perspective

Developing metacognitive skills is closely tied to sociocultural theory and the concept of the ZPD where students can develop higher mental functions, such as metacognitive skills, with assistance from a more experienced other to complete a task on their own. Information literacy is not or does not always have to be an individual endeavor. Christine Bruce (1999) stressed the importance of studying how information literacy developed in groups and organizations because in many situations an individual depends on the assistance from a peer or other available support structures. Furthermore, from a sociocultural perspective, information literacy is being engaged in a set of practices that involve tools and media that are deeply embedded in a context. Palmer and Tucker (2004) add that while information literacy tends to underpin all forms of learning, it is not context free because learning how to use the information and tools available depend on the understanding of the context. Although outside the context of academia, Lloyd-Zantiotis (2004) found that information literacy is linked to specific situations. In investigation, how newly hired firefighters learned to be firefighters, she found they used social learning, such as asking experienced firefighters to recount stories to explain mistakes. The experts in this case acted as social sources of information by providing opportunities for novices to access their knowledge through activities and thereby mediate novice access to sources of information.

This perspective views participation and learning to communicate appropriately within a specific practice as vital to developing information literacy. This idea of participation emphasizes that information seeking happens through a succession of social activities and is thus seen as embedded and embodied in different social practices (Limberg, Sundin and Talja, 2012). From a sociocultural perspective, this also means the ability to use physical artifacts for

communication in a way that corresponds with the purpose of the practice (Saljo, 2000). For example, scientific journals, websites, and databases that enable us to find, work with, and use information are all artifacts that are built into cultural tools that people use for a specific practice (Saljo, 2000).

Specifically, regarding flipped and blended learning environments, students may have access to social support both inside and outside of the classroom. Class time can be used to guide students to personal reflection and help students question multiple perspectives and information sources that they encounter while working collaboratively (Bergmann & Sams, 2012).

Additionally, outside of class, students may have access to online forums, texts, tools, and videos that introduce students to more perspectives and information sources to consider and engage with. Being confronted with a variety of contrasting perspectives can lead to the development of critical thinking skills, through trying to come to a group consensus (Cacciamani et al., 2011).

A sociocultural perspective emphasizes that information seeking is carried out for a specific purpose in a specific practice; for example, completing a fill-in-the-blank grammar activity with the help of tools such as an online or paper dictionary, verb conjugator, or peer. Limberg, Sundin and Talja (2012) call for students' activities to be studied in relation to the tools through which the activities take place and based in the social practices in which the activities are carried out. They point out that the way in which students understand information seeking is related to their understanding of how the tools work. As previously mentioned, tools are not neutral to our activities, but rather come with perspectives, norms and values that mediate our understanding of the world. For information literacy, this implies that it is important to reveal and make explicit the perspectives, values and beliefs connected to specific tools and explain how the tools are used in context.

**Summary.** This section examined information literacy as the last framework for the current study. Information literacy deals with the ability to search for, select, critically evaluate, and use information for solving problems in various contexts. Information literacy tends to underpin most learning, but the research shows that general information literacy skills alone are not as beneficial as context or content specific information literacy skills. The idea of context/content specific information literacy skills highlights a sociocultural perspective of information literacy where information seeking is carried out for a specific purpose in a specific practice.

#### Summary of Theoretical Frameworks

The previous sections outlined three frameworks that will inform the results of this study. Constructivism was discussed first to set the scene for the online learning environment in which the students work outside of class. This was followed by a review of students' online behaviors in a constructivist environment where they have a variety of tools and resources to use. The next theory that was presented was sociocultural theory to demonstrate that computer as a mediational tool has the potential to help students develop critical thinking and metacognitive skills as they move through stages of regulation and learn to complete the tasks on their own. The last framework that was discussed was information literacy which highlighted the importance of not only being able to access resources and tools that can help the learner become self-regulated, but also being able to identify, critically assess, and use the tools they find. Information literacy from a sociocultural perspective advocates for students to be able to identify, assess and use the tools in context. The next section of the literature review focuses primarily on flipped learning beginning with an overview of the terminology associated with blended and flipped learning.

## **Flipped Learning**

This section of the literature review will now review relevant literature on flipped learning beginning with an overview of the terminology that will be used going forth in this paper followed by a description of a flipped delivery model that most closely resembles the one for this study. Then it will discuss the origins of flipped learning and how implementing a flipped delivery model helps improve some aspects of a traditional classroom delivery model. The section will conclude with two issues that continue to be areas of concern for a flipped delivery model.

### Blended and Flipped Terminology

In 2003, Thorne believed blended learning to be the most important education advancement of the century and most recently, blended learning is the principle delivery method in higher education (Lin & Wang, [2012](#)). Although this encompasses higher education as a whole, Rubio, Thoms, and Katz Bourns (2013) reported that as enrollment in language courses increases in higher education, the number of blended courses has also increased. Blended learning is commonly referred to as delivery model that combines face-to-face instruction with an online component (Álvarez, Martín, Fernández-Castro, Urretavizcaya, 2014; Blake, Wilson, Cetto, Pardo-Ballester, 2008; Gleason, 2013; Grgurović, 2013).

Researchers have added considerably to this common definition and many have lumped it together with the term hybrid. Allen and Seaman (2006) distinguished three types of online courses by the amount of instruction that was delivered online—fully online (80%), blended/hybrid (30-79%), and web-enhanced (less than 30%). They did not distinguish, however, between blended and hybrid. While the University of Wisconsin, Milwaukee's Learning Technology Center (2015) does not limit hybrid/blended learning to a specific percentage of online instruction, they do acknowledge that due to moving a significant amount of

course learning online, it is possible to reduce, but not eliminate face-to-face seat time. They point out that they use the terms blended and hybrid interchangeably (par. 2) Dziuban, Hartman, and Moskal (2004) do not necessarily agree with the percentages put forth by Allen and Seaman (2006). They hold the position that blended learning should not be reduced to a percentage of online instruction, but rather be viewed as an approach that combines opportunities for students to have the best of both worlds—socialization opportunities in the classroom and active learning possibilities online. Horn & Staker (2013) further define online, active learning possibilities as allowing the student some element of control over time, place, path and/or pace. With the amount of definitions, it becomes increasingly complicated to define blended learning because many researchers use the terms *hybrid* and *blended* interchangeably even within the same definition.

Most recently, Marguilieux, Bujak, McCracken and Majerich (2014) created a two-dimensional taxonomy to define hybrid, blended, flipped, and inverted delivery models due to the inconsistent use of the terms among researchers. They define blended and hybrid learning as a combination of delivery method and instruction type. While both consist of similar modes of delivery--a combination of face-to-face and online interaction, the difference lies in the instruction type. Two main types of instruction on their continuum are information transmission and praxis. Information transmission is defined as “instructor driven delivery of content to the learner” (Gonzales, 2012 as cited in Marguillieux et al., 2014, p. 4) where the instructor or instructional program provides information to the learner such as tutorials or lectures. Praxis is defined as “student-driven learning through the application of knowledge” (Singh, 2012 as cited in Marguilieux et.al, 2014, p. 4) where the student applies the knowledge gained with guidance and feedback from the instructor. Blended learning involves praxis, whereas hybrid does not.

Some researchers may not agree with this taxonomy since they do not view hybrid and blended as two separate delivery models. While researching all possible definitions and discrepancies between hybrid and blended learning is outside the scope of the study, for the context of this paper, the terms will be considered synonymous, but the term blended will be used to define an environment that combines face-to-face instruction with an online component. A detailed description of the blended environment for this study will be presented in Chapter 3.

One instructional model that stems from blended learning is flipped learning, in which the lecture component of a course is moved outside of the class, and class time is dedicated exclusively or almost exclusively to student-centered learning activities (Bell, 2015). A flipped model flips the role of direct instruction and homework. In a flipped language course, students receive direct instruction via grammar tutorials, complete self-correcting exercises and take self-correcting quizzes outside of class. Then face-to-face time allows for students to participate in communicative activities in which they apply the linguistic knowledge they have worked with online before coming to class. A flipped course typically uses technology to deliver the direct instruction but it is not necessarily a requirement. The technology, in the forms of video tutorials, interactive textbook pages, and computer-graded exercises, for example will allow the teacher to spend more time interacting with students to help them gain a deeper level of understanding of the language and to help them apply the language in meaningful communicative activities than with explaining grammar rules.

While the terms *hybrid* and *blended* may be interchangeable with one another, they are not interchangeable with a flipped model. Blended and hybrid models combine face-to-face instruction with some form of computer-mediated instruction. A blended or hybrid class may still

have direct instruction during class time complemented by online activities done outside of class. When a flipped class incorporates computer mediated instruction, it is also said to be blended.

For this paper, the terms *blended* and *flipped* will be used. Blended embodies the general nature of flipped learning as defined in the previous chapter by the Flipped Learning Network (2014): “learning in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter.” Second, the context of the study is situated in a Spanish language course that can be identified as blended based upon the basic characteristics of blended learning as provided by Horn & Staker (2013) and Dziuban, Hartman, and Moskal (2004). Specifically, the course in this study exemplifies the flipped model of blended learning by dedicating face-to-face time to communicating in the target language with peers and leaving grammar and vocabulary instruction and practice to an outside-of-class activity that refers learners to interactive online textbook explanations and video tutorials and assigns form-based drill and practice in an online interactive workbook.

#### Background of Flipped Learning

Although flipped learning is becoming more prevalent in language teaching (Bell, 2015), Correa (2015) points out that flipping can be traced back to the early 1990s mainly in the math and science fields. Eric Mazur, a professor at Harvard, redesigned his physics class to actively engage his students. At the time, he called his redesign *peer instruction* but essentially, it was an early form of flipping in which he reversed the roles and locations of lectures (in class) and problem sets (homework): He moved the lectures, which were essentially explanations of the textbook content, to outside of class time; and he used class time for active small-group (with instructor guidance) work to complete the problem sets that required application of the

information presented during the lectures (Mazur, 1997). Walvoord and Johnson Anderson (1998) proposed a similar model for history, physics, and biology courses, in which students gained first-exposure learning prior to class; during class, they focused on the processing part, such as synthesizing, analyzing and problem solving during class. A few years later, Lage, Platt and Treglia (2000) redesigned their introductory economics course after observing that the traditional lecture format was not a good fit with some learning styles. Therefore, they provided students with various tools (e.g., recorded lectures, textbook readings) so they would gain exposure to material outside of class. They described this approach as an *inverted classroom*. Student and instructor responses to this approach were positive (Brame, 2013).

Baker, a media, and communication professor, seems to be the first scholar to use the term *flip* (Pilling, 2013). During one of Baker's lectures, he realized that the information from his slides was merely being copied down by the students and was not being processed by neither himself nor the students. He then designed a new format for his course that changed the role of the instructor from lecturer to guide, which became the foundation for the classroom flip. For four years, he offered workshops across the United States to introduce educators to the model (Pilling, 2013).

In 2007, Colorado high school chemistry teachers Bergmann and Sams realized that they were spending a lot of time getting students caught up on their work when the students were absent. To solve this problem, they recorded their lectures using screen capture software and the students could watch the videos at home and then complete their assignments and labs in class with the guidance of the teacher. They found that their students developed a deeper understanding of the material than with a traditional approach and labeled it the flipped classroom model. Since 2007, they have published books and articles on flipping a classroom

and developed the Flipped Learning Network (Bergmann & Sams, 2012; Bergmann & Sams, 2014; Flipped Learning Network, 2014).

**Summary.** While the concept has been renamed throughout the years, the key principles behind flipped learning remain the same—the information-gathering phase that typically takes place inside the classroom now takes place outside the classroom (Correa, 2015). In-class activities that can be termed receptive learning—instructor lectures, explanations of grammatical structures, and so forth—are now replaced with interactive, student-centered activities that are designed to build higher-order learning abilities (Cresap, 2015). The previous paragraphs outlined a flipped classroom model. The next section will discuss some challenges instructors faced with traditional classes.

#### Flipping as a Solution

A flipped learning environment has been reported to increase student engagement (Ruiz-Debbe, 2014; Scullen, 2014; Tecedor Cabrero, 2014), provide immediate, relevant, and useful feedback opportunities (Bergmann & Sams, 2012), offer flexible (Stigter, 2014; Tecedor Cabrero, 2014), independent, (Ducate, Lomicka & Lord, 2012) and mastery learning (Bell 2015; Flipped Classroom Field Guide, 2014). Flipped courses also cater to different learning styles, as learners can actively control their own learning environment and develop autonomy in their learning (Bell, 2015; Correa, 2015; Kahn, 2012; Tecedor Cabrero, 2014; Tobias, 2006). Students and instructors (Bell, 2015) also show a preference for flipped learning. Furthermore, flipped learning has the potential to utilize technology and student-centered learning to support the millennial learning style (Ally, 2004; Tecedor Cabrero, 2014). , the flipped model helps learners become agents of their learning rather than the objects of the teaching.

**Reasons to Switch.** Two most noted reasons for switching from a traditional model to a flipped model is to increase student engagement and to help students gain a deeper understanding

of the material. Survey-based studies indicate that students and instructors agree that flipping increases student engagement and interaction in a language course (Ruiz-Debbe, 2014, Tecedor Cabrero, 2014). Driscoll (2012) found that 70% of students in a flipped environment were likely to engage in critical thinking and problem-solving skills. Seventy-five percent of the Spanish instructors at Stony Brook (Ruiz-Debbe, 2014) and 100% of the Spanish instructors at Texas Tech (Tecedor Cabrero, 2014) who implemented the flipped model also stated that they noticed an increase in student engagement and communication. Affordances from technology have enabled students to work independently outside of class, which reserves face-to-face time for communication and interactive learning (Ducate, Lomicka and Lord, 2012) and instructors can spend more time observing and monitoring student discussions, detecting errors in students thinking (O’Flaherty & Phillips, 2015), providing instant feedback, and guiding students through the higher levels of Bloom’s Taxonomy (Bergman & Sams, 2014; Cresap, 2015; Educause, 2012; Hamdan, McKnight, McKnight, Arfstrom, K., 2013; Tecedor Cabrero, 2014).

The use of the electronic resources outside of class, such as video lectures, tutorials, and e-workbooks, allows students to work toward mastery of the topics (Bell, 2015; Marquez-Serrano, 2012). Bell (2015) reported encouraging results from an end-of-the-semester questionnaire as nearly all students and instructors stated that the best way to learn is from the outside resources, citing the ability to view materials repeatedly, get immediate feedback, complete the activities when and where they wished, and return multiple times to the online material to learn it well.

The idea of mastery learning has a positive effect on face-to-face classroom time, especially for millennial students. Millennial students read, view tutorials and complete activities numerous times because many are highly motivated by grades (Levine & Dean,

2012). Studies (Cresap, 2015; Fouh, 2014, Hegelheimer & Tower, 2004; Weinberg, 2007) have shown that when students do not receive a grade for an activity or are not required to do an activity, they often choose not to complete the assignment. Grade incentives have the positive impact of encouraging students to do a task until they earn full credit for it. Instructors, therefore, can structure the assignments so that students must engage with the material (e.g., view the tutorials again, re-read the text, look at example problems). By engaging more deeply with the material outside of class to get the grade they want, students will be more prepared for class which, in turn, will lead to even further engagement, application, and interaction with the material. In the Fall of 2012, Marquez-Serrano found that with the design of her flipped Elementary Spanish course, which allowed students multiple attempts to view grammar tutorials and complete online workbook assignments, her students' desire to improve their grades may have been accompanied by increased engagement with the material.

**Flipped Course Redesign.** Pearson commissioned three flipped language course redesign studies. The authors were assisted by Pearson staff in conducting the research and writing up the results of the study. Tecedor Cabrero (2014), Vázquez (2014) and Ruiz-Debbe (2014) all taught university level Spanish language at different universities in the United States. They conducted information action research studies in which they identified problem areas in their program, specifically a lack of student engagement and non-completion of homework. Then as an intervention to address the problems, they redesigned their courses as flipped delivery models, including the use of the flipped textbook, *Unidos*. In addition to searching for ways to hold students accountable and actively engaging in learning language (Ruiz-Debbe, 2014; Vazquez, 2014), Tecedor Cabrero (2014), a language program director, also cited promoting

learner autonomy as one of her goals for the beginning and intermediate Spanish language learners.

In addition to overall satisfaction with and preference for flipped learning, student achievement scores increased, for the most part, in each case study. Tecedor Cabrero (2014) and Ruiz-Debbe (2014) reported growth on the final course grade and the final exam grade, respectively after one semester of the flip. Vazquez (2014) did not notice the same growth pattern and reported more grades of DFW's in the flipped class (12% in flipped vs. 4% in traditional) and contributes this to the fact that students need time to adjust to flipped learning. However, the results should be viewed with caution. Using grades as a marker of learning may not best represent a successful flip as many variables may also have been in play such as new exams and new exam formats, rubrics, different topic coverage, amount of topic coverage, different students each semester among others. Rather, what we can take from these action research studies is the change in how students approached working in a flipped environment. Vazquez (2014) found that after the redesign his students asked better and more purposeful examples and brought in examples from the work they completed online. He and Ruiz-Debbe both reported that the students became more confident and active in the classroom.

A flipped model has the potential to increase student engagement and promote mastery, but a main barrier to flipped learning continues to be a lack of student preparation (Bristol, 2014). Tecedor Cabrero (2014) found that it may be due in part to students not knowing how to study in a flipped learning environment when the concept is new, or has not been explained to most students. She found that many students were not used to studying before class and therefore advocated the need for training students to learn the importance of studying, writing, and reflecting. The idea of outside preparation for in-class activities does not entail only the

completion of the assigned activities, but rather an accumulation of knowledge and skills that they bring with them to the face-to-face class sessions. Each time students review electronic flashcards or rewatch a tutorial, they are adding to their repertoire of skills for that topic area. The idea behind preparation for a flipped classroom can be likened to practicing an instrument. Before meeting with the music teacher, you practice the skills. Then during the music lesson, you learn new skills and after class you will incorporate that new skill into your practice sessions on your own. Your music teacher is well aware when you have not practiced between lessons. The same can be applied to flipped learning where students need to practice the skills associated with the topic and not just complete a set of assigned problems or watch a tutorial one time.

However, for years, students were not held accountable for the material they should have studied prior to class, and now with a flipped model, they are suddenly held accountable, but may do not know how to study in this environment. An outcome and goal of flipped learning is oftentimes self-regulated, autonomous learners; however, coaching, as Tecedor Cabrero (2014) pointed out, helped learners think through the process of how they can be successful based on how they are studying and many still need to be told how to study well, “even if they are in college” (p. 2). For example, Stice (2014), an instructor in a beginning accounting course taught in a flipped design, gives specific, detailed instructions on what and how to study. Rather than assign students to read Chapter 3 and complete exercises A, B, and C, he directs students to “interpret all lines, slopes and intercepts” and mentions specific types and then directs them to take an online quiz. He says that by doing this, he reduces the variance in understanding when students arrive to class, employs well-designed in-class activities, and engages his students. Student preparation outside of class is vital for students to realize the full potential of flipped learning, yet based on current research students are not ready to know how to prepare outside-of-

class. It often appears that the researched benefits of flipped learning are not always expressed to the students.

**Assumptions.** A relatively big assumption of flipped learning in general, and specifically to language learning, is that millennial students are comfortable with technology and therefore can transfer their technical skills to learning language online; however, students still require guidance—guidance on how to use the technology for academic purposes and guidance on how to make meaning from the resources that are provided. Neither a constructivist environment nor an autonomous environment is synonymous with self-instruction. Both environments advocate for teacher presence. A digital use divide, (Warshauer, 2012) separates many students who use technology in ways that transform their learning from those who use technology to simply complete homework problems in an online workbook. While many university students have general computer literacy skills in knowing how to access the online workbook, they may be lacking the information literacy skills that allow them to go beyond filling in the blanks and searching for and using information that will transform their learning. Information literacy provides students with a framework for gaining control over how they interact with information in their environment, sensitizing them to the need to develop a metacognitive approach to learning and making them conscious of the explicit actions that are required for gathering, analyzing, and using information (Association of College and Research Libraries, 2015). Many university level students have considerable computer access and have general computer literacy skills (Goertler, Bollen & Gaff, 2012), but may not have information literacy skills for their specific content area.

For example, computer-generated input, such as hypertext materials, audio, and video that is found in most learning management systems that accompany textbooks can be used in

very flexible ways; but learners may not be able to cope with the abundance of information nor have the metacognition necessary to plan, monitor, and evaluate their own learning outside of class (Tobias, 2006). Chenoweth, Ushida and Murday (2013) reported that students perceived the online textbook as unstructured compared to a traditional textbook because the hypertext options made it difficult to know where to start their lesson. Students who exhibit chaotic browsing patterns may also lack information literacy skills as they seem to be unable to decide how to approach learning in when they encounter a variety of tools, tutorials, assignments, and feedback.

However, even if students are preparing outside of class as well as they can, the benefits of learning with online materials may not be immediate. The transition to learning in an online environment may take time to become familiar with the online environment, and cause frustration and anxiety (Chenoweth, Ushida & Murday, 2013; Sagarra & Zapata, 2008; Ushida, 2005; Zapata & Sagarra, 2007). Chenoweth et al., (2013) and Ushida (2005) reported that while students were generally confident in their computer skills, they needed time to adjust to the specific online environment. Both studies found that by the end of the semester, students felt less anxious, and expressed less confusion and frustration with the online materials.

Zapata and Sagarra (2007) reported that university students enrolled in a Spanish course and used an electronic workbook did not outperform those using a paper workbook regarding their vocabulary acquisition until after six months of instructional treatment. In a later study on grammatical accuracy in Spanish, Sagarra and Zapata (2008) found that the group of students who used an online workbook outperformed those who used the paper workbook after eight months of instruction. These four studies focused on the same group of students over a period of

time (1-2 semesters) and provide evidence that a transition period of 4-8 months is necessary for the success of computer-mediated language learning.

Students are generally not prepared for flipped learning due to their limited information literacy skills and their grasp of the principles that underlie flipped learning. While no link has been posited, the lengthy adjustment time to see benefits from flipped learning could be due in part to students' lack of readiness for flipped learning. Many researchers have suggested that students need guidance to become autonomous learners (Chenoweth, Ushida, Murday, 2007; Goertler, Bollen & Gaff, 2012; Ma, 2007; Murray, 2005; Tecedor Cabrero, 2014), yet very few have focused primarily on how to guide students towards autonomous learning in blended or flipped instructional contexts.

Guides, resource manuals, books, websites, trainings, and workshops are all available for instructors as they prepare to flip their classrooms; however, few studies discuss the implications of these design principles for the learner. Many design suggestions are geared toward instructors to give themselves time to learn new software, time to set up the class or create tutorials/lectures, or gain support from administrators (Bergmann and Sams, 2012), but only one study to my knowledge addresses the needs of the student. Kim, Kim, Khera and Getman (2014) conducted a mixed methods study that examined three instances of flipped classrooms in three disciplines: humanities, engineering, and social studies. Using surveys and interviews and building upon the Revised Community of Inquiry Framework, they developed a flipped classroom design framework and nine design principles. The principles are mainly addressed at the instructor and course designer, but Principle 6 and Principle 9 address the learner. Principle 6 states, "Provide clearly defined and well-structured guidance" and principle 9 states, "Provide technologies familiar and easy to access." Students require clearly defined and well-structured guidance and

scaffolding for activities. Kim and colleagues note at the beginning that there may be resistance from students to engage in out-of-class activities to prepare for in-class problem solving, but it is beneficial to provide a clear course structure with “supporting tools such as guiding prompts and instruction to help students prepare for participation” (p. 45). Regarding principle 9, they found that most students did not have any issues with technology, but it is still “worthwhile to use familiar and easy to access technologies and establish acceptable standards for the development and delivery of online content” (p. 46).

**Summary.** A flipped delivery model can increase student engagement both inside and outside the classroom. In the classroom, the students are collaborating with their peers and the instructor to reach higher level thinking skills and outside of class they can actively engage with the online resources. The opportunity for active engagement may also allow students to work toward mastery, depending upon how the course is designed. In general, students are not prepared to learn in an online environment and it does take time to become familiar with the environment. Additionally, in large part, the focus is on instructor training and education to transition to the flipped model. However, training for flipped classroom learning should include students as well, given that it will fail from a lack of pedagogical integrity if students fail to prepare for class on their own (O’Flaherty & Phillips, 2005). Unfortunately, student preparation outside of class for flipped learning has received very little attention, even as practitioners assert that it is a problem that needs to be addressed. The next section focuses on research that has been conducted regarding learner training.

### **Learner Preparation**

The primary objectives of the current research are to develop a framework for preparing learners to learn effectively in a flipped language course. The framework is based upon students’

observed activity as they prepare for class. This warrants a need to examine previous research on learner preparation as well as previous models that have been created for preparing students to learn. This final section of the literature review will conclude with a close look at four models—strategy training, technical training, pedagogical language training, and frameworks for developing learner autonomy and metacognitive skills. Four learner preparation models that highlight different skills that could be needed for blended learning sets are also discussed.

### Learner Training

Learner training, also referred to as learning to learn, or learning or promoting autonomy, has long been a part of the language learning field (Hubbard, 2013), but with the increase in blended learning, learner training for both CALL applications and language learning is increasingly important as students can benefit from training on technology and metalinguistic skill development. Learner training, as it is commonly referred to in CALL research, is a “process aimed at the construction of a knowledge and skill base that enables language learners to use technology more efficiently and effectively in support of language learning objectives” (Hubbard, 2013, p. 164). A “learning how to learn” dimension in the curriculum is key especially to help the less effective learners develop strategies and metacognitive skills (Wong & Nunan, 2011). The current study expands upon this definition of learner training to encompass not only the development of technical skills, but also autonomy, metacognition, and information literacy.

### Strategies

To manage learning effectively, instructors and researcher have developed a wide range of learning strategies. Cohen (1998) defined strategies as learning processes that are consciously selected by the learner. They are typically grouped into three main categories: cognitive, metacognitive, and social (Rubin, 1987). Cognitive strategies are deployed for specific learning tasks that involve direct manipulation of the learning material itself (Brown, 2000, p. 124); they

include strategies such as clarification, guessing, deductive reasoning, practice, and memorization (Rubin, 1987). Metacognitive strategies make use of an individual's knowledge about cognitive processes and are called on when the individual wants to regulate his or her language learning activities; they include planning prioritizing, setting goals and self-management. Social strategies concern ways in which learners are given opportunities to practice their knowledge by interacting with other speakers, for example.

A principal goal of learner training is to help learners develop strategies so that they become more successful, effective learners and learn how to take control over their learning. Learner training can result in the development of greater autonomy and metacognitive skills, which can then be applied in a blended environment. In sum, strategy use requires that learners know what language learning involves, how to plan and be willing to monitor their progress.

#### Technical and Pedagogical Training

In general, learner training for CALL tools is generally lacking (Castellano, Mynard & Rubesch, 2011; Hubbard, 2006, 2013; Lazaro & Reinders, 2007). To implement tools that offer substantial pedagogical potential in the language classroom, such as podcasts, students would need significant training as well as infrastructure support. Researchers note that students often fail to use available technology effectively for learning and that they require direction and monitoring (Jeffrey, 2011; Oxford, 1995) to ensure that they are using the activities properly and to guide them further if they are not (Hwu, 2003). To this end, Hubbard (2006) identified two types of training—technical and pedagogical. Technical training aims to ensure that students know how to operate the computer and the relevant application. Wertsch (2007) notes that students learn technical skills by doing and by experiencing the model of more skillful users. Once they have experienced the program, they are more likely to use it again. Pedagogical

training focuses on how to use the application or perform the task so that language learning objectives are effectively targeted (Hwu, 2013).

**Pedagogical Training.** In regard to pedagogical training, results indicate that while some training has been shown to be beneficial for students, they can benefit from more extensive training throughout rather than one short session at the beginning. O'Bryan (2008) implemented pedagogical learner training on glosses and found that it helped learners understand the importance of making a connection between a particular CALL activity and a desired learning outcome or progress toward it. Kol and Scholnik (2006) provided pedagogical training that included learning strategies that were specific to the technology, and Liang (2010) provided training in collaborative skills for online peer review. Liang also noted that although the students were provided with training, they could have benefitted from more, because their reviews were not substantial. Kennedy and Miceli (2010) had similar findings—that despite receiving training, the students still needed more training in how to use a corpus to support creative writing. In a task where students needed to provide feedback, correction and remediation to peers, Vinagre & Muñoz (2011) noted that it would have been beneficial to explain to students the difference between feedback, correction, and remediation since some did not know the difference. This would have also improved their overall correction skills. Although pedagogical training sessions have been implemented, the students could have benefitted from more training.

**Technical Training.** Technical training has also been provided to students, but more often the need for technical training is established after the study resulting in students' unproductive involvement in the course or the study. Ducate and Lomicka (2009) found that a lack of technical training resulted in some students failing to download podcasts because they did not know how to do so and therefore missed an integral part of learning in their course. Lai and

Gu's (2011) study on self-regulated learning outside of the classroom found that some students did not have an awareness of how to use the tools. One student reported, "I think I have the tech skills, but I don't have the knowledge of how I can use it to help me learn. I think if someone can show me how to use it effectively and tell me she experienced it herself and used it in this way, it would help me" (p. 324). While this comment may not resonate with every student, it shows that there is a need to show students how to use resources to construct knowledge. O'Bryan (2008) found that after a 10-minute training session on using glosses in an electronic reading environment was very effective, even three weeks after training as students retained their understanding of the glossed words and gained an understanding of the language learning potential of using the glosses. Lee (2010) found that students requested additional training sessions on iMovie to maximize the potential of the software even though the instructor provided an initial training session and created a step-by-step guide for using iMovie.

Most recently, Lee (2013) and Han (2015) have found that students seem to be more able to gain technical skills on their own when provided with the appropriate resources. In 2013, Lee did not report any technical problems with the use of wikis for collaborative writing. She offered a brief training on wikis and then instructed her students to take a WikiSpaces tour and watch YouTube videos on wikis. Although Lee did not state that the supplemental videos impacted the use of the wiki, the videos potentially offered training throughout the semester as students could access them when needed. Han (2015) found that his adult students in a flipped ESL class developed strong information literacy skills for the course management system and Google Voice and could transfer these skills to the Internet in general as they knew where and how to locate relevant tools and materials on the Internet. At first glance, both studies appear to reveal that students can learn the information on their own without extensive training; however, Lee

says that students received a brief training, but doesn't say how much. Han did not report any details on nor define learner training even though he indicated that Google Voice had a positive impact on it. Therefore, while it appears that training might not be as relevant as it was in previous years where students requested more training, Hubbard (2006, 2013) found that research on computer mediated communication and computer aided language learning rarely address learner training as to the type or amount provided, or do so in the discussion as a need for future research.

**A Framework for Learner Preparation.** Rott and Weber (2013) created a learner preparation framework for using wiki software based on their reflections from previous wiki projects they had implemented, as well as a comprehensive review of relevant research. The learner preparation framework was implemented with intermediate learners of German as they completed an assignment about German music that involved the use of a wiki. The researchers outline five steps for the framework and within each step is an issue that arose and scaffolding techniques that were adopted to address the problem. The first three steps in their framework are applicable to the current study.

In the first step, "Structure and function of the collaborative writing assignment in the course," one issue that surfaced was that students did not have a clear sense of the interrelatedness of the content of the linked pages within the wiki. To scaffold the students' understanding of a wiki, students first needed to understand the structure before producing the content. Students were then guided to view various pages and then to discuss the relationships among the pages. Finally, they were asked to reflect on these relationships.

The second step, "Hands-on technology introduction," involved technical support related to the navigation and construction of the wiki site. One issue that arose was the difficulty for

students to transfer their knowledge about technology from personal use to institutional use; students voiced frustration about the functionality of the site. The authors suggest that it is essential to conduct a hands-on technology session because of the high cognitive demands of learning to navigate the technology and learning new content at the same time (Goertler, 2011).

The third step focuses on “Conducting research and taking notes.” An issue that arose was that students were not taking notes effectively for language learning. The authors first demonstrated that one-to-one translation often results in non-target like language use. Then they provided comparisons in English and German, practiced taking notes together and then exchanged and compared their notes. The last two steps focus on collaborative and cooperative process of writing and editing and facilitating peer feedback in writing.

Similar to the literature that was discussed on flipped learning, Rott and Weber (2013) also assert that the successful completion of their assignment strongly depends on effectively preparing students for each aspect of the task. Their framework aims to ensure that “students can take advantage of every opportunity for learning provided through the collaborative wiki format” (p. 196). Furthermore, each step in their framework fosters the development of metacognitive learning skills regarding the process of writing and can help students navigate their “extended roles as authors, readers, and editors autonomously in future projects” (p. 196). Rott and Weber’s learner preparation framework seems to be the most complete form of training because it seamlessly combines both technical skills and pedagogical skills, and provides opportunities for metacognitive development as well.

**Summary.** Pedagogical and technical training has proven benefits plus the need for preparing students is evident. Yet, and as Hubbard pointed out (2013), the importance of learner training seems to be afterthought in research studies, usually in the discussion section in terms of

what the researcher would have or should have done or even when outlining the recommendations for future studies. Earlier in the literature review, I reported on information literacy training for content areas which students perceived as beneficial, but research information literacy training in computer aided language learning is, at best, scarce. However, Rott and Weber's (2013) learner preparation framework seems to lead the charge in information literacy training by providing both technical and pedagogical training as well as outlining the specifics of the training. The next section discusses four models that highlight different skills that could be needed for blended learning.

#### Models for Learner Training

Researchers have developed numerous models for learner training, strategy training, metacognitive training, and autonomous learner training development (Chamot, 2005; Cohen, 1998; Hubbard, 2004; Zimmerman 1994; Oxford, 1990; Reinders, 2007). The rest of this section focuses on one model in each of those areas. First it discusses Hubbard's (2004) learner training model. This is a general model for learner training that includes five steps. Then it discusses Reinders's (2007) model that operationalizes autonomous learning. Then it outlines two metacognitive models proposed by Zimmerman (1994) and Chamot (2005) and ends with an overview of the features of Cohen's (date needed) Strategies and Styles based model.

**Learner Training Model.** Hubbard (2004) developed a five-step model for learner training. This model has been implemented in a variety of situations with positive outcomes (Kolaitis, Mahoney, Pomann & Hubbard, 2006; O'Bryan, 2008; Pomann & Hubbard, 2009; Romeo & Hubbard, 2012). The model is outlined below and then explained further.

1. Teachers experience CALL
2. Learners receive Teacher Training
3. Cyclical Training
4. Collaborative Debriefings
5. General Exploitation Strategies

To begin, teachers need to experience CALL for themselves. From the beginnings of CALL to the present day, it has been recognized that teachers must be comfortable with and training in the use of computer materials (Burston, 1991; Chenoweth, Ushida, Murday, 2013; Daetsch, 1990; Fuchs, Hauck & Mueller-Hartmann, 2012; Hoch, 1985; Kolaitis, 1990; Llontas, 2002; Schmid & Hegelheimer, 2014). Furthermore, they need to know what technical support and hardware are available so they can pass that information along to their students (Karabulut, Levelle, Li & Suvorov, 2012; Winke & Goertler, 2008). Teachers should model the implementation of the technology for their students and they should continuously support and guide their students through the technology (Lai & Gu, 2011).

Next, Hubbard (2004) proposed that learners receive teacher training, or being able to identify the learning goal and how to approach it, rather than approaching the task as a set of homework problems. For learners to begin to learn to self-regulate and monitor their learning, they need to know what the learning objectives are in the first place. This may help students to understand why they are completing a task rather than simply trying to take the quickest path to finish it (Cárdenas-Claros & Gruba, 2009). This step is followed by a cyclical approach to training meaning that training is offered throughout the time they are using it rather than a short introduction stage at the beginning. Their approach to learner training is often referred to as “train–use–train–use.” After cyclical training, Hubbard (2004) recommended collaborative debriefings followed by a discussion of general exploitation strategies with students and instructors.

Kolaitis Mahoney, Pomann, and Hubbard (2006), Pomann and Hubbard (2009), and Romeo & Hubbard (2012) have successfully implemented this five step approach. Kolaitis, Mahoney, Pomann, and Hubbard (2006) implemented a learner training approach to an ESL

program at a community college and their data suggest that learner training is a positive step if there is support and commitment for the concept. One of their first steps in implementation was to identify the language learning goal before attempting to train the students. As was the goal, it helped guide students to determine the goal of the study rather than just an activity. After implementing Hubbard's five step approach in an ESL program at a community college, Pomann and Hubbard (2009) found that the use of reflective or debriefing journals played a key role in students' learning. The journals focused on student learning, discussing student goals and strategies to meet those goals. The journals also served as an avenue for collaborative reflective learning as the students shared their journals in small groups and in class discussion. Romeo & Hubbard (2012) used a revised learner training model that distinguished technical, strategic, and pedagogical training to support students independent listening in a hybrid environment. Their results appear to show that the implementation of learner training had an overall positive impact on students and concluded that the benefits outweighed the lost amount of instructional time.

In sum, the training model proposed by Hubbard (2004) teaches students to identify the learning goal, choose appropriate programs or tools, choose their appropriate ability level, and use the strategies on their own with the goal of independent learning to teach themselves how to learn.

Reinders (2010) proposed a framework of skills that further aimed to operationalize learner training and its implementation in the language classroom. One of the underpinnings of this framework and in autonomous learning, in general, is reflection during each stage. The framework is shown below as a cyclical model taken from Reinders (2007).

**Learner Autonomy Model.** Reinders's framework stems from Holec's (1981) definition of learner autonomy and what Little (2004) sees as the skills that a language learner should have.

These include determining the objectives, defining the contents and progressions, selecting methods and technique to be used, monitoring the procedure of acquisition, and evaluating what has been acquired.

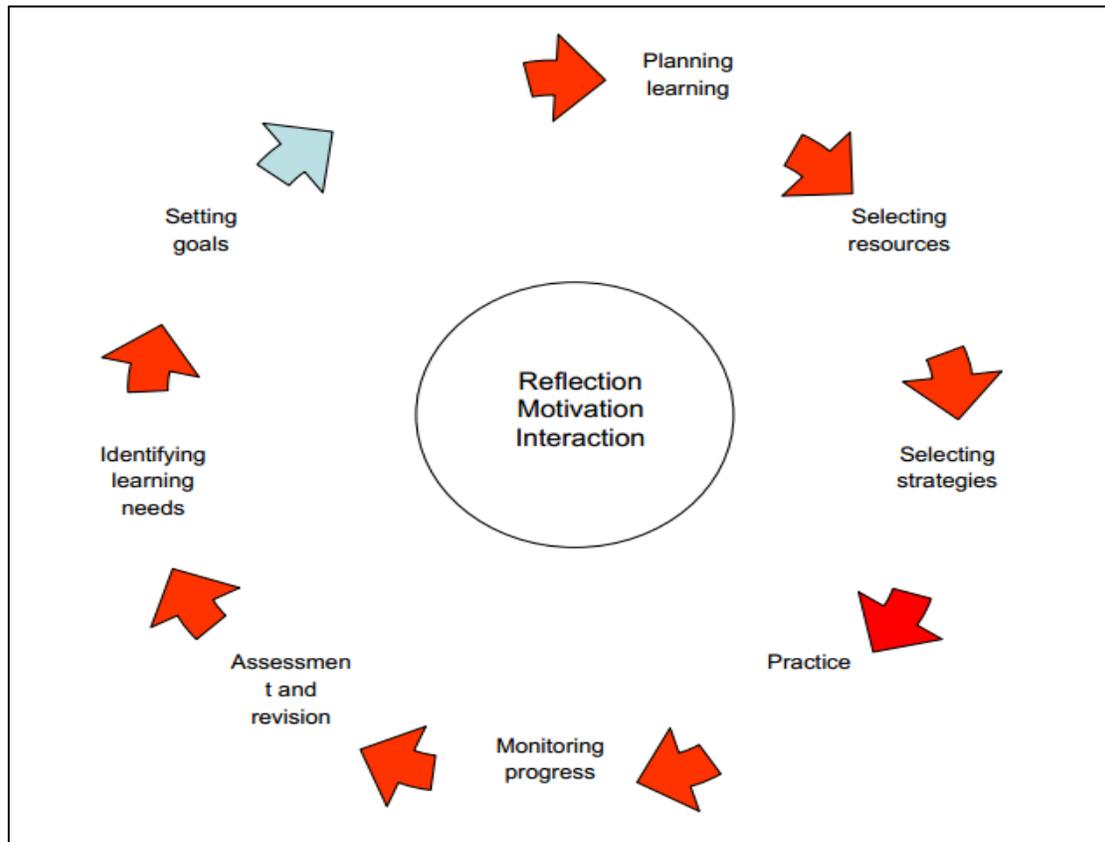


Figure 2. Cyclical nature of the autonomous learning process (Reinders, 2010)

The framework begins with the learners identifying their learning needs, recording them, and reviewing them regularly. After they have identified their strengths and weaknesses, setting goals will help them be specific about the outcomes they are aiming for. The next phase is planning their learning, which involves planning and sticking to it. Reinders (2007) points out that the difference between setting goals and planning for learning is that “whereas one’s goals help to specify one’s destination, planning is like finding the best road to get there” (p. 47).

Learners then select resources and learning strategies that they can use to complete the task. Reinders mentions that it is beneficial to first identify students' current strategy use. Then teachers should provide regular feedback and recognize students' improvements. In the next phase, *Practice*, students use and experiment with the language while completing the task. Then for development of autonomy, learners need to develop the ability to monitor their progress and revise their learning plans accordingly by reflecting on their motivation and other social–affective aspects of learning. In the final phase, *Assessment and Revision*, learners are given opportunities for assessment with the goal to enable them to feel confident in their learning. As mentioned, reflection underpins this framework, just as in Hubbard's (2004) learner training model. After assessing learning, learners need to be encouraged to think about what went well, what did not and why, as well as what alternatives there are and how the alternatives might affect their objectives. This last reflection makes the process a cycle of learning where “previous experiences are the building blocks for future learning” (p. 50). Although this model does not explicitly state that learners are also gaining metacognitive skills, it seems to be implied and has similar features to the three-phase metacognitive model developed Zimmerman (1994) described in the next section.

**Metacognitive Models.** Flipped learning has the potential to help students become more autonomous learners using cognitive and metacognitive strategies as students are the ones who are responsible for locating, examining, and evaluating the materials to meet their needs. Inexperienced learners may not be able to translate their learning behavior into efficient web-based learning due to their lack of metacognition, or ability to tackle language on their own (Ma, 2007). Oxford (1995) suggests that although students who are competent in the language can begin to make good decisions about their language learning, they can still benefit from explicit

teaching practices where rules are given, explained, and focused on (Lys, 2014). Furthermore, due to the openness and nonlinear structure of online learning, online learning places additional cognitive demands on the learners.

Metacognitive skills are strategies on how to plan and organize learning, which play a major role in online learning as learners need to explore their environment to take advantage of it (Ma, 2007). It is related to awareness, making conscious choices, deciding which part of the input to pay attention to, and motivation (Lawanto, Santoso, Lawanto, & Goodridge, 2014; Roussel, 2011). While cognition concerns the ability to build knowledge, process information and solve problems, metacognition concerns the ability to control working of cognition to ensure that goals are achieved and problems are solved (Lawanto et al., 2014). The knowledge or awareness of metacognitive skills often lead to autonomous, or self-regulated, learning, which is needed for successful online learning since the students oversee their learning and are active participants (Zimmerman, 1996).

Zimmerman et al. (1994) developed a three-phase process regarding metacognitive training. In phase one, or *forethought*, learners set goals and expectations, identify strategic planning, and think about the value of the activity. In phase two, *performance control*, learners execute their plans while focusing on task strategies and monitoring their behaviors. In the final phase, *self-reflection*, students adjust the learning strategies that they employed in the forethought and performance control phases. Based on Zimmerman's metacognitive models, Lawanto's research team found that higher level learners outperformed lower level learners on the forethought phase, specifically with goal setting, accessing more materials, and submitting assignments on time. Furthermore, low level learners used the learning materials to obtain a summary of the information presented, whereas their higher performing peers took full

advantage of the resources provided because their perception of the online materials was that it was of higher quality than other instructional resources. Additionally, they often practiced a concept until mastery was achieved.

Smith and Craig (2013) also encouraged self-directed learning by introducing several tools, such as a learner passport, an e-portfolio, and an e-learner self-reflection diary. These support resources focus on metacognitive skills and reflection. They found that these tools made a positive impact on students' perception of autonomous learning and encouraged them to include more CALL resources in their study plans.

To assist learners in developing metacognitive skills that can enhance language ability, Cohen et al. (2011) developed a language strategy website that provided examples of strategies that students had found useful remembering and correctly using difficult concepts. In addition to determining which strategies were helpful, the research team also promoted metacognitive skill development by asking students to discuss their current language strategy use and list factors that influence their choice of strategies and the effectiveness of those strategies.

As shown by the three previous research studies, (Lawanto, 2014; Smith & Craig, 2013; Cohen et al., 2011) providing explicit steps for students to take to become self-regulated learners tends to increase learners' motivation and confidence, and it also helps them establish goals and begin engaging in self-directed learning. While there will always be good learners, others will benefit from strategies that have the potential to increase awareness of their thinking and learning processes which can affect their language ability. They may also begin to evaluate the effectiveness of the strategies they currently use. Furthermore, as they become more proficient users of the language and of the interface, they will begin to develop new strategies that could contribute to their learning (Cohen, 2011).

An additional model, Chamot's Metacognitive Model of Strategic Learning, is similar to Zimmerman's and organizes learning strategies in such a way that they become manageable and helpful to students and teachers (Chamot, 2005). The model consists of four metacognitive processes: planning, monitoring, problem solving and evaluating. Similar to Zimmerman's model, Chamot's includes an additional problem-solving strategy phase. Students use problem-solving strategies when they have difficulty any time during a task by using resources available to them to solve the problem.

**Wrappers.** The use of wrappers is yet another approach to metacognitive training. A wrapper is an activity that surrounds a pre-existing learning or assessment task that fosters students' metacognition. They can be built around any pre-existing part of a course, such as lecture, homework assignment or a test (YC Institutes, 2015). Lovett (2013) and Thompson (2014) demonstrate how metacognition and reflection can be used to improve study habits, exam performance, as well as an efficient and effective way to create more critical thinkers.

Lovett and her colleagues at Carnegie Mellon University define exam wrappers as "structured reflection activities that prompt students to practice key metacognitive skills after they get back their graded exams" (Lovett, 2013, p. 18). Wrappers were developed in reaction to their findings that many successful high school students were arriving at college with study habits that were ineffective for higher order learning. Students transitioning to college can benefit from metacognitive instruction because while they are expected to show both independence and self-management in their learning, they are also facing new difficulties associated with college life and college-level material (Pascarella & Terenzini, 2005). An exam score could lead them "to develop counterproductive habits as a response to adverse outcomes" (Lovett, 2013, p. 19), but Lovett (2013) calls for instructors to enable students to use their exams

to foster their metacognition which can help them establish self-regulated learning skills. The exam wrappers they developed for introductory math and science courses provided students with a chance to reflect upon, compare, and adjust their learning habits and strategies by asking three kinds of questions: how they prepared for the exam, what kinds of errors they made on the exam, and what they might do differently to prepare for the next exam. Because of students' viewing their own wrappers prior to the next exam, Lovett showed that student made real and important changes to study strategies as a result of using exam wrappers in several introductory math and science courses. Furthermore, exam wrappers impinged minimally on class time, are easily completed by students within the time they are willing to invest, are easily adaptable, are repeatable, but flexible and exercise the skills instructs want their students to learn (p. 25). From this study, Lovett's colleagues at Carnegie Mellon have created wrappers for homework assignments and for lectures in courses such as chemistry, biology, physics, and calculus.

Thompson (2012) created homework wrappers for third-semester Spanish language courses as way to promote students' monitoring of their understanding of the course material and their study strategies. Each wrapper required students to reflect on their performance before and after seeing their grade. Questions on the wrapper focused on the amount of time they spend preparing, their methods of preparation, their predicted test grade, a categorization of their mistakes and a list of changes to implement in preparation for their next text. The wrappers were returned to the students several days before their next exam. The results indicated two significant findings. First, on a whole, students reported an average gain in self-monitoring practices in the range of 12-15% than prior semesters. Additionally, first-year students tended to grow more in their reported self-monitoring practices than older classmates which confirm previous claims by Osman and Hannafin (1992) that younger and more novice college students are less likely to

have developed metacognitive skills and can benefit from targeted strategy training earlier in their college years. The second relevant finding that emerged is that students improved their ability to predict their performance on tests, which is a skill that has been shown to help students connect their study efforts with their level of actual achievement (Achacoso, 2004; Lin et al., 2001). Because college students are expected to spend considerable hours learning on their own, teaching students how to learn well on their own and to evaluate that learning is a key component. He noted that a relatively small amount of explicit attention, in the form of exam wrappers that helped students think about their own learning and study strategies appeared to produce significant improvement in their self-monitoring practices and strengthen metacognitive skills. He suggests that some attention to metacognitive skills in language classes is worthwhile because it can promote more frequent use of self-monitoring skills with little change in the course structure. In addition to discovering how students prepare, the wrappers can also inform the instructor about his or her teaching.

Research also suggests that training students to understand how to have more agency in their learning increases their academic success (Perry, Hall & Ruthig 2007; Gynnald, Holstad & Myrhaug 2008), and that monitoring students' understanding of their learning can enrich assessment practice (Micari et al., 2007).

**Strategy Model.** The last model that is discussed is Cohen's Styles and Strategies-based Instruction Model, which is a learner-centered model that includes both explicit and implicit strategy integration into the course content (Cohen, n.d.). The idea of this model is that students should be given the opportunity to understand not only what they can learn in the language classroom, but also how they can learn the language they are studying more effectively and efficiently. The stages are outlined below and then discussed.

1. Strategy Preparation
2. Strategy Awareness-Raising
3. Strategy Training
4. Strategy Practice
5. Personalization of Strategies

In the strategy preparation phase, the goal is to see how much knowledge the learners already have regarding strategies and their ability to use them. Next, in the Strategy Awareness-Raising phase, the idea is to inform learners about strategies that they may never have thought about before. The awareness-raising includes discovering their learning style preference, their learning process, the strategies they currently use, how much responsibility they take for their own learning and the approaches that can be used to evaluate strategy use. Then, students are explicitly taught how certain strategies can be employed in language learning followed by students being encouraged to use with strategies. The last phase in this model is *Personalization of Strategies*, in which learners personalize, evaluate, and look for ways to transfer the strategies to other contexts. This model as well incorporates the development of metacognitive skills through the awareness-raising stage.

**Summary.** Learner training models have been developed for a variety of online tools and applications, but the models are not built around students' actual needs or upon their actual behaviors. Furthermore, these models tend to be training models rather than preparation models. While each model can stand on its own to develop a certain set of skills, a combination of features from the different models as well as emphasis on the skills the learners actually need has the potential to create a framework for learner preparation that embodies the learning process, rather than discreet skills. The next chapter looks specifically at design principles for flipped learning based upon actual behaviors.

## **Summary**

This review of the literature has set the scene for the current study. The review began with an overview of flipped learning, outlining the reasons why instructors want to flip their traditional classrooms and the underlying challenge that remain in flipped models—student readiness for flipped learning. Then the three theoretical frameworks for the study were presented. This was followed by a review of the types of training in CALL applications that has been provided to students and the results of that training. In addition, a few training models were discussed.

## CHAPTER 3

### Methodology

Chapter 3 begins with an overview of grounded theory and why it was chosen for this study. Then, the details of the study procedures are presented, followed by a detailed description of the research design and analysis. The research design section includes information about the context, the participants, the instruments, the tasks, and the procedure for data collection and data analysis.

Scholars have created models to assist teachers in designing their curricula for blended and flipped courses; however, research in regard to preparation, specifically for the learner, is minimal at best and nonexistent for flipped learning. The need in this study for a *learning-how-to-learn* framework that takes into account students' out-of-class activity refers specifically to training students to use the resources and tools that are integral to the online component of a flipped language course. By examining actual behaviors, researchers can learn what type and how much preparation learners need when they are working outside of class. The purpose of this study is to identify how learners use available online tools as they engage with the interactive online modules designed for the initial introduction of course material and to conceptualize a *learning-how-to-learn* framework that is informed by data as to how students' use of resources guides the creation of the framework. The final product, therefore is a training model, grounded in empirical findings, that has the potential to help instructors, learners, instructional designers and textbook creators in building a more sophisticated understanding in an area that is currently understudied.

Grounded theory is a research method introduced by sociologists Glaser and Strauss in 1967. This form of qualitative research assumes an inductive stance and strives to derive

meaning from the data (Merriam, 2007) with the end result being a theory that emerges from or is grounded in the data. Corbin and Strauss (2007) state that the focus on building theory separates grounded theory from other types of qualitative research. Grounded theory is useful in addressing questions about a process or how a phenomenon changes over time. The *learning-how-to-learn* model created from the data gathered and analyzed in this study was built upon principles extracted from the everyday situation of students completing the online work for their Spanish course outside of class. Grounded theory emphasizes incorporating the voices of the participants in building a theory about a phenomenon. In regard to flipped learning, the students' voices have been heard as they relate to attitudes or perceptions toward flipped learning, but not as they relate to how students are using the available tools to learn language. Strauss and Corbin (1990) state that theory is “discovered, developed, and provisionally verified through systematic data collection and analysis of data pertaining to that phenomenon” (p. 23). In the current study, three sources of data were analyzed to develop a theory that explains students' interaction in and their understanding of flipped learning. The theory addresses the challenges confronted by the students, the strategies they used to overcome those challenges as well as the development of a model to assist students in learning how to maximize their learning in a flipped language course environment.

A pilot study was conducted in two sections of an Elementary Spanish II course in fall 2015 to mainly test out the procedures and different types of recording software for the operational data collection. A total of 37 participants completed four Recorded think-aloud sessions while working on interactive online vocabulary and grammar modules, participated in one focus group, and wrote a short reflection paper. Some questions for the semi-structured

interview were drawn from the student responses from the focus group and the short reflection paper. The data was not analyzed.

### **Research Questions**

In this dissertation, the following research questions guide the structure of the methodology.

1. How do students who are enrolled in their first flipped Spanish course construct meaning while working with the online components of a Spanish language program?
2. What insights about learning in an online context emerge from discussions with peers?
3. What insights about learning in an online context emerge from conversations in which learners view and talk about video clips of their online activity?
4. What types of support do students need to understand and participate in flipped learning?

### **Course Context**

This section describes the course context for the current study. Students in the College of Liberal Arts and Sciences (2015) are required to complete four semesters of language study. The College of Liberal Arts and Sciences (2015) states that students can meet this requirement in the following ways:

1. Complete the fourth year in a world language in high school; or
2. Complete four semesters\* in an approved General Education world language course sequence at the University of Iowa or the equivalent courses at another college or university, or during study abroad; or
3. Pass a written and oral achievement test measuring proficiency in a world language taught at the University of Iowa, equivalent to that usually attained after four semesters of college study; or
4. Achieve a passing score on Advanced Placement, International Baccalaureate, or other approved college-level world languages examination program.

\*Students may be required to complete fewer than four semesters based on their language placement test results.

Almost all the students enter the University of Iowa with a minimum of two years of language in high school. Placement into the appropriate language course depends upon students' scores on the WebCAPE Language Placement Exam (Larsen & Smith, 2004, as well as students' prior experience with the language (First Year Experience, 2015). The WebCAPE exam is a computer-adaptive standardized test given at several universities for placement into Spanish courses.

The course sequence for the GEP in Spanish consists of Elementary Spanish I, Elementary Spanish II, Intermediate Spanish I and Intermediate Spanish II. These courses are taught in a blended and flipped format in which 60% of each course is conducted in a classroom setting and 40% is delivered online. All the courses carry five semester hours of credit. The structure of the courses follows a flipped model: Outside of class, the students work online with the interactive textbook in which they engage with Spanish through text, sound, and images. Students can read grammar explanations, view grammar and vocabulary tutorials, listen to audio clips, take notes, and highlight key points using a variety of built-in tools. In addition to the interactive textbook, grammar and vocabulary activities can also be found in MySpanishLab (MSL). Most consist of self-correcting fill-in-the-blank or multiple-choice questions. Then students take a quiz on each vocabulary or grammar topic. Students are expected to spend 8–10 hours per week working with the online components of the course.

In the face-to-face class sessions, which meet three times each week for 50 minutes, new vocabulary and new grammatical structures are not presented; instead, students engage in speaking, listening, and writing activities that have been designed for them to practice and strengthen their understanding of the material they have studied and prepared outside of class.

Office hours can be used to ask questions or seek help regarding grammar or other topics that students have worked with online.

Elementary Spanish I is the first-semester courses in the General Education Program (GEP) in Spanish at the University of Iowa. A typical section of elementary Spanish at this university enrolls 20 students who range from first-year to fourth-year students in a variety of majors. Elementary Spanish I is designed for students who have not previously studied Spanish or who score very low (0–150) on the placement test. However, due to factors mentioned previously, students with some previous study of Spanish may enroll in this course, based on the decision of the director of the Spanish GEP. For example, if several years have passed since a student's last Spanish course, the student may be allowed to start from the beginning of the course sequence to build a stronger foundation, even though the student may already have some knowledge of Spanish. The director of the Spanish GEP makes placement decisions in such cases after reviewing the student's academic record and interviewing the student.

The Spanish GEP courses are taught by graduate teaching assistants (TAs), most of whom are studying Hispanic linguistics, creative writing in Spanish, Hispanic literature, or second language acquisition. Prior Spanish teaching experience among the TAs who teach Elementary Spanish I typically ranges from no experience to up to five years. First-year TAs participate in a three-day orientation at the beginning of the fall semester, and are joined by veteran TAs for one of those days to discuss administrative matters. Topics covered in the orientation include an introduction to communicative language teaching (CLT), lesson planning, and the policies and procedures of the GEP. First-year TAs who have not already taken a similar course are required to take the graduate-level Teaching and Learning Languages course in their first semester of teaching.

The GEP Spanish courses have been structured as flipped courses since 2013, following a 3-semester transition process. In an introductory PowerPoint presentation on the first day of each semester, students learn the four advantages of blended courses: self-pacing, faster feedback, easy access, and increased speaking practice in class (First Day PowerPoint 2015). All the activities and quizzes that students will complete online are available to them from the beginning of the semester, and students may have up to three attempts for each activity and one attempt on each quiz question (self-pacing). Students receive immediate feedback on the online activities by clicking on the thought bubbles next to each question; feedback for quizzes is available the day after the quiz due date. In addition, the MSL software generates a personal study plan based on a student's performance on each chapter. All assignments allow for easy access since they are online, and students can log on to their MSL account from any computer, smartphone, or tablet with Internet access. In addition to the four advantages that TAs explain to their students, a fifth benefit is that instructional time can be dedicated to meaningful communicative activities in Spanish in which students apply the grammatical structures and vocabulary they have studied online.

The GEP courses at the University of Iowa are both blended and flipped. The courses are defined as blended because they combine online and in-class components. Additionally, the courses are flipped due to the way course material and tasks are distributed across the online and in-class components. Students do online what has traditionally been done during face-to-face class time. In a flipped course, class time is dedicated to activities that tap into the upper levels of Bloom's Taxonomy, such as analyzing and synthesizing, and students complete tasks associated with the lower levels, such as remembering and understanding, outside of class.

### Course Materials

The course that is at the center of the study is a flipped Elementary Spanish I course and one specific class will be the focus. Since fall 2013, the flipped distribution of course content has been supported using a textbook program, *Unidos*, that was designed for use in flipped instruction. *Unidos* is the first language textbook program designed for flipped elementary Spanish courses. In contrast to a traditional textbook program, in the *Unidos* program, course content that is usually introduced, explained, and guided by the instructor—grammar explanations, vocabulary presentations and their associated practice activities—have been replaced with online interactive grammar and vocabulary presentations, self-correcting practices activities, and Spanish-only word lists.

**Classroom Manual.** The printed textbook in *Unidos* is called the *Classroom Manual*, and it consists of open-ended communicative activities that students do in class. The material found in traditional textbooks—grammar explanations and vocabulary presentations with their respective accompanying exercises—are only accessible online and are packaged as interactive presentations and tutorials.

**Online Components.** The online component of the course is located in a Learning Management System (LMS) called MySpanishLab (MSL). The LMS contains many resources for students to use including two principle features, the eText, Tutorials, and Apply activities, as well as a verb chart, a glossary, video tutorials, audio clips, and an assignment calendar. Figure 3 below shows the different components that the students can access from the homepage in MSL, and in particular the eText. The eText is divided into two main components, the online *Classroom Manual* and *Interactive Presentations*.

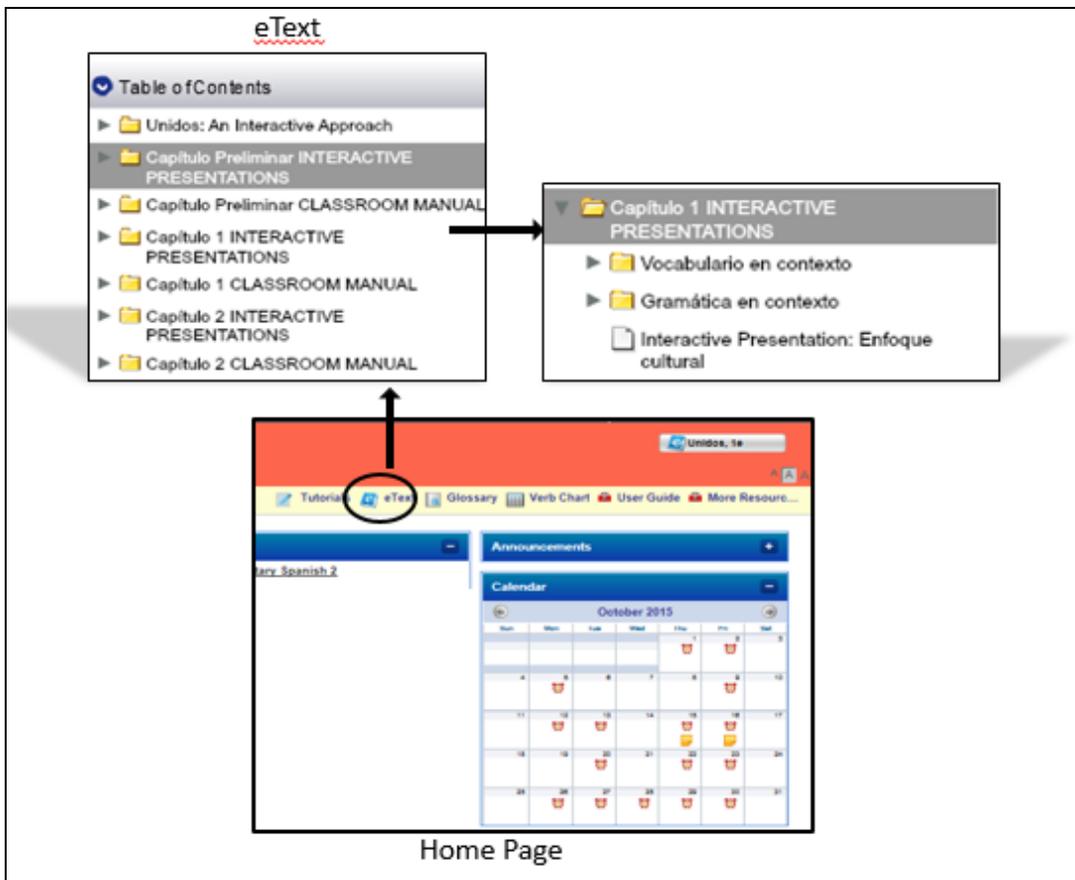


Figure 3. Homepage in MySpanishLab

The online Classroom Manual is similar to the printed version, but includes interactive features that allow students to engage with Spanish through text, sound, and images. Students can listen to audio pronunciations of vocabulary words, take notes in the text, and highlight key points using a variety of built-in tools such as colored highlighters, color-coded notes, and bookmarks.

The *Interactive Presentations* are comprised of vocabulary and grammar modules, where students find new vocabulary words in context and written grammar rules with examples. The vocabulary presentations introduce new words in appropriate linguistic and cultural contexts and with language samples. The grammar interactive presentations introduce grammar through meaningful and realistic language samples. The grammar presentations include written grammar explanations in English and are usually accompanied by a verb or grammar chart with examples in Spanish. Additionally, a comprehension activity in which students can check their answers immediately follows each new grammar presentation. In both vocabulary and grammar presentations, boldface type highlights new vocabulary or grammar structures and students can listen to language samples by clicking on the audio icon.

In addition to working with the material presented in the online eText, students also complete Apply activities, which are grammar and vocabulary activities, mainly consisting of fill-in-the-blank or multiple-choice type questions. These activities can be accessed through the calendar on the home page, as seen in Figure 4. As students complete the Apply activities, they also have access to the verb chart, glossary, tutorials, and the eText. Additionally, for incorrect responses, they receive immediate feedback

with hints on how to correct their response. Figure 4 displays how students access the Apply activities and the options available to students as they complete them.

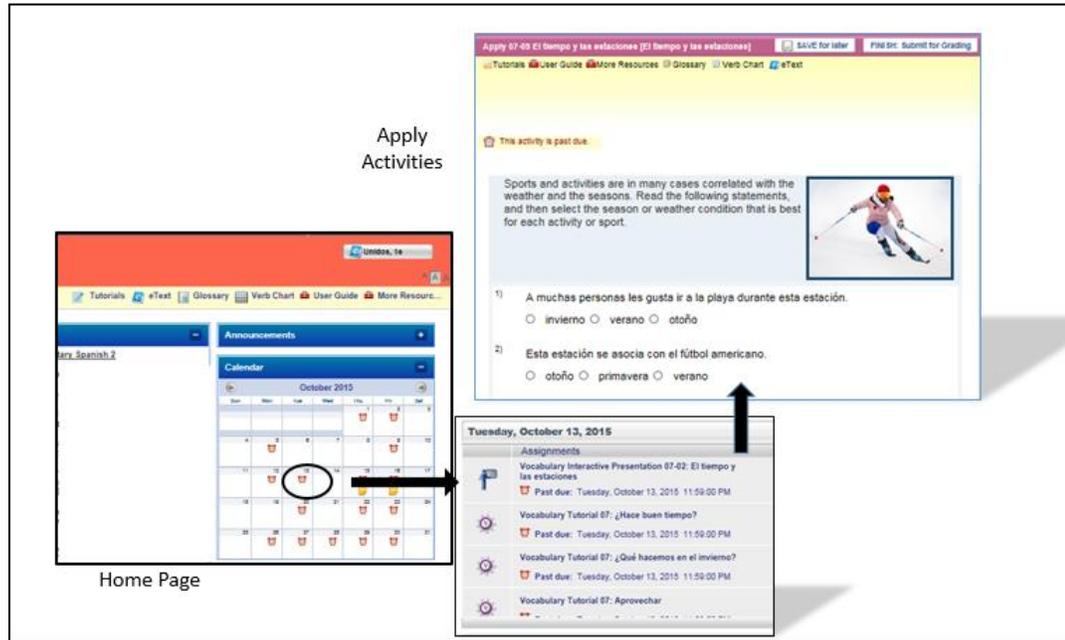


Figure 4. MySpanishLab Apply activities

In sum, the online component is supported by MySpanishLab (MSL) and contains many features such as the eText and Apply activities, as well as an array of tools such as a verb chart, tutorials, and a glossary among others. The eText is comprised of a *Classroom Manual*, which is similar to a printed textbook, but includes interactive features, and *Interactive Presentations* which provide new vocabulary words in context and provide written grammar explanations along with examples. The Apply activities are grammar and vocabulary activities designed to apply the skills they learned while working with the *Classroom Manual* and the *Interactive Presentation*. The Apply activities are worth 10% of students' final grade. The students do not receive a score on the Interactive Presentations nor the Tutorials as they are study materials.

Students are expected to spend ample time outside of class working with the online materials, becoming familiar enough with the material to participate fully in class activities, just as they would for a sports team or a music lesson. The importance of consistent and thorough study of the online materials is reinforced by a daily participation grade, worth 8% of students' final grade. During the three weekly face-to-face class sessions, students complete three or four communicative-based pair and small-group activities that have been designed for students to use the linguistic information that they have studied online. For example, in the chapter in which students learn clothing vocabulary in the online component of the course, in class they may do an activity in which they interview each other what they might wear to a variety of events, or a whole-class activity in which one student describes the clothing worn by someone in the class and the rest of the students compete to be the first to identify whose clothing is being described. Another activity might be for students to see several outfits from a fashion show and then to work in small groups to describe and critique the clothing.

**TA Project.** Another component of each student's grade that is important for this study is the TA project. Each semester, all TAs design unique projects, which (following approval by the director of the GEP) count for 3% of the final course grade. Past TA projects have included making short videos, doing in-class presentations, researching cultural phenomena in a country, interviewing native speakers, doing a community service project, as well using Instagram, VoiceThread, and WeSpeak to create spoken texts. The TA project for the participating section of Elementary Spanish I in this study serve as a site for data collection.

For the TA project, all the students in the class were required to complete the same activities as the participants in the study; however the students had the choice to meet with me or write a 2-page reflection paper, while the participants in the study were required to meet with me twice. The first activity that the class did was record and think-aloud as they worked online at two different times throughout the semester as they worked with vocabulary. Students also met twice in small focus groups during class time to discuss how they worked through the online components. Lastly, the participants who gave consent and qualified to participate in the study, met with me two times throughout the semester to watch video clips of themselves working online and discuss how they worked through the online components. The complete TA project information sheet and rubric is found in Appendix B. All the students in the section completed the TA project as a required course assignment, making up 3% of their final grade; however, only the data of those students who meet the requirements outlined later and who give their informed consent for their data to be used is included in the analyses.

In addition to the 3% dedicated to the TA project, the breakdown of the student total grade is as follows: Apply Activities 10%, Classroom Participation 8%, Quizzes 14%, Writing Activity 10%, Chapter Tests 20%, Oral Exams 25%, and Final Written Exam 10%.

### **Recruitment of Research Participants**

Participants for the study were recruited from one section of Elementary Spanish I (ES1). This section was chosen based upon the Graduate Teaching Assistant. First, I wanted to find a TA who was teaching Elementary Spanish I and who was also experienced in teaching language and teaching in a flipped classroom. Second, the TA

had to agree to use the TA project that was designed for the current study in lieu of their own project. The TA that was chosen holds a graduate degree in the Teaching of Spanish for Foreign Students, has five years of teaching experience and had taught with *Unidos* for the two years prior to this semester. Coincidentally, during the Spring 2016 semester when I collected data, she was also only teaching one section which was beneficial for her since she did not have to worry about two different TA projects.

To recruit participants, I visited the designated ES1 section during the second week of the spring 2016 semester to explain the study and invite the students to participate. At that time, I also explained the TA project and how it connected to the study. At the end of my presentation, I distributed two copies of the informed consent document printed on different colors of paper to each student. The informed consent document can be found in Appendix C. Students were allotted time during class to read the materials and, if they wished, signed the white copy of the informed consent document. I passed around an envelope for all students to deposit their copies of the informed consent document, whether signed and filled out or not. They could keep the colored paper to save and read at home. Furthermore, anyone who wished to take additional time to read the documents and decide whether to participate in the study or not had the option to keep the documents and return them to me (or not) later. All students returned the informed consent document before they left the classroom. To ensure confidentiality, the TA of ES1 was not be present in the classroom during the recruitment. Participation in the study was voluntary and did not have any effect on the participant's grade in the course. The TA was never made aware of which students agreed to participate in the study, and did not have any role in the study or the TA

project. To evaluate the TA project, the researcher provided a completed rubric to the TA at the end of the semester documenting the work that each student did for the TA project. Questions regarding the TA project rubric were addressed and resolved by the researcher, but the TA entered the score into the electronic gradebook.

Two days after the recruitment, I sent an email to those students who agreed to participate and had self-identified as meeting the criteria for the study. The email included a link to a brief Qualtrics questionnaire. The questionnaire, which can be found in Appendix D, elicited information regarding native language, previous study of Spanish, previous study, or knowledge of a language other than English, and experience with online courses. Based on their questionnaire responses, I identified eleven students who qualified for inclusion in the study and contacted them via email to let them know that they would be part of the study. Of those eleven students, one dropped the course around Week 7 and did not continue with the study, leaving a total of ten participants for the study.

The participants represented a wide variation in student performance which maximized the richness of the data (Merriam, 2009) looking at higher-performing and lower-performing language learners. All the participants were classroom learners of Spanish whose native language was English and they were enrolled in the Elementary Spanish I course. They had not studied Spanish at the university level nor had they taken a fully online course in a different subject area. The university requires two years of a foreign language as an admissions requirement, and therefore, while it would have been interesting to have true beginning language learners, it was not possible. Although it would be ideal to also limit the study to students who had not had experience specifically

with flipped or blended learning environments, students may not be aware of the difference between flipped, blended, or even web-enhanced and due to the wide range of how academics define blended, flipped, and web-enhanced, the restriction was set to no prior or current experience with a fully online course. Lastly, two graduate students were enrolled in the course and had previously studied two years of a language prior to their study of Spanish. One participant studied German almost 15 years prior and the other one studied French three years prior. The purposive sampling design was intended to result a group of participants that was characteristic of the population of students for whom Spanish was a new academic subject area and who were novices in online learning are as noted in Table 1.

Table 1. Criteria for Participant Qualification

<b>Course</b>	<b>Participant Criteria</b>
Elementary Spanish I	<ul style="list-style-type: none"> <li>• No previous college-level study of Spanish</li> <li>• No previous or concurrent online courses</li> <li>• L1 English</li> <li>• Enrolled in ES1</li> </ul>

The justification for including as participants only students in Elementary Spanish I who have not had any previous experience with learning a language at the college level or with any learning in an online course context is to examine the behaviors of novice learners in both arenas. A fundamental assumption of this study is that its design will allow me to identify the productive study behaviors that students acquire through experience in their first semester in a blended/flipped Spanish course, as well as productive study behaviors that they do not acquire, and therefore may need training. The study behaviors that students enrolled in ES1 exhibit in the first part of the semester are assumed to be those that develop for the most part through trial and error, without any

type of formal training. The components of the *learning-how-to-learn* model will then emerge from the analyses conducted on the participants enrolled in ES1 and their study behaviors will be included in the training model.

### **Participants**

Although the sample size was limited to a small number of individuals, they represent a sufficient number to develop the study. The sample consisted of 10 students (eight undergraduates and two graduates) who were enrolled in the same Elementary Spanish I course at a large midwestern university. They were recruited to participate in all the data-collection methods, including two RTAs, two focus groups, and two ISRs. Participants ages ranged from 18-35; 7 were male and 3 were female. Four of the participants were freshmen, three were sophomores, one was a junior, and two were graduate students. All participants had a different major. Six of the students had between two and three years of studying Spanish in high school while the other half had not had any exposure to learning Spanish in high school or college. As mentioned previously, all the participants had studied a language in high school for at least two years and the two graduate students had also studied French and German at the university level years prior. Per census data in 2016, the university had approximately 25,000 undergraduate students and 5,600 graduate students. The total population had a male to female ratio of 48% to 52% and approximately 66% of the total undergraduate population was enrolled in the College of Liberal Arts & Sciences which houses the General Education Program in Spanish. Approximately 55% of the students are residents of Iowa. The ethnic breakdown of the population was as follows: Caucasian 82.4%, Hispanic/Latino 6.5%,

Asian American 4.2%, two or more races 3.5%, African American 3.1%, American Indian or Native Alaskan .2%, Native Hawaiian, or Pacific Islander .1%.

Table 2 provides descriptions of the participants in the study including their gender, age, year in school, major, and any previous study of Spanish. Participants chose their pseudonyms.

Table 2. Summary Description of Participants

<b>Participant</b>	<b>Gender</b>	<b>Age</b>	<b>Year</b>	<b>Major</b>	<b>Years of HS Spanish</b>
Kelsey	F	21	Sophomore	Environmental Policy & Planning	2
Ralph	M	19	Sophomore	Journalism and Mass Communication	0
Cruz	M	20	Sophomore	Business	2
Cassius	M	30	Junior	Health Sciences	0
Alicia	F	23	Graduate	School Counseling	0
John	M	18	Freshman	Business	0
Michael	M	35	Graduate	History	0
Anna	F	18	Freshman	Biochemistry	2
Jake	M	18	Freshman	Undecided	2
Luke	M	19	Freshman	Psychology	3

### **Student Training and Preparation**

Research has shown that training in CALL is not always incorporated into studies or not reported on (Hubbard, 2006; 2013), but Hubbard (2005), an advocate for training, states that training is crucial and needs to be continual because the more exposure the students have with the program or the more importance the teachers place on it

throughout, the more likely the students will grasp the technology better and hopefully also recognize its importance.

Therefore, prior to the data collection, I first met with the TA of the participating ES1 section to discuss the TA project and provided her with a list of dates when I would visit her class. The day I recruited participants, I also provided the students with instructions on how to access and download Panopto, links to tutorials on how to use Panopto for PC and Mac computers, and links to two sample think-alouds. I also posted this information on the TAs class page in the Learning Management System. Panopto is a free software available to students enrolled at the University and is referred to as UICapture within the university community. The students were expected to have downloaded Panopto prior to the in-class training session.

During the fifth week of the semester, I visited the ES1 class for approximately 20 minutes to train the students on using Panopto as well as how to do a think-aloud task productively. The majority of the students in the class had already downloaded Panopto on to their laptops. For those that had not done so, prior to any explanation, I instructed them how to download Panopto so that it could download while I answered any questions regarding the TA project. Once everyone was ready, I walked them through the following steps in Panopto:

1. How to access the class folder
2. How to name their recording
3. How to record (record button, pause button, stop button, mic, and webcam features)
4. How to upload their recording to the class folder

The next part of the training involved learning how to think aloud as they worked on their online assignments. I demonstrated how to do a think-aloud using one of the

MSL activities and showed them an example of a good and a bad think-aloud session from the pilot study recordings. This was followed by instructions on how to do a productive think-aloud and what they should try to avoid such as long pauses or complete silence. The think-aloud protocol was uploaded to the Learning Management System prior to the training and included in the TA Project Rubric. After demonstrating how to use the technology and how to do a think-aloud, the students did a practice recorded think-aloud as the culminating activity for the training. I answered questions regarding Panopto, the TA Project, and how to think aloud. Two students, who were not included in the study, were absent from the class. I offered to meet with both students for training, but they declined so I referred them to the links posted on the Learning Management System.

In addition to training, students also receive a modified syllabus that included the tasks they needed to do specifically for the TA project, including the recorded think-aloud sessions (RTAs), the Focus groups, and the individual session with the researcher (ISRs). The due dates for the RTAs were posted on the same calendar in MSL where students see their other assignments and signaled by a post-it note icon in the calendar as shown in Figure 5. The post-it note contained the instructions and the think-aloud protocol. Figure 5 is a screenshot of their calendar in MSL. Participants in the study were reminded of the Focus groups and their ISR via email.

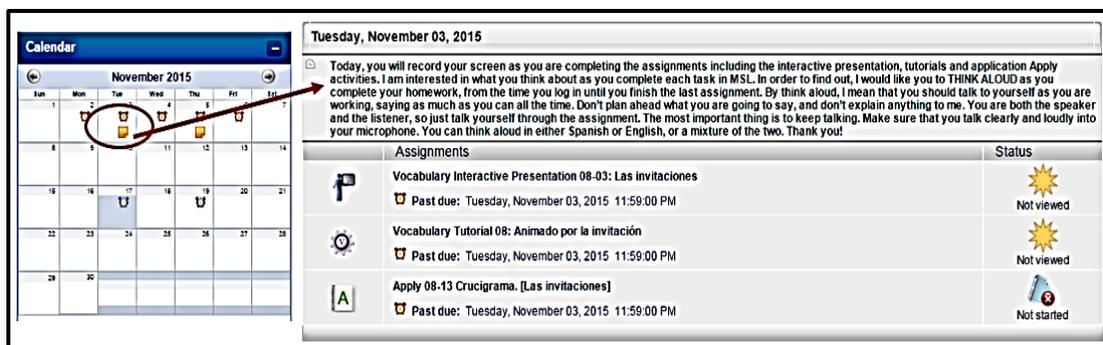


Figure 5. Screenshot of MySpanishLab calendar and assignments

### Data Collection

To answer the four research questions, three sources of data were used: (a) RTAs of students while working on designated assignments online; (b) in-class focus group discussions; and (d) the ISRs. This section further describes the methods that I used to collect the data that informed this study, as well as the methods that I used to analyze the data. Introspective methods, such as the RTAs “tap participants’ reflections on their own mental processes and behaviors” (Gass & Mackey, p. 50). From these data, I gained information about the learners’ general approaches as they completed the tasks. Naturalistic data was also gathered in the forms of the RTAs and the focus groups which were used in the triangulation process that documented and assured the trustworthiness of this qualitative research. Additional information regarding triangulation is provided later in this chapter.

Each data collection method is described in detail beginning with the RTAs, then the focus groups and finally, the ISR. Table 3 shows a consolidated data collection timeline. A detailed timeline is found in Appendix E. Following the description of the data sources, data analysis is discussed. The participants in the study and the students in the class followed the same procedures for the RTAs and the focus groups. Whereas the

participants in the study met with me twice for their ISRs, the students in the class opted for a 2-page reflection paper.

Table 3. Consolidated Data Collection Timeline

<b>Week</b>	<b>Data Collection</b>
Week 3	Participant Recruitment
Week 5	Student Training
Week 6	Recorded Think Aloud (RTA) #1
Week 6	Focus Group #1
Week 11	Individual Session with the Researcher (ISR) #1 to discuss RTA #1 and Focus Group #2
Week 12	RTA #2
Week 12	Focus Group #2
Week 15	ISR #2 to discuss RTA #2 and Focus Group #2

#### Recorded Think-Aloud Sessions

To answer RQs #1 and #2, which are related to what resources students use and how their resource use changes over the semester, I used the screen capture software Panopto to record the participants thinking aloud as they completed their online work for their Spanish class. Panopto is a software application that is free for students and approved for use at the university. The students can create digital recordings of audio, video and screen content and upload them directly, with one-click, to a secure, password protected folder on the university's server. Another screen capture software, Screencast-o-matic was also trialed for the first part of the Fall 2015 semester, but due to limited amount of free recording minutes (15 min/video), lengthy upload times, and difficulty in

saving the videos, Panopto was found to be more user-friendly. Camtasia was also considered; however, the free trial would not last the length of the study.

Although other data sources in this project, such as the focus groups and ISRs, allowed participants to self-report on their behaviors, it was also crucially important to investigate “what learners actually do, not what the researcher assumes instructions and task demands will lead learners to do” (Swain (1998, p. 80). To this extent, this screen-capture software allowed the researcher to conduct pedagogical research (Garrett, 1995) in an unobtrusive manner to observe student behavior. Fischer (2007) points out that there are two types of computer-based tracking devices—those that use recording software, such as Panopto, and those that write computer code that logs mouse clicks and key presses. Both types of recording software have been used in previous studies to investigate how students interact with specific software components; the resulting analysis have addressed practical questions in CALL and shed light on pedagogical issues and theoretical principles (Chun, 2014; Garrett, 1995; Hwu, 2013; Ma, 2014). For this study, Panopto was used because it was available to students through the university at no additional expense, was user friendly, and allowed users to upload and store large files on the university’s secure server. Additionally, because I could see the participant’s screen as well as the participant via the webcam, I saw how the process of learning unfolded for each participant and how the process changed over time as well as anything that they did off their screen such as consult a paper dictionary, talk with their roommates, or eat dinner. Another benefit to using this software was that the university provided technical support for the software.

Participants and all students in the class had access to Panopto either on their laptops or, if they chose not to install the software on their laptops, on designated computers in the Language Media Center (LMC). The students could check out a designated laptop that had Panopto installed on it to use at the LMC or reserve a private study room that had had a desktop computer with Panopto installed on it. Completing the MSL assignments in the LMC had the additional benefit of staff support in case of technical difficulties. The participants in the study and the students in the class all downloaded Panopto to their personal laptops.

Using Panopto, participants recorded their online activity for two think-aloud sessions during the semester. They recorded their online activity as they learned the new vocabulary for two chapters. The course syllabus suggested that students read an interactive vocabulary presentation, work through vocabulary tutorials, and then complete Apply activities. The vocabulary interactive presentation introduced new words in appropriate linguistic and cultural contexts, and new material is presented with language samples or realia. Boldface type highlights new vocabulary and students can listen to language samples by clicking on the audio icon.

After the interactive presentations, students watched video tutorials that offered explanations and examples to help them comprehend the concepts. Then students completed between three and five Apply activities, which are computer-graded activities. After reading the interactive presentation, viewing the tutorials, and completing the Apply activities, students were then instructed to take an online vocabulary quiz which is located on the University's Learning Management System, ICON.

Students had some control over when they complete these tasks. All the assignments for the entire semester were open from the first day of the semester and closed the day they are due; however, by looking at their completion dates on MSL, generally students completed them either the day they are due or a few days earlier. They could review the activities along with the correct answers after they submitted them. This did not include the answers to the quizzes; however, as the feedback to the quizzes was only available after the due date for the quizzes had past. Depending upon the type of activity, students were allotted 1–3 chances to complete a task. For example, an activity with binary questions (e.g., true–false) were allotted one chance, whereas a multiple-choice activity was allotted two chances and a fill-in-the blank three chances. There is no time limit for completing each activity. The Apply activities constitute 10% of the student’s overall grade.

Panopto allows both the webcam and screen capture to work simultaneously; therefore, the participants recorded themselves with their webcams and their screens while they worked through the interactive presentations, tutorials, and application activities. They did not have to record themselves taking the quiz and none of the participants recorded themselves during the quiz. The participants had the freedom to complete their assignments as they wished as long as they captured their screens in the process. Likewise, they could stop the capture at any time if they chose. Once they finished their recording, they uploaded them to the class folder. Figure 6 shows a sample vocabulary activity. A sample of the interactive presentation can be found in Appendix F.

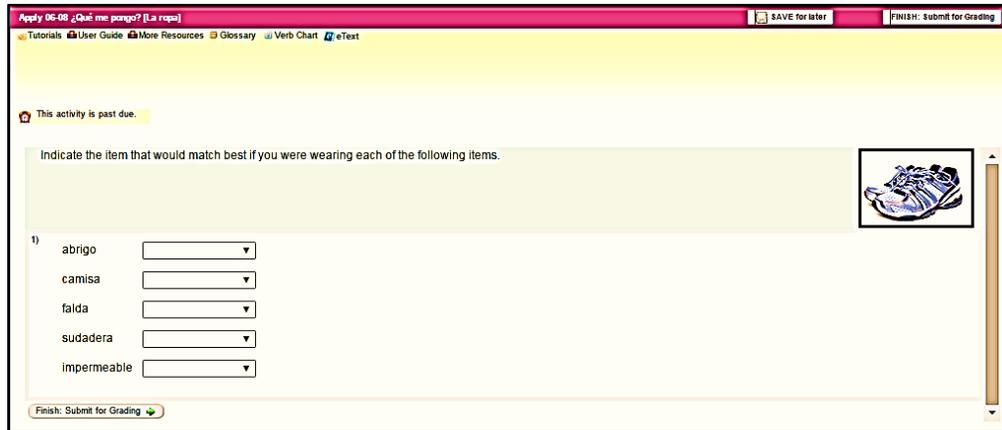


Figure 6. Vocabulary Apply activity

**Think-Alouds.** The recordings were designed to capture students’ thinking aloud as well as their screen activity and their other off-computer activity such as possibly consulting with another resource, taking hand written notes, or collaborating with a friend. In a think-aloud task, “learners are usually asked what is going through their minds as they are concurrently solving a problem” (Gass & Mackey, 2007, p. 55). The RTAs were posted on the assignment calendar in MSL. As mentioned, I also trained the participants on how to do a think-aloud session as well as provided examples of what to do and what not to do during a think-aloud session. The protocol, also found in Appendix G, was posted on the MSL calendar on the days in which the students were asked to record themselves using Panopto as they thought aloud while completing their online assignments.

“I am interested in what you think about as you complete each task in MSL. In order to find out, I would like you to **THINK ALOUD** as you complete your homework, from the time you log in until you finish the last assignment. By *think aloud*, I mean that you should talk to yourself as you are working, saying as much as you can all the time. Don’t plan ahead what you are going to say, and don’t explain anything to me. You are both the speaker and the listener, so just talk yourself through the assignment. The most important thing is to keep talking.

Make sure that you talk clearly and loudly into your microphone. You can think aloud in either Spanish or English, or in a mixture of the two.”

The think-aloud sessions allowed me to (a) monitor the participants’ actual behavior online and to see what they did to complete the work and (b) to gather information about the ways in which participants approached these activities. Also, the participants produced two RTAs throughout the semester, which helped provide deeper and more multilayered understandings of the study behaviors of students in the flipped Spanish course environment and how these behaviors evolved during the semester.

The recordings essentially are observations that generate “data which involve the researcher immersing [him or herself] in a research setting, and systematically observing dimensions of that setting, interactions, relationships, actions, events, and so on, within it” (Mason, 1996, p. 60). I observed the participants in their online environment throughout the semester as a non-participant observer.

**Issues and Solutions.** One concern with the think-aloud sessions was the observer’s paradox (Labov, 1972), which refers to the fact that the presence of an observer can influence the linguistic behavior of those observed. A related concern is the Hawthorne effect, which occurs when learners perform better due to positive feelings about being included in a study (Gass & Mackey, 2007). Both effects had the potential to occur in the study. Even though I was not present when the participants recorded their online behaviors, they were aware that I was their observer; however, because the participants recorded themselves multiple times, they may have become more accustomed to the presence of the screen capture software and not modified their behaviors because of it. The participants in the study actually recorded themselves four times throughout the semester, twice when they were working with vocabulary and twice

when they were working with grammar. For example, they recorded on the third day of vocabulary presentation and the first day of the first grammar presentation for two chapters. However, only the data from the RTAs focusing on vocabulary are included in the analysis for the current study. The extra RTAs may have contributed to their comfort level of being observed which was noted by their use of expletives and bodily noises during some recordings.

Another issue that arose as students did the think-aloud sessions on their own was a lack of thinking aloud. After the sample from the in-class training and then again after the first recording in Week 6, I sent personalized email messages to each student in which I highlighted problem areas, such as not talking enough or loudly enough, as well as encouragement to continue to do the things that they were doing well. From the pilot study data, one issue that I encountered was the location in which students study. Unlike issues with the pilot study, in the operational data collection, there were no issues with background noise interfering with the audio quality of the recordings, such as roommate conversation, music, or television. There was only one audio issue during Week 6 in which one participant's microphone did not work so he can be seen talking, but there was no sound.

#### Focus Groups

In addition to the RTAs, participants also participated in two focus groups during class time, one after they completed each RTA. The focus groups informed the second research questions regarding the insights about learning in an online context that emerge from discussions with peers. The purpose, therefore, of the focus groups was to provide the students with opportunities to discuss the different strategies they used to study

Spanish vocabulary, reflect on the usefulness of the strategies and of their other online study behaviors and to gain insights from what other students did. The data from the focus groups was compared to the subsequent RTA to determine in what ways the insights that emerged during the focus group discussions were manifested in the online behaviors of students in the group. The discussions in the focus group sessions were guided by prompts that encouraged them to talk about how they approached the interactive presentations, the tutorials and one or two Apply activities for vocabulary. The focus group prompts are found in Appendix H.

The focus groups lasted approximately 20 minutes and occurred on the class day immediately following the day the students completed (and recorded) the designated online assignment on time. In total, there were four groups with 2-3 students in each group. After the participants submitted their first RTA, I quickly viewed them to see how they were using or not using resources and coupled that together with the overall grade in the course to assign groups.

For the first focus group, the groups were formed to reach maximum variation so that one was on average a lower performing individual, an average performing student and a higher performing student as defined by their current grade in the course as well as their online interactions. In this manner, the participants received assistance from a more experienced peer, who served as an expert either in language or in using MSL and helped scaffold the others while demonstrating or explaining how to use a particular resource or how to complete an activity. For example, in one group, I grouped together Ralph, who completely skipped over the interactive presentation, Jake, who opened the assignment, but did not know what to do with it and Michael who seemed to have a good sense about

what to do with the interactive presentation. These three students formed a group to see if they could provide assistance or ask questions to each other that they might not feel comfortable asking the instructor. Donato (1994) notes that, in cases like these, peers can scaffold each other. The case may be that one learner is more advanced in language learning and therefore can scaffold his or her peer on strategies in that area and the other peer may be more comfortable with technology and can scaffold the other in that area.

The groups for the first focus groups were as follows:

Table 4. Focus Group #1 Groupings

<b>Group</b>	<b>Participants</b>
Group 1	Kelsey, Luke, John
Group 2	Alicia and Cruz
Group 3	Anna, Cassius, and Hannah (Dropped)
Group 4	Jake, Ralph, Michael

While the groupings for Focus Group #1 were formed based on their current grade and their interactions, I did not consider personality since I did not know these students. Two students, Cassius and Michael, led their individual groups by reading the questions, but they also dominated the discussion, often asking the question from the prompt, addressing it, and moving to the next question sometimes without asking for the other members to respond. Ralph and Jake spoke up in Michael’s group, but Anna said very little in Cassius’s group. In Group 1, Luke and John were friends outside of class, which also led Kelsey to say very little during the discussion. In Group 2, which had only two participants, the discussion was more balanced. This information was taken into consideration when forming the groups for Focus Group #2.

For Focus Group #2, the groupings were based on their current grade in the class, how they used MSL as well as their overall understanding of flipped learning as determined by their first interview, as well as their personalities that I saw from ISR #1. I avoided putting Michael and Cassius in a group with participants who were more reserved. I also created pairs rather than groups of three to increase participation from both participants. For example, for the pairing of Luke and Alicia, Alicia was a higher performing learner and Luke was an average learner. Alicia had a better understanding of flipped learning, but Luke was more proficient with technology and understood the online space better as well. Additionally, both students were well-spoken and thoughtful in their responses during the first interview. The issue that arose with the grouping for this focus group however, was that three participants were absent and therefore the groupings had to be quickly rearranged on the spot. The new groupings were not ideal as the three students who were absent were the lowest performing learners based on their current grade in the course and their overall grade for the Apply activities. Originally, they were each assigned to a different group, but under the new circumstances, they were assigned to the same group. Because they were absent during face-to-face time, they also had to complete their prompt outside of class. They mutually agreed upon meeting in the LMC after the subsequent face-to-face class session to answer and record their prompt using Panopto. Due to attendance issues the original and modified groupings for the second focus group were as follows:

Table 5. Focus Group #2 Groupings

<b>Original Groupings</b>		<b>Modified Groupings</b>	
Group 1	Anna and Cruz	Group 1	Anna and Cruz
Group 2	Luke and Alicia	Group 2	Luke and Alicia
Group 3	Michael and Cassius	Group 3	Kelsey, Michael, and Cassius
Group 4	Jake and Ralph	Group 4	Jake, Ralph, John
Group 5	John and Kelsey	Group 5	

The focus groups were audio and video recorded using Panopto. Because students already had Panopto downloaded on their personal laptops, they were asked to bring them to class to also record their focus group and any online activity when they showed each other exactly how they utilized a particular strategy or resource online. Because the focus groups were recorded, participants and non-participants were not mixed in the groupings. By recording the focus groups in the private study rooms in the LMC, the participants were not distracted or influenced by what was heard from another group. Additionally, by using their laptops and recording their online interactions during the focus group, the participants could show each other their screen activity to each other and this added another layer of scaffolding. For example, a high-performing student did not realize that the vocabulary tutorials had multiple activities, along with a self-recording task at the end as he had never noticed the arrow at the bottom of the page directing him to the other activities. While discussing this and then physically pointing out the arrows, it may have helped him remember better for his future online study sessions.

### Individual Sessions with the Researcher

The final method for data collection, individual sessions with the researcher, informed the third research question related to the insights that students gain from viewing and talking about video clips of their online activity. A few days prior to RTA #2 and then again, three weeks after RTA #2, the participants met with me for approximately 45 minutes each to view video clips of their online activity and talk about how they used the online resources. Only participants who had given informed consent were interviewed.

These semi-structured interview sessions had three purposes. First, the sessions served as a means to gather introspective data in the form of a stimulated video recall in which students viewed clips of their online recordings and had the opportunity to talk more in depth about why and how they used particular resources. They allowed me to gather insights into the process of how students use MSL to ask specific questions about what tools and resources, both online and offline, the student used or did not use and why. They were especially insightful to help understand the process of those students who did not think aloud much during their recording. Second, they served as a way to member check the data to ensure that I had interpreted the participants' actions appropriately. Member checks are the "single, most crucial technique for establishing credibility" (Guba & Lincoln, 1989, p. 239). In this study, I made a concerted effort to involve the students as collaborators in the entire research process (Shulman, 1990) so that research is done with, not on them (Noffke, 1997) and so that their voice was heard. Third, the interviews helped triangulate the origins of new behaviors—whether from

peers (during the focus groups or outside of class), from the researcher (during the ISR) or by trial and error, for example.

A semi-structured interview format was used which allowed participants and the researcher the flexibility to expand upon specific questions that were proposed on the interview protocol. The specific questions for the interview surfaced after the recordings and focus groups were analyzed for each participant; however, sample questions pertained to their reasoning for specific behaviors while completing their tasks online, their access to certain features and resources as well as follow-up questions to their comments from the focus group and comments made during the RTA.s An example of the questions asked of one participant in ISR #1 and ISR #2 is found in Appendix I and Appendix J, respectively. To wrap up and reflect on their study habits over the past semester, the final interview questions included the following:

1. From being in this study, what have you learned about the structure or format of your Spanish class in general?
2. What have you learned about the online component of the course?
3. What have you learned about the way you study?
4. You did the following in this study: Recorded and thought aloud, talked with your classmates about MSL, talked with me about MSL, and looked at yourself working online and discussed it with me. Of off the things you did in this study, which two were the most helpful and why.

The sessions were meticulously structured to avoid potential limitations such as memory and retrieval. Gass and Mackey (2000, pp. 54–55) offer specific recommendations, such as making the stimulus as strong as possible to activate memory structures, minimally train the students so that they can carry out the task with simple instructions and a direct model, and structure the recall procedure to limit as much researcher interference as possible. To attempt to forestall these and similar problems, prior to showing participants a specific clip on the recording, I explained to them and

showed them what they did prior to the viewing of the video clip to activate memory. Gass and Mackey (2000) also suggested that data be collected as soon as possible after the event that is the focus of the recall. For this study, there were six weeks between the recording and the session; however, the purpose of the interview and the video clips was to show participants what they did, ask them about it, ask if they are doing anything differently since they met with their focus group and guide them to find new ways of completing a task and then see if those actions were then observable in the subsequent recording a couple of days later.

To summarize the data collection briefly, participants' RTAs showed me what resources they used and to what extent they used them as well as to provide some insights into why they used or did not use a particular resource. The following day, participants met in groups of two or three for a focus group discussion on the strategies they used as they completed the assigned work. Six weeks after the focus group, and days prior to the next think-aloud session, I met with each participant to carry out a stimulated video recall component in which we discussed their online behaviors and their comments from their focus group. Then the participants completed another set of recorded think-alouds, met once more in a focus group and once more with me.

### **Data Analysis**

This section describes the research methods used in the analysis of data. Strauss and Corbin (1998) describe data analysis as a process of breaking down, organizing, and reassembling data to develop a different understanding of phenomena. Grounded theory is not a linear process, but rather it is "concurrent, iterative, and integrative as data collection, analysis and conceptual theorizing occur simultaneously and from the

beginning of the research process” (Ford, 2010). The data analysis process in a grounded theory study is difficult to document in such a way that captures its complexity. This section on analysis of the data provides a written account of the data analysis for this study. Figure 7 depicts the design for this study and while it appears linear in nature, the process was not.

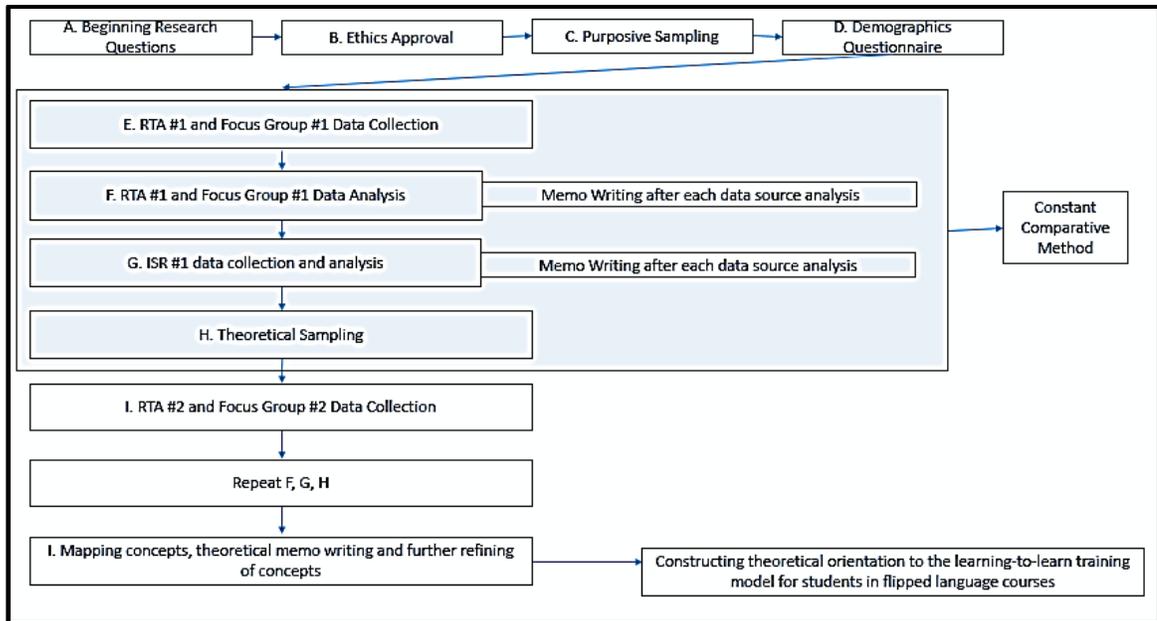


Figure 7. Study Design

Data analysis began with the first pieces of data that I collected (Taylor & Dorsey-Gaines, 1988) and continued until categories had been saturated with data and were subsequently sorted to integrate them into the emerging theory. Qualitative research tradition maintains that data collection and analysis should be simultaneous, recursive, dynamic, and iterative (Merriam, 2009); therefore, the analysis began as soon as participants completed the demographic questionnaire and continue until I analyzed, coded, and compared the recordings with all other data sources for each participant. Data was analyzed inductively, allowing for themes to emerge, as well as deductively using

previous research on flipped learning, students' resource use and learner preparation to help inform and make sense of the data. The assertions that I made were triangulated and grounded in multiple data sources for support (Merriam, 2009). For this reason, multiple data sources informed the research questions, as displayed in Table 6, but the principal data source is noted by an asterisk.

Table 6. Overview of Research Questions and Data Sources

<b>Research Question</b>	<b>Data Source</b>
1. How do students who are enrolled in their first flipped Spanish course construct meaning while working with the online components of a Spanish language program?	*RTAs Focus Groups Individual Session with the Researcher
2. What insights about learning in an online context emerge from discussions with peers?	*Focus Groups Recorded think-alouds sessions Individual Sessions with Researcher
3. What insights about learning in an online context emerge from conversations in which learners view and talk about video clips of their online activity?	*Individual Sessions with Researcher RTAs Focus Groups
4. What types of support do students need to understand and participate in flipped learning?	RTAs Focus Groups Individual Sessions with the Researcher Previous Literature

For example, for RQ #1, the principal data source are the RTAs to determine how participants are working online, but this data was also triangulated with the data from the focus groups to determine if the participants learned about a specific resource or strategy from their peers. Likewise, the data was also triangulated with the individual session with

the researcher for the same purpose, but additionally, to gain insights as to why the participants interacted with the online components in such a way.

For RQ #2, in a similar manner, the principal data source to determine what insights are gained from peers are the focus groups; however, there is a difference between what a participant says he learned versus his actual behavior and for this reason, returning to the recorded think-aloud session and then discussing what they gained from the focus group during the individual session with the researcher provides a richer description into the insights gained.

For RQ #3, regarding the insights gained from discussing their interactions, the principal data source was the individual sessions with the researcher; however, these data were compared with what the participants did in the recorded think-aloud as well as with the focus groups. For example, in ISR #1, a participant said that he learned about a feature in the Vocabulary Interactive Presentation during a focus group. Therefore, in the analysis, I first returned to his RTA #1 to see if and how he used that feature and then to Focus Group #2 to determine the context of the discussion and from whom the suggestion was given. Then I consulted the data from the person who gave the suggestion by reviewing his or her RTA #1 and ISR #1 to determine if the topic was discussed and if not, I added a question to ISR #2 for that participant.

The data sources informed RQs #1, #2, and #3, and helped break down the data to describe how the participants study Spanish outside of class. Together the three data sources as well as the previous literature informed RQ #4 by constructing a theoretical orientation to the *learning-how-to-learn* training model for students in language courses that use a flipped model and that is grounded in students' observable behaviors and

comments. The constant comparative method of grounded theory analysis was implemented throughout this study.

### Managing the Data

I originally intended to use NVivo to aid in the coding and analysis of the data, but after making a concerted effort using it, I found that I felt separated from my data and was continually referring to the original transcripts or videos of the RTAs to gather more information about how an incident came to be or what prompted a specific participant comment. Also, the analysis of the data began from the beginning of data collection and also influenced the prompts for the focus groups and the interview questions. The constant comparative method requires an in-depth connection with the data and for this reason, I felt a stronger connection to my data by highlighting, underlining, copying and pasting key interactions and comments, writing and sorting memos, and writing drafts. At times, I did this on the computer and other times, printed the documents and did them by hand.

After transcribing each data source, I printed out the transcripts and put them in a folder for each participant. I also created a folder on my computer for each participant that included the video file, transcripts, documents, and memos that I created for that participant.

Management of the data consisted of first breaking down the data into smaller chunks by analyzing each online component separately and then comparing the data from RTA #2 to RTA #1, looking for new or modified interactions and their origin as depicted in Figure 8.

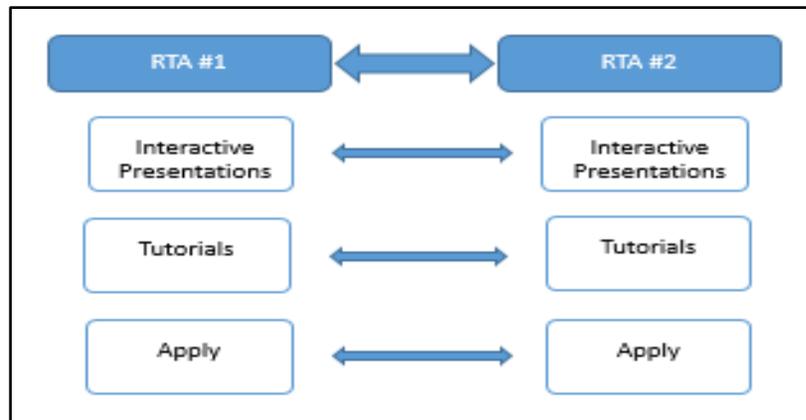


Figure 8. Analysis process for vocabulary

The RTAs were challenging to code due to the number of diverse interactions within and across each online component. After open coding, I realized that using themes to describe their interactions was not as descriptive as quantifying their interactions. For example, the principal theme that emerged during the VIP was “finishing quickly” because many participants minimally interacted with this online component and it appeared that they wanted to move quickly through the work. However, this did not represent the range of interactions within that theme and therefore by using descriptive statistics, I was able to describe in more detail exactly what participants did upon seeing the VIP and then what they did once they opened the presentation, if indeed they opened it. The descriptive statistics enabled me to present a clearer picture of the participants’ interactions for each online component which was then further supported by the participants comments from the RTAs, focus groups, and ISRs.

In addition to gathering descriptive statistics, I also created three documents to help manage the data and added to each document after I collected and analyzed the data. An excerpt from each document is found in Appendix K. The first document that I created was after each RTA and included a short description of the participants’

interactions with each online component. I analyzed each component separately to include the time spent in each component and the number of attempts and the score for the Apply activities. I used this document as a reference when verifying information.

The second document created was for each participant. It included a description of their interactions for each online component as well as any comments made during any of the data sources. For example, I started with the data from the VIP for Luke. Then I looked at the focus group and the ISR to see if Luke made any comments or referenced the VIPs. This process gave me a detailed picture of each participant from which I then chose the three focal students for the case students.

The final type of document I created was for each online component which pooled together any comment stated in each data source that related to a particular online component. For example, after each data source was analyzed, I copied and pasted any comment said during the RTA, the focus group, and the ISR that related to the VIPs and pasted them into one document. By the end of this step, I created one document for the VIPs, one for the VTs, and one for the Apply activities. Each contained participant comments which supported the reasons for specific interactions. I then worked from this specific document to do the open and axial coding, which is discussed later in this chapter.

All three documents were working documents, meaning that I added to them after collecting each data source, highlighted data, added and modified codes, inserted my own comments and questions in the margins, and copied and pasted similar data together. By physically putting all the related data together, I could code the data more effectively.

### Coding

In grounded theory, coding is the pivotal link between collecting data and developing an emergent theory to explain these data as the researcher defines what is happening in the data and begins to explain what it means. By carefully attending to coding from the beginning, I stuck closely to the data, showed actions, and indicated how and why students use resources by constantly comparing the data from one data source to another. As coding did not follow a linear procedure, but rather employed a continuous back-and-forth between types of coding.

**Open coding.** In open coding, fragments of data, such as words, lines, segments, and incidents were studied closely and the goal was to remain open to all possible theoretical directions. The first mandate of grounded theory is to study the emerging data (Glaser, 1978). In open coding, I discovered what the participants viewed as problematic or challenging and began to treat it analytically by asking myself the following suggested by Glaser (1978): What is the data a study of? What does the data suggest? From whose point of view? What theoretical category does this specific datum indicate? As I did the open coding, I remained open to all possibilities, staying close to the data, keeping the codes simple and precise, constructing short codes that preserve action, and using the participants' own words (in vivo coding) comparing data with data and moving quickly through the data so it could spark my thinking. In the open coding, line-by-line coding was carried out as well as incident-to-incident coding which ensured that my analysis was truly grounded in the data and that the categories emerged from the data, rather than being imposed upon it. In the open stage of coding, I focused on the video and transcript data from the think-aloud sessions and the transcripts from the focus groups and

interviews to break apart the data into separate pieces and codes focusing on participants' interactions and comments.

**Axial Coding.** During axial coding, as I read through the transcripts again, I kept in mind the concepts and categories that emerged during the initial stages to confirm that they represented the actions and thoughts of the participants and began exploring initial relationships between categories. Axial coding helped synthesize and explain larger segments of data. While the goal of open coding was to remain open to all theoretical possibilities, the goal of axial coding was to determine the adequacy of the open codes and required decisions about which open codes made the most analytic sense to use to categorize the data. The process of axial coding was of particular importance to this study due to the amount of data collected and the number of topics explored during data collection. The open and axial coding process was not linear as often during axial coding, I encountered an important event that prompted me to look back at the previous data that I analyzed. When doing the axial coding, I moved across the videos from the RTAs, transcripts from the RTAs, focus groups, and ISR, my notes, memos, and the documents I created and compared the participants' interactions and comments of what was happening.

For example, in relation to the axial code 'behavior,' I looked at all the sources of data to see what each participant said in relations to their online behavior during the RTAs and compared that data to what they actually did in their RTA as well as commented about it during the focus groups and the RTAs and created a document entitled behavior with that information. Then I compared their interactions and comments to each other which helped me refine the code and led me to look at challenges as they

worked online, how, and if, they solved the challenged, and the outcome of their new behavior.

**Selective Coding.** Selective coding is the final stage which is the process of choosing one category to be the core construct and connecting it to other categories. This required validating the similarities and relationships among the categories that emerged during axial coding for each online component. After the open coding, theoretical codes specify possible relationships between categories that I developed during the open coding process. These theoretical categories “weave the fractured story back together” (Glaser, 1978, p 72). Glaser points out that theoretical codes can add precision and clarity as long as they fit the data and analysis and can help in making the analysis coherent and comprehensible.

#### Constant Comparative Method

The constant comparative method of grounded theory was used with each set of participant data to establish analytic distinctions and to determine if data support the categories that were emerging (Holton, 2007, p. 277). Charmaz (2006) refers to the idea of going back and forth between data collection and analysis as an abductive method which entails “considering all possible theoretical explanations for the data, forming hypotheses for each possible explanation, checking them empirically by examining data, and pursuing the most plausible explanation” (p. 104). Glaser and Strauss (1967) state that the basic, defining rule for the constant comparative method is that, while coding an incident, the researcher should compare it with all previous incidents so coded, a process that soon starts to generate theoretical properties of the category.

This method required me to constantly return to the data and the words of the participants, using previous data and analysis to influence future collection and analysis. I used incident-by-incident coding to code all their online interactions first which served as a comparative study of incidents. This type of coding was useful to compare the incidents of a particular participant throughout the semester, but also similar incidents that occurred across participants. Charmaz and Mitchell (2001) point out that making comparisons of incidents in observational data likely works better than word-by-word or line-by-line coding because the memos already consist of my own words.

I also constantly compared the data from the second set of data to the first set of data to saturate concepts that were created and look for emerging ones. To do this, I compared RTA #2 with RTA #1, particularly looking for any new or modified behaviors that participants used in the second recording that they did not exhibit in the first recording or any strategies that they did not use in the second recording that they did in the first.

For the duration of the study, I continued going back and forth between data collection and analysis. Through this continued back-and-forth process, the codes became categories that at first were suggestive, but with further data collection, some categories were strengthened and others were not pursued.

#### Memo Writing

In addition to coding, Charmaz (2004) encourages the use of memo-writing, which consists of notes that serve the researcher by providing a trial and error apparatus to compare emerging variables and their components. After each data source was collected, I wrote a memo about that data source and compared it to the previous data

source which helped me reflect upon the process, provided additional questions to ask during the ISRs as well as points of reference and clarity for later stages of the writing process. In some cases, memos consisted of a few handwritten lines on the transcript or a typed paragraph within the spreadsheet document I created or longer discourse in which I connected the data to previous literature. The memo writing was a pivotal step in grounded theory between data collection and writing drafts and is where I often stopped to analyze my idea about the codes and emerging categories. Writing the memos helped me find gaps in incomplete categories and prompted me to predict where and how to find the data to fill those gaps and saturate the categories (Charmaz, 2006), typically by further discussing the topic during an ISR. A constructivist grounded theory approach also places emphasis on keeping the participant's voice and meaning present (Charmaz, 1995) in a writing style that is more literary than scientific in intent (Charmaz, 2000).

#### Theoretical sampling

Throughout the study, the theoretical sampling which refers to the concepts and categories that are being developed and tested, was informed by coding, comparing, and memo-writing. "Theoretical sampling involves starting with data, and then examining these ideas through further empirical enquiry" (Charmaz, 2006, p. 102). The analysis of the data raised questions, suggested relationships, and highlighted gaps in the previous research as well as in the language program context. To fill gaps, clarify uncertainties, treat interpretations, and build emerging theory (Charmaz, 2006), data from the RTAs and the focus groups were analyzed immediately and constantly compared to modify questions for the ISRs in order to saturate categories. The process of theoretical sampling achieves increased understanding and strengthens the analytic categories because it

relates directly to the conceptual or theoretical development and directs the researcher where to go next (Charmaz, 2006).

In the current study, careful consideration was taken to ensure theoretical sampling. The research design included observing and interviewing participants twice and meeting with their peers twice. The main reason was to enable me to see what the participants gained from meeting with their peers and/or with me and what they then put into practice and then to discuss the outcomes of these new interactions in their online work.

For example, I triangulated data from RTA #1 with data from Focus Group #1 and ISR #1 to track the source of the new behaviors, whether conversation with peers (the focus groups), the interview with the researcher, or another source. When unable to trace the behavior back to either the focus group or the interview, I added that question along with the time stamp of where the behavior was noted to include the video clip and question into the subsequent IRS #2 protocol for that participant. For example, when a participant took notes as he worked with the Vocabulary Interactive Presentation in RTA #2, but did not do so in RTA #1, and the topic was not discussed in the focus group nor in ISR #1, I asked the participant to discuss this new behavior during ISR #2 to determine why he decided to take notes and where he learned it from. Also, from analyzing and comparing the first set of data to the second set of data, it allowed me to obtain data to help explicate the categories that emerged from the first round of analysis and helped me with theoretical sampling.

In sum, codes emerged from my interaction with the data and were used to summarize, synthesize, and sort my data. Codes were used as conceptual tools to (a)

fragment the data and thus take them apart; (b) define processes in the data; and (c) to make comparisons between data. As I began the process of coding the data, I wrote memos to discuss and analyze the codes and the relationships between them, asking analytic questions of my categories so they became more abstract and theoretical. The memos I wrote became the “pivotal intermediate stage of analysis between coding and writing the first draft of a paper or chapter” (Charmaz, 2006, p. 166). Data collection, analysis and memo writing were ongoing and overlapping as the constant comparative method was employed.

### **Constructing Grounded Theory**

All the data sources described above informed the research questions about resource use as it related to studying Spanish outside of class as well as how the participants’ behavior changed during the semester. I have discussed how I broke down the data by describing the analysis of each data source. In this section I explain how I reconstructed the data by triangulating the data to provide an understanding of how elementary level students use their tools and resources to construct language meaning. Triangulating data provided a clear picture of how Elementary Spanish 1 students learn in a flipped course including the resources they used, how they used them and why they used them in addition to resources they did not use and why they did not use them. Furthermore, the data further supported their interactions by providing insights as to what they gained from their peers and what insights they gained from the viewing and discussing their interactions with the researcher.

From the open codes, I did axial coding and compared similar codes and incidents and defined patterns and significant processes. Using constant comparative methods

allowed me to make comparisons at each level of analytic work. For example, I compared the recording data for the participants for each online component to find similarities and differences. Then I made sequential comparisons, comparing those data with earlier and later data to identify patterns in the participants' behaviors that may be related to the context, such as the part of the assignment or overt signs of frustration. The recorded think-aloud data was triangulated with data from other sources—the focus groups and the ISRs—to determine where the behaviors originated. Careful consideration was taken in the research design to allow for theoretical sampling in which previous data analysis was used to develop further data collection and analysis. After each data source was transcribed and coded, I wrote up my observations in narrative format as soon as possible (Merriam, 2009), including any reflections that I had.

The results of the analyses were utilized to create a framework for teaching students how to learn in flipped language courses that was based on students' observable behaviors. The goal was to outline a possible theoretical orientation to the training needed for students in language courses that use a flipped model. The theory was grounded in the sense that it will arise from the data for study, making use of the conceptual categories that emerged from the analysis of the online resource use of students enrolled elementary Spanish classes.

### **Credibility, Trustworthiness, and Generalizability**

The trustworthiness of any research study is an important concern (Creswell, 1998). Qualitative researchers must consider the data collection, analysis, and interpretation methods used (Mewborn, 2005). First, I had to be aware of whether the conclusions that I drew based upon the findings from my study accurately captured the

perceptions of the students and whether others would come to similar conclusions based on the data. Next, I needed to be sure the analysis process was flexible enough to account for variations among the students' experiences. Finally, I needed to make sure that I described the study elements so that others could compare the findings. The criteria for credibility and trustworthiness are those developed by Lincoln and Guba (1989). The credibility of the study was assured through prolonged and persistent engagement, member checks (the ISR), thick description, and triangulation of data from various sources.

#### Prolonged and persistent engagement

This study lasted for four months and I was in the classroom with the students for participant recruitments, in-class training, and twice for the focus groups. I also met with the participants two times outside of the class for the ISRs. The accumulated data included the following: 992 minutes of RTA data that were transcribed, coded, and compared; 176 minutes of focus group data that were transcribed, coded, and compared; and 930 minutes of interview data were transcribed, coded, and compared. In addition, I had notes that I took during the ISR and memos that I wrote. These factors assured that my engagement with the study was prolonged and persistent.

#### Thick description

Creswell (1998) states that rich, thick description of study elements allows those reading the study to decide if results can be transferred to other populations of interest. Detailed information about how the participants were recruited, the criteria for participation were outline as well as the instruments that were used for this study were included in this chapter. Memos were also written and kept throughout the data analysis

and interpretation process that document the development of the emerging theory from its initial to the final draft. Throughout the work, reference was made to where the data have been lifted to demonstrate that the work is firmly grounded in the data.

### Triangulation

Triangulation is a technique used to increase the trustworthiness of qualitative research (Lincoln & Guba, 1985). Triangulation refers to the process of comparing results from different sources to validate the findings. In the current study, multiple participants with varying backgrounds were included plus multiple sources of data informed each research question. Furthermore, the theory that is developed was based upon the accumulation of common experiences, rather than the data of any one participant. Comparison of the data from the various data sources provided confirmation to the main concepts that are proposed in the theory.

### **Researcher's Role**

At the time of the data collection and analysis, I was a Teaching Assistant in the Spanish General Education Program (GEP) at the university where the study was conducted. I taught Spanish at the elementary and intermediate levels for five years. In addition to teaching, I supervised 12-15 graduate teaching assistants and instructors each semester for two years in both the elementary and intermediate-level courses. In this position, I assisted the Director of the General Education Program in Spanish in developing teaching and testing materials, modifying existing material, and organizing and presenting at the TA orientation. In my role as a course supervisor, I also provided guidance to teaching assistants and instructors on instructional matters during biweekly meetings.

As I stated in Chapter 1, the reason I become interested in looking at what students do on their own online is when I realized in my second semester of teaching that the students did not know about their available online resources. My interest grew when the GEP transitioned from a hybrid course to a flipped course during my second year of teaching and I noticed that the grammar explanations were no longer in the textbook. This meant that the students needed to use their resources outside of class to prepare themselves well enough for face-to-face time to then to engage in activities that use the grammatical forms. My concern was that (a) they were most likely unaware of their resources, (b) I was not showing my students how to use these resources in my own classes, and (c) we, the TAs, did not receive any instruction on how to incorporate helping students navigate the online portion of the course.

To frame the context of my role, I need to discuss briefly the initial scope for my dissertation and the total data that was collected as well as the researcher's role in grounded theory. Initially, my proposal included looking at both online grammar and vocabulary interactions in both an Elementary Spanish I course and an Elementary Spanish II course. In the Spring 2016 semester, I collected data in both Elementary Spanish I and Elementary Spanish II as the participants recorded themselves working online four times, twice with the vocabulary components and twice with the grammar components. For the purpose of this dissertation, the scope was narrowed to only looking at Elementary Spanish I and only the vocabulary components. The data collection in Elementary Spanish II began before Elementary Spanish I.

The researcher's role in a grounded theory study can take varying forms depending on the school of grounded theory that is used. Within a constructivist grounded theory approach, the researcher needs to go beyond the surface in seeking meaning in the data (Mills, Bonner & Francis, 2006) and the underlying assumption is that the interaction between the researcher and the participants "produces the data" (Charmaz, 1995, pg. 35).

The individual sessions with the researcher were intended to be individual interviews in which the participants watched video clips of themselves and reflected on them. However, after following the interview protocol with the Elementary II participants as they viewed video clips and reflected on them, as an educator and researcher, I left the sessions disappointed. I saw the same interactions and frustrations in Elementary II participants that I saw in the Elementary I participants. The issue was that if the Elementary II participants were unable to figure out certain features on their own after a semester and a half with the same online program, most likely they would not learn how to take advantage of the online resources for the remainder of their Spanish courses.

As a TA in the Spanish GEP, I knew that the students were not receiving instruction on how to navigate the online space. As a researcher, I saw that the challenges that the Elementary Spanish I participants faced were the same as those of the participants in Elementary Spanish II. As an educator and seeing the same issues after a semester and half in the program, I felt that the participants were not going to learn to navigate the online space on their own.

Therefore, with the Elementary Spanish I participants and in line with a constructivist grounded theory approach and the tenants of sociocultural theory, I lead the participants through guided exploration as we viewed their video clips. This was a similar strategy taken by Mills, Herron and Cole's 2013 study which examined teacher-assisted versus independent viewing of foreign language videos. For example, when a participant did not know about a specific feature, I asked him to take a look at the page and explore what might help him learn the vocabulary or a grammar topic. At that time, the participants started to explore the environment on their own, most likely for the first time, and were able to ask questions of me or vice versa. We also examined more closely how to approach the activities and how to use the computer-generated feedback. From a sociocultural perspective, knowing that learners must first collaborate with others through scaffolding before they can do it on their own, these sessions as well as the focus groups provided assistance to the learners where one person acted as a mentor and the other as a novice. These sessions also attempted to move the participants from object regulated (from the assignment calendar) to other regulated. Then through reflection in these sessions as well as from their thinking-aloud during the RTAs, the goal was to help them become self-regulated. While the original intent of the ISRs did not include an intervention, I believe that the intervention added an additional layer to the depth of the study and demonstrated the importance of the role of the instructor in flipped learning.

Before beginning the study, as an educator, I believed that the material that is assigned should be fully completed and this impacted my initial impression of the participants' interactions. As a researcher, when I viewed the RTAs for the first time, I was quick to judge that their interactions were similar to what previous data showed—

that students want to finish online work as quickly as possible. However, the discussions during the focus groups and the ISRs, led me to understand the reasons behind such interactions.

### **Summary**

This chapter began with an overview of grounded theory and why it was chosen for this study. The chapter then presented the details of the study procedures and research design. Information regarding the context of the study along with the recruitment procedures for participation in the study were also presented. The three data sources were described along with procedures for grounded data analysis. Chapter Four presents the first of three chapters in which the findings are discussed.

## CHAPTER 4

### Results

Chapter 2 situated the study within the constructivist learning theory, sociocultural theory, and information literacy theory as a guide to the analysis of learner preparation outside of class and the development of a learning-to-learn framework based on the results of the analyses conducted for the study. A review of flipped learning literature and students' online interactions was also presented. Chapter 3 presented a detailed description of the methodology and research questions as well as the context of the study. The data collection, management, and analysis procedures were also presented. Due to the scope of the research questions and grounded theory analysis, the findings for this study are presented in three chapters.

Chapter 4 reports on the results that answer primarily Research Questions (RQ) #1: *How do students who are enrolled in their first flipped Spanish course construct meaning while working with the online vocabulary components of a Spanish language program?*, but also RQ #2 and #3 *in an online context emerge from discussions with peers?* and *What insights about learning in an online context emerge from individual sessions with the researcher (ISR) in which learners view and talk about video clips of their online activity?* Chapter 5 presents the findings for RQs #1, #2, and #3 through three case studies. Chapter 6 answers RQ #4: *What types of support do students need to understand and participate in flipped learning?* and presents the *learning-how-to-learn* model which is based on the empirical findings reported and discussed in Chapters 4 and 5.

Strauss and Corbin (1998) describe grounded theory data analysis as a process of breaking down, organizing, and reassembling data to develop a different understanding of phenomena. Chapters 4 and 5 breaks down the data by presenting the students' interactions with the online vocabulary components as a whole and what influenced their interactions. Then the interactions are analyzed more closely through three case studies which represent three different learner approaches to working with the online components. A key element that is prevalent in Chapters 4 and 5 are the voices of the participants. Interpreting the interactions of the participants' behaviors is better done when considering the voice of the participant in addition to their interactions. The purpose of Chapter 6 is to answer research question four: *What types of support do students need to understand and participate in flipped learning?* This question is answered by presenting the *learning-how-to-learn* model for learners in flipped learning as the main pedagogical implication of this study. The core construct that emerged from the data analysis as well as the concepts that support the core category is presented as parts that make up the model in Chapter 6.

The presentation of the findings begins with a description of the students' interactions as a whole while working with the Vocabulary Interactive Presentations (VIP), the Vocabulary Tutorials (VT) and the Apply activities. To answer RQ #1, which is addressed in this chapter, I observed the online behaviors of participants in an Elementary Spanish I course two times throughout the semester via screen-capture software. Participants completed their regularly assigned out-of-class work in the online interactive learning modules and engaged in thinking aloud as they were doing so. To answer RQ #2 and RQ #3, the students met in a focus group twice and with me twice

during the semester to discuss their online interactions. Comments from participants' recorded think-aloud sessions (RTAs), focus groups, and individual sessions with the researcher (ISRs) were triangulated with their behaviors to provide a better understanding of their interactions.

Each participant had a unique way of interacting with the online components, but collectively, the participants displayed similar characteristics that demonstrate how students enrolled in their first flipped language course interact with online vocabulary components as they learn the Spanish language. Therefore, to answer the RQ #1, *How do students who are enrolled in their first flipped Spanish course interact with the online components of a Spanish language program?*, I present the collective results for each online component. I begin with a brief overview of each component. Then, I discuss the principal behaviors that participants exhibited as they worked with the Interactive Presentations, the Tutorials and the apply activities. Furthermore, I triangulated their online behaviors with their comments from the focus groups and individual sessions with the researcher which after analysis provided insights as to some behaviors. In addition, I present how their behaviors changed during the semester and the possible causes or motivations that warranted such a change.

#### Recorded Think-Aloud Sessions

The participants in the study were asked to record themselves and think aloud as they worked on these assignments. In the think-aloud task, learners were asked to talk through what was going through their minds as they concurrently worked on the assignments (Gass & Mackey, 2007). Participants were given training during class time prior to the data collection period on how to think aloud during the recording, including

watching a video clip of a think-aloud, watching me think aloud in person as I completed an assignment, and doing a think-aloud on their own with the recording software. Before each recorded think-aloud session (RTA), I emailed the participants reminding them to think aloud as they worked through the assignments. However, during the actual recordings outside of class, the amount of thinking aloud varied considerably: The majority of the participants did not talk through the assignment, but rather commented about the assignment or the resources. Only two participants consistently thought aloud during all the RTAs.

#### Online Components

In the beginning Spanish course, the students are assigned to work with two types of learning material, one in written form (VIP) and one in aural form (VT), and then complete Apply (i.e., practice, or application) activities (multiple-choice, true/false, fill-in-the-blank). Each sequence of VIPs, VTs, and Apply activities concludes with a quiz on that topic. The first three parts of the sequence—VIPs, VTs, and Apply activities—are completed on the MySpanishLab (MSL) site and the quizzes are completed on the university's course management system, which is powered by Desire2Learn. The following day, the students deepen and extend their understanding of the topics they learned online by doing communicative, meaningful tasks in small groups in their face-to-face class session. Figure 9 outlines the workflow and the number of activities assigned in each online component during the first cycle of data collection during Week 6 and the second cycle of data collection during Week 12. Chapter 4 presents the results for the VIPs from Weeks 6 and 12, then the VTs from Weeks 6 and 12, and then the Apply

activities from Weeks 6 and 12. Presenting the results for one online component at a time gave me the opportunity to view any changes that occurred and what influenced them.

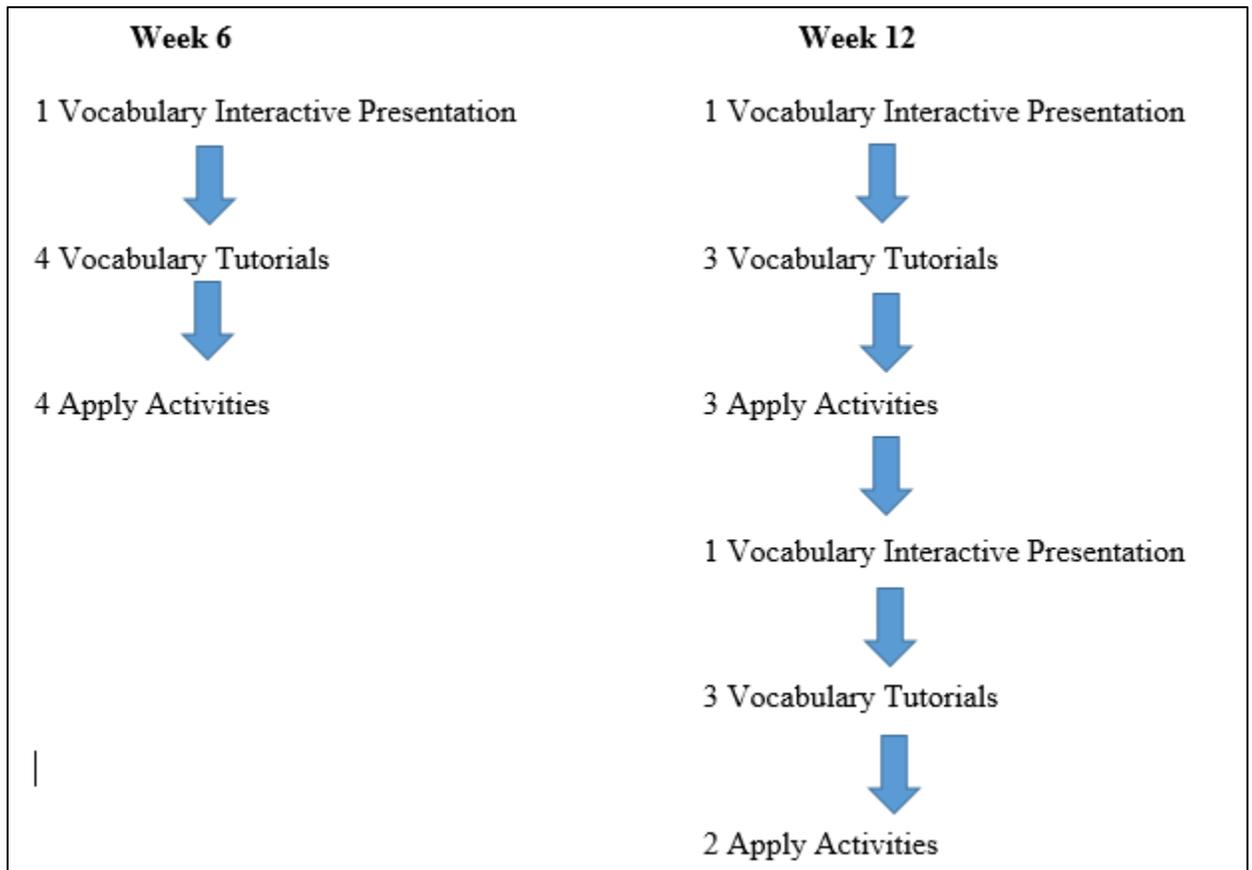


Figure 9. Workflow of online work of one day in Week 6 and one day in Week 12

### Vocabulary Interactive Presentations

On the students' assignment calendar, the first activity they see is the VIP, which presents vocabulary words in context. Each VIP presents a single topic of vocabulary. For example, Chapter 2 is entitled *¿Quiénes son tus amigos?* (Who are your friends?). The vocabulary for this chapter is grouped into three sections: *Mis amigos y yo* (My friends and I), *Descripciones* (Descriptions), and *El origen* (Origen). These three topics comprise the vocabulary for the chapter. As shown in Figure 9, each VIP has the following format: lesson objective, instructions in English, and lesson title, followed by

vocabulary in context, and it concludes with an arrow that indicates that the lesson is over and that students should move on to the Apply activities. Some VIPs also have a *Lengua* (Language) box that presents additional vocabulary words or useful phrases. Each VIP then has the following features that make the presentation interactive:

1. New vocabulary words are in bold;
2. Highlighted vocabulary words are glossed with an audio file or a picture;
3. Each body of text has an audio file;
4. Each VIP can be printed;
5. Each VIP includes note-taking tools as shown in Figure 10 below.

Inside the VIP, students can click on the highlighted words to see an image or hear an audio file. By hovering over each highlighted word, a small pop-up window will appear indicating whether an image or an audio file is available. The presentations could be similar to how a teacher might present new material explaining the objective and title of the lesson followed with visual and aural support before moving on to practice vocabulary exercises.

Figure 10. Key features of the Vocabulary Interactive Presentation

The students can view the VIPs as many times as they wish and do not receive a grade for viewing. Their initial interaction with the VIPs is recorded, however: Upon clicking on the interactive presentation link on their assignment calendar, students receive a checkmark on their assignment calendar indicating that the VIP has been viewed. This is depicted in Figure 11.

Assignments	Status
 <b>Vocabulary Interactive Presentation 02-03: El origen</b>  Due: Friday, December 16, 2016 11:59:00 PM	 Viewed

Figure 11. Screen shot of a viewed activity

The students' workflow cycle then continues with working with VTs followed by Apply activities. Each VT presents a small set of vocabulary items (5–10 words), which

may or may not be the same words presented in the VIP. The words are presented and then reinforced through five types of activities. The Apply activities are designed for students to then apply the knowledge they gathered from the initial discovery phase of information via multiple-choice, true/false, matching, fill-in-the-blank, and matching exercises.

#### Week 6: Online Interactions with VIP 1

The following section answers the first research question as it relates to the VIPs:

*How do students who are enrolled in their first flipped Spanish course construct meaning while working with the online components of a Spanish language program?* During Week 6, students were assigned to complete one VIP, four VTs, and four Apply activities. The interactions exhibited during the RTAs and the comments given by the participants as they worked with VIP are discussed in the next section.

**Week 6, VIP 1.** The VIP for Week 6 focused on vocabulary related to nationalities. The interactive presentation, entitled *El origen* (Origen) was one page in length and introduced 33 new vocabulary words. It first described the origins of three individuals using forms of the verb *ser* and then presented a map with highlighted, glossed words that were adjectives of nationality. Because there are no other checks in place to see what the students do after they click on the VIP from their assignment calendar, the participants usually take one of three approaches to it: (a) click on the VIP link and then close it before it loads; (b) click on the VIP link, scroll around the page, and then close; or (c) click on the VIP link and interact with the content and features. As shown in Table 7, almost half of the participants took the second approach and clicked, scrolled, and closed; two closed the VIP before it even loaded; and one received an error

message stating “Either you have entered an incorrect username/password, or you do not have a subscription to this site.” Three participants interacted with at least one feature in the VIP. The mean time spent working with this VIP with 33 new terms was approximately 44 seconds. Of the 33 new items presented, 24 were glossed.

Table 7. Interaction with VIP 1

	<b>VIP 1 Week 6</b>
Time spent (range)	0:00–2:00
Mean time spent	44 seconds
# of participants who closed VIP before it loaded	2
# of participants who received error message upon opening	1
# of participants who opened VIP, but did not interact with any	4
# of participants who opened VIP and interacted with one or more features of the VIP	3

Although seven of the participants opened the VIP, their interactions with the VIP were at best minimal. Of the seven who opened the VIP, the majority scrolled up and down a few times, moved their cursor around the page, went to the next page (which is a new lesson), and then closed. None of these participants clicked, listened to, or read anything in the VIP. Of the three participants who interacted with the VIP, two clicked on one glossed word (out of 24 glossed words), two listened to one audio files (out of two), one read the information in the *Lengua* box, and one read the passage in Spanish and then summarized it aloud in English. These then became the five principal interactions within the VIP: (a) clicking on a glossed word to hear an audio file or see an image; (b) clicking on an audio icon to listen to the passage that contains vocabulary in context; (c) reading the passage in Spanish; (d) summarizing the passage in English, which may include translating the text into English first and then summarizing it; and (e) reading the *Lengua*

box. The interactions of the three participants who interacted with at least one feature of the VIP are summarized in Table 8.

Table 8. Interactions with Content Inside VIP 1

<b>Participant</b>	<b>Clicked on glossed words (24)</b>	<b>Clicked on link to audio files (2)</b>	<b>Read a passage (1)</b>	<b>Summarized a passage (1)</b>	<b>Read a <i>Lengua</i> box (1)</b>
Ralph	1	0	0	0	0
Michael	0	1	1	1	0
Kelsey	1	1.5 *	0	0	1
Participants 4–10	0	0	0	0	0

\* Closed halfway through second audio file

Of the 33 new vocabulary words, 24 were glossed. Only two participants clicked on one glossed word and neither one clicked on any other words. Of a total of 240 times a word could have been clicked on in this VIP (24 glossed words x 10 participants), 2 words were clicked, or 0.8%. Only one student read the passage. Two participants listened to the two audio files, and one read the information in the *Lengua* box.

**Summary of Interactions, Week 6.** During Week 6, participants spent minimal time working with the VIP, rarely clicking on glossed words, reading, or listening to a passage. The participants who allowed the VIP to load exhibited random and uncertain reactions, scrolling up and down; they did not have a plan for approaching the material. Two participants went on to the next lesson, which dealt with grammar.

#### Between Week 6 and Week 12

Between the first recorded think-aloud session that included VIP 1 (Week 6), and the second recorded think-aloud session (Week 12), participants met in focus groups to discuss how they worked through the VIP as well as the VTs and the Apply activities. Six

weeks later, I met with each participant individually during the Individual Session with the Researcher (ISR) in which we watched video clips of how they had interacted with the online components in the preceding weeks. Additionally, I asked them to explore the different features available in the VIP and discuss how they might use the features to help them learn vocabulary. Two days later, the participants recorded themselves once again as they worked through two additional VIPs. Between the first episode of data collection (Week 6) and the second (Week 12), the participants had the opportunity to work with four VIPs, potentially using what they had learned in the focus groups.

#### Week 12: Online Interactions with VIP 2 and 3

**Week 12, VIP 2.** On this day, the participants were assigned to learn the material for two separate topics, which comprised a total of 13 activities. The first VIP, entitled *¿Qué hacen los parientes?* ‘What are the relatives doing?’ focused on activities of family members, such as eat together, work, and get married. It introduced 21 new vocabulary words in context within four brief dialogues with accompanying pictures and audio, as shown in Figure 12, a screenshot of the VIP. Five of the 21 words were glossed with a picture that appeared when the student clicked on the printed word, and one was glossed with audio. The day’s assignment for the topic of family included one VIP, three VTs, and three Apply activities. To access the VTs and the Apply activities, students need to return to their assignment calendar. Even though there is a yellow arrow with the word “Apply” on it at the bottom of the screen, the arrow does not have a hyperlink to the activities. The directions state that the users are ready to move on to the next activity in the learning module.

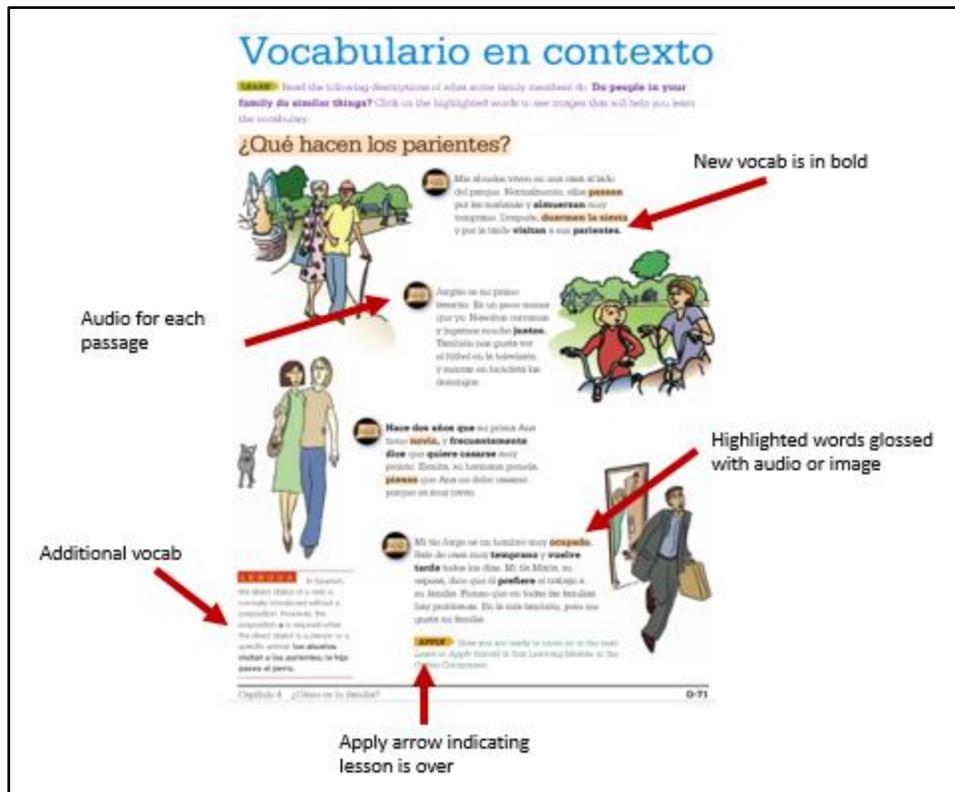


Figure 12. Screenshot of VIP 2

Just as in Week 6, participants interacted with the VIP in one of the following three ways: (a) click and close before it loads; (b) click, scroll, and close; or (c) click and interact. As shown in Table 9, this time, the majority of the participants not only opened the VIP, but they also interacted with at least one feature. Additionally, the mean time spent in the VIP more than doubled—from 44 seconds in Week 6 to 99 seconds in Week 12. One student continued to receive the same error message stating that “Either you have entered an incorrect username/password, or you do not have a subscription to this site.”

Table 9. Interaction with VIP 2

	<b>VIP 1 Week 6</b>	<b>VIP 2 Week 12</b>
Time spent	0:00–2:00	<b>0:00–3:03</b>
Mean time (in seconds)	44	<b>99</b>
# of participants who closed VIP before it loaded	2	<b>0</b>
# of participants who received error message upon opening	1	<b>1</b>
# of participants who opened VIP but did not interact with any features	4	<b>1</b>
# of participants who opened VIP and interacted with at least one feature	3	<b>8</b>

All but two participants interacted with the VIP in some manner during Week 12. Six participants clicked on at least one glossed word (out of 5), six listened to at least one audio file (out of 4), three read at least one passage (out of 4), three summarized at least one passage in English and 2 read the *Lengua* box. Table 10 displays the number and type of interactions within the VIP for each participant, as well as summary statistics. Although the participants were still minimally interacting with the VIP, clicking on an average of 1.3 words and reading an average of 0.6 passages per VIP, more participants interacted with more features in Week 12 than they had in Week 6. Seven participants had as much or more interaction within the VIP compared to Week 6. This change may have resulted from gaining new information from the focus groups, from me during the ISR, or from their own trial and error between the first and second rounds of data collection.

Table 10. Interactions with Content Inside VIP 1 and VIP 2

VIP	Clicked on glossed words		Clicked on link to audio files		Read a passage		Summarized a passage		Read a <i>Lengua</i> box	
	1	2	1	2	1	2	1	2	1	2
Total Possible	33	<b>21</b>	1	<b>4</b>	1	<b>4</b>	1	<b>4</b>	1	<b>1</b>
Mean	.2	<b>1.3</b>	.25	<b>1.3</b>	.2	<b>.6</b>	.2	<b>.75</b>	.2	<b>.2</b>
Ralph **	1	<b>2</b>	0	<b>1</b>	0	<b>1.5*</b>	0	<b>1.5*</b>	0	<b>0</b>
Michael**	0	<b>4</b>	1	<b>0</b>	1	<b>4</b>	1	<b>0</b>	0	<b>1</b>
Kelsey	1	<b>0</b>	1.5 *	<b>1</b>	0	<b>0</b>	0	<b>0</b>	1	<b>1</b>
Cruz **	0	<b>0</b>	0	<b>1</b>	0	<b>1</b>	0	<b>0</b>	0	<b>0</b>
Alicia **	0	<b>1</b>	0	<b>4</b>	0	<b>0</b>	0	<b>4</b>	0	<b>0</b>
Jake **	0	<b>2</b>	0	<b>2</b>	0	<b>0</b>	0	<b>2</b>	0	<b>0</b>
John **	0	<b>1</b>	0	<b>0</b>	0	<b>0</b>	0	<b>0</b>	0	<b>0</b>
Luke **	0	<b>3</b>	0	<b>4</b>	0	<b>1</b>	0	<b>0</b>	0	<b>0</b>
Cassius	0	<b>0</b>	0	<b>0</b>	0	<b>0</b>	0	<b>0</b>	0	<b>0</b>
Anna	0	<b>0</b>	0	<b>0</b>	0	<b>0</b>	0	<b>0</b>	0	<b>0</b>

\*Did not fully complete interaction

\*\*Participants who had as much or more interaction with the VIP in Week 12 than in Week 6

**Summary Week 12, VIP 2.** With this first VIP of Week 12, the participants still spent minimal time working with the VIP, but the mean time they spent online more than doubled between Week 6 and Week 12, from 44 to 99 seconds. Rather than click, scroll, and close, the majority of the participants, interacted with at least one feature in the VIP. Consequently, the mean for each type of interaction increased. Seven participants showed as much or more interaction with VIP 2 this week than with VIP 1 during Week 6.

**Week 12, VIP 3.** The second VIP on the same day of Week 12, entitled *Las rutinas familiares* ‘Family Routines’ introduced reflexive verbs related to personal grooming, such as *cepillarse los dientes* ‘to brush one’s teeth’ and *ducharse* ‘to take a shower’. It presented 12 reflexive verbs in context with three brief passages with

accompanying pictures and audio, as shown in the screenshot of the VIP (Figure 13). Ten of the words were glossed with an image, and one word was glossed with audio. After completing this VIP, the participants were expected to work on three Vocabulary Tutorials and two Apply activities.



Figure 13. Screenshot of VIP 3

As shown in Table 11, for VIP 3, the results are identical to those of the first VIP of Week 12, in which 8 participants interacted with at least one feature of the VIP, one student closed it without interacting, and one received the same error message. The mean time they spent with VIP 3, however, decreased and was more similar to the amount of time they spent in Week 6 with VIP 1. Although the mean time decreased from VIP 2 to VIP 3, the participants seemed to have developed an approach to working with the VIP, as now they understood that (a) the bolded words were new vocabulary items that they

should pay attention to, and (b) clicking on a highlighted word would bring up an image or an audio clip to help them make a connection to the new term.

Table 11. Interaction with VIP 3

	VIP 1 Week 6	VIP 2 Week 12	<b>VIP 3 Week 12</b>
Time spent	0:00–2:00	0:00–3:03	<b>00:00– 1:52</b>
Mean time (in seconds)	44	99	<b>42</b>
# of participants who closed VIP before it loaded	2	0	<b>0</b>
# of participants who received error message upon opening	1	1	<b>1</b>
# of participants who opened VIP but did not interact with any features	4	1	<b>1</b>
# of participants who opened VIP and interacted with at least one feature	3	8	<b>8</b>

All but two participants interacted with VIP 3 in some manner during Week 12. Six participants clicked on at least one glossed word (out of ten), two listened to at least one audio file (out of three), two read at least one passage (out of three), and four summarized at least one passage in English. There was no *Lengua* box in this VIP. Table 12 displays the number and type of interactions within the VIP for each participant. While the participants are still minimally interacting with the VIP, one of the principal differences in the interactions between this VIP and the previous VIPs is in the number of glossed words that the participants clicked on—a mean of 3.7 words per participant—which is a marked increase from VIP 1, where the mean number of clicks per participant was 0.2.

Table 12. Interactions with Content Inside VIP 1, 2, and 3

Participant	Clicked on glossed words			Clicked on link to audio files			Read a passage			Summarized a passage		
	1	2	3	1	2	3	1	2	3	1	2	3
VIP	1	2	3	1	2	3	1	2	3	1	2	3
# Possible	33	21	11	1	4	3	1	4	3	1	4	3
Mean	.2	1.3	3.7	.25	1.3	.6	.2	.6	.6	.2	.75	.6
Individual Interactions with components												
Ralph	1	2	11	0	1	0	0	1.5*	0	0	1.5*	1
Michael	0	4	9	1	0	0	1	4	3	1	0	0
Kelsey	1	0	3	1.5*	1	0	0	0	0	0	0	0
Cruz	0	0	0	0	1	0	0	1	0	0	0	1
Alicia	0	1	0	0	4	3	0	0	0	0	4	3
Jake	0	2	1	0	2	0	0	0	0	0	2	1
John	0	1	2	0	0	0	0	0	0	0	0	0
Luke	0	3	11	0	4	3	0	1	3	0	0	0
Cassius	0	0	0	0	0	0	0	0	0	0	0	0
Anna	0	0	0	0	0	0	0	0	0	0	0	0

\*Did not fully complete interaction

*Summary of Week 12, VIP 3.* During the second VIP of Week 12, the participants spent a mean of 42 seconds interacting with the VIP, but clicked on more words than they had with any other VIP. Seven of the participants interacted with at least one feature; however, as a group, they listened to fewer audio files, and read and summarized fewer passages.

**Summary of Interactions, Weeks 6 and 12.** On average, the participants spent more time learning the vocabulary in the second round of data collection (Week 12). They also portrayed some active learning strategies when working in VIP 2, such as listening to and then summarizing the content of the dialogues. During Week 12, participants also seemed more comfortable in knowing how to work through the VIP. For example, in VIP 3, they spent on average 42 seconds, yet clicked on more words than they had for any other VIP. It should also be noted that in this last VIP, only 11 vocabulary words were introduced, which may have also reduced the amount of time

spent on the lesson. In addition, the participants were already familiar with family member vocabulary from a previous day's online work, so there may have been fewer unfamiliar words. However, while some participants showed more interaction with the VIP from Week 6 to Week 12, overall, the participants still tend to spend little to no time learning from the content in the VIPs.

#### Themes from VIPs

Based on the participants' behaviors alone in the VIPs, it appeared that they may have been avoiding the VIP possibly to finish their work faster. Such a finding would be in line with previous research (Collentine, 2000; Fisher, 2012; Fouh, 2014; Hwu, 2007; Weinberg, 2007). However, considering their comments as well as their behaviors presented the big picture. It appeared that the reason many skipped the VIP was because they did not understand the purpose, organization, or usefulness of the VIP. The next section discusses the interactions and comments from participants during the second recorded think-aloud (RTA).

During the RTAs, the focus groups, and the ISRs, the participants' comments provided insights on how they worked (or did not work) with the VIPs. Table 13 illustrates their comments by type and number and provides examples. The majority of the participants' comments deal with how they approached the VIP, their understanding of the purpose of the VIP, and their general uncertainties. After the table, each category is defined briefly along with student comments at particular stages during the semester. There were 122 comments in total regarding the VIP during both sets of data collection.

Table 13. Summary of Comments Related to VIPs

Category	Number	Example
Behavior	43	“I just skip those sections.” “I typically don’t pay attention to this. I just don’t.”
Purpose of VIPs	40	“This page gives me a little input before I start.” “I can see how it would help the pronunciation and understanding.” “They don’t really help because they are all in Spanish.”
Discovery	21	“I didn’t know that there are more pages than just that one page that showed up.” “Aren’t these (VIPs) in the book anyway?” “There’s sometimes a second page and it like has a table with everything laid out...gives you conjugations.” “I missed out every time on those (the VIP) until that one girl showed me.”
Design	9	“It seems too wordy.” “The way it looks turns me away from it.” “I would make it more obvious that there is more stuff to do on each page.”
Changes	5	“I focused more on those (VIPs) towards the end than I did at the beginning because I could get by with just knowing stuff at the beginning, whereas at the end, there was a couple assignments where I was just like, not a clue what’s going on here.”
Total Comments	122	

**Behavior.** This category encompasses participants’ comments about how they typically worked with the VIPs. Comments in this category ranged from general goals, such as “I try to get 100% and absorb as much as possible,” to actual behaviors, such as “I skip this” or “I kind of like skim over this and then I kind of go into the activity.” In general, during the first recorded think-aloud session, focus group, and ISR, the participants described their interactions with the VIPs as “I just kind of look over, pretty much just graze over the first page and don’t technically look over anything”; “I close

that. I never look at those”; “Nope, not doing that”; and “I typically don’t pay attention to this. I just don’t.”

Some participants encountered the opposite problem with the VIPs. Rather than skip them, they did not know where to stop. Alicia, who did not understand the organization of the online materials, went through all the interactive presentations for the chapter, both vocabulary and grammar, clicking randomly through each presentation, and then expressed her frustration with not knowing how to find the end of a lesson.

So I honestly sometimes don’t know which parts of this [online] text we are supposed to be looking at because it’s a lot of pages. It [the assignment calendar] says [to do] 2–4 so we’ll skip ahead [go to] to 2–4, but that’s not necessarily it [the assignment]. Then it just tells you that you did it, not that you did it right, and what we were looking at was something completely different and not what we are supposed to be doing. (Alicia, Focus Group #1)

Because Alicia lacked an understanding of the organization of the online materials, she did not know what to study. She assumed the problem lay in the program, rather than in her unawareness of the organization of the materials.

Alicia was not the only participant who was unaware of the organization of materials. Many of her classmates also did not understand the difference between the Vocabulary Interactive Presentation and the Grammar Interactive Presentation; many of the participants simply referred to them as the *interactive presentations*. In discussing the organization of the VIP, half of the comments expressed in the *Discovery* category were in reference to the Grammar Interactive Presentations, not the Vocabulary Interactive Presentation. The participants did not realize that there was a difference between the two types of presentations.

**Purpose.** The comments in this category were related to how participants thought the VIP could help them learn vocabulary; for example, “it’s kind of a good review” or “I could use it as a reference.” However, these types of comments from participants were not expressed until the VIP was explicitly discussed either during the focus group or the ISR. Prior to that, it appeared that participants did not understand the usefulness of the VIP; because they attributed little value to it, they were disinclined to figure out how to use it. One participant stated, “I never really know what they want us to read in this [the VIP], so I don’t. I just skip those sections.” The same participant then asked, “because aren’t they in the book anyway?” His classmate, also unsure of the purpose of the VIP, commented that “they don’t really help because they are all in Spanish.”

Kelsey, who spent slightly more time interacting with the VIP than her classmates, stated the situation this way:

You kind of don’t know what you are expected to learn by the end,. It’s a lot of words I don’t even recognize. I don’t really understand what’s going on so I usually skip those. I could google the words, but there’s no point. (Kelsey, Focus Group #1)

Interestingly, when talking about the organization of the lesson, Kelsey commented that the VIP and the Vocabulary Tutorials, which are discussed later, should be switched. The VTs introduce vocabulary items one at a time and then each item is reinforced through matching activities. She preferred the switch so that she would know the vocabulary words first and then see them in context, rather than seeing the words in context that she doesn’t “even recognize.” The users can make this switch on their own, if they choose, by clicking on the VTs first on their assignment calendar. However, none of the participants strayed from the order that was presented on the assignment calendar.

During the ISR #1 (Week 6), I asked the participants to explore the VIP and tell me how they could learn vocabulary from it. For most, this was the first time that they viewed and clicked on the features inside the VIP. After viewing the VIP, the participants were quick to point out that the purpose of the VIP is that it “gives you another way to understand the information”; it “could help with pronunciation”; it “gets you used to listening to people in Spanish, which is difficult”; or that the “highlighted words were probably important” and they “could help me figure out what I need to learn.” While many of the participants saw for the first time the potential value of using the VIP to learn the vocabulary, the issue remained that they were not sure how to use it. One participant expressed this conundrum by saying “you have to know how to interact with it, though.”

**Discovery.** This category includes comments related to features or components about which participants were unaware, but discovered via their peers, the researcher, or on their own. This category also includes the comments that participants made about the Grammar Interactive Presentation (GIP) while discussing the VIP, as if grammar and vocabulary were contained in the same lesson. The participants were uncertain as to what constitutes a lesson. For example, when discussing the VIP, one student mentioned the “purple column that gives you a breakdown of what you’re doing and why in English.” This purple column is part of the GIP, not the VIP. This category also includes comments that refer to a moment in which the participant learned something from either another student, on his own, or from me.

Participants mainly shared technical tips on how to access or interact with the features of the VIP. From the focus group discussions, some participants learned how to

locate the VIP, click the side bar to advance the e-text, or use a specific web browser.

One participant, Jake, was reading the dialogue in VIP 2 when, he came across the verb *jugar* 'to play,' which he did not know. He wrote the word down in his notebook and then used the glossary inside MSL to look up the word meaning. This is his comment on the discovery of the glossary:

I didn't even know it [the glossary] was there but, actually, the meeting that we had with like two or three people in that room—we were talking about what we did and one of them mentioned that they used the glossary. I didn't know it was there or anything before. It was awesome. It seemed like a pain to have to switch back and forth between tables and windows to try and figure it out, but yeah it's nice. (Jake, ISR #2)

During the focus groups, the participants did not share tips on how to learn or work with the information inside the VIP to learn vocabulary. As mentioned earlier, many students discovered how they could learn with the VIP and the features during the ISR in Week 6 with me as they explored the online component. In large part this exploration unveiled yet more technical explanation (discovering and accessing features) rather than pedagogical explanation (why the page is organized as such) although I did try to make the connection of the VIP to a day's lesson that a teacher might give during a traditional classroom—pointing out the beginning and end of the lesson, how it incorporated past vocabulary and grammar topics, and how it introduced new vocabulary through images, audio, and context.

Participants also commented that knowing about the VIP and how to use it prior to Week 6 would have led to a more thorough understanding of the lesson and how to use the VIP. Annan, who received the same error message each time she attempted to open the VIP, had never seen the VIP until the first ISR session with me. The amount of

information surprised her available (audio and glossed words) and did not understand why “students would skip the Interactive Presentation or the tutorials because at first I was confused with the slide shows [tutorials] and I didn’t know what the words were and now I can look them up here [in the VIP].” A classmate, Ralph, expressed relief in learning about the VIP, as it would allow him to complete his homework faster. He observed that most of the vocabulary words were found in the VIP and instead of searching for specific vocabulary words by going back to the tutorials, he could use the VIP to help complete the Apply exercises.

I actually read the sentences now so I kind of get where the sentence is going. Definitely going over them because remember I was telling you how I kind of skimmed through it? But now, as I’m reading through it more, it helps a lot because I spend less time having to go back and look [through the tutorials to find a vocabulary word]. (Ralph ISR #2)

The participants made discoveries with the help of their peers and the ISR. The data show that some participants made changes based on those discoveries, whereas others continued with the same routine. These changes are discussed in the next category.

**Changes.** This category includes comments related to changes in how the participants interacted with the online components. To recall, in Week 12, the students were assigned two VIPs. For both VIPs, 80% of the participants interacted with at least one feature. As stated earlier, this was a change from Week 6, when the majority either did not open the VIP, or they opened it but did not interact with any of its features. While only 4% of the comments reflect a change in the way the participants interacted with the VIP, it appears the changes made led to a more solid approach in working with the content in the VIPs. As one student explained:

I like hearing them speak and okay, that word is highlighted, it’s going to mean something. Looking through I see there are some words that I already know, but

are conjugated differently. Like I know the word *dormir* means to sleep, but if I see it conjugated differently, that is what I am keeping in mind. (Alicia, RTA #2)

For another student, it was the combination of viewing the VIP during the ISR #1, a tip he learned from the focus group, and his first exam score that prompted a change in the way he worked with VIPs. As he explained:

I realized that okay, I'm studying, but I'm not really understanding what she's [the TA] saying so now I write things down. I started to read through it [the VIP] mostly for the vocabulary aspect of it. If I ever came across a word I didn't know, I'd also write that in my notebook. I just go back and study those words. (Jake, ISR #2)

Others did not make substantial changes. For example, one participant acknowledged that he did not really change the way in which he was interacting with the VIP, commenting that "sometimes I click on the highlighted words since we talked about that [during the ISR], but I don't spend too much time on those."

**Design.** The comments in this category are in reference to how the VIP was set up, which often linked back to the *Discovery* and *Purpose* categories in which participants finally discovered certain features and began to understand the purpose of the VIP. The abundance of text and images appealed to some participants as they could take control of their learning, utilizing tools and resources that helped them learn the vocabulary. For other participants, the design had the opposite effect; they reported becoming overwhelmed and not knowing what to look at, which in turn led some of them to avoid the online material. Additionally, within the *Design* category, participants offered suggestions to improve the design. This was a small category, but the suggestions offered by participants are valuable for the study, given that they emerged from frequent use of the online materials.

Luke found the VIP to be too complex for his level and offered a suggestion on how to improve it.

I don't know what it is about these. I just don't like them. Something about the interface and how it's set up. Just, the way it looks turns me away from it. It seems too wordy. I feel like it doesn't help me that much. I feel there could be a better way for it to be implemented. I think there should first be an English-to-Spanish translation. (Luke ISR #2)

Other participants had similar suggestions on how to improve the VIP, including more English translation of words, clearer indications of the beginning and end of the lesson to ensure that nothing is missed unintentionally, and possibly a leaner, less wordy format. As mentioned earlier, Kelsey also suggested placing the VIP after the vocabulary words have been introduced explicitly which may reduce the number of words that students do not recognize in the VIP.

Although many factors could have caused an increase in the amount of interaction from VIP 1 to VIPs 2 and 3, the format and overall look of the VIP should also be taken into consideration, as more than one participant commented that they were "wordy." For example, VIP 1 introduced 33 vocabulary words, 20 of which were tightly positioned around a map of Central and South America, and an additional eight words listed in the *Lengua* box. Only five words were presented in text. None of the participants clicked on any of the individual words on the map. The two participants who clicked on a word in VIP 1, clicked on *origen*, which was also the title of the lesson. In contrast, VIP 3 introduced 12 words in a more linear fashion, presenting a series of clear and relevant images followed by a sentence which contained the highlighted words. Also, each new vocabulary word corresponded to one particular image. For example, in Figure 13, the screenshot of the VIP in the earlier discussion, the second passage states, *Poco después,*

*la madre se ducha, se seca, se viste y se maquila* ‘Soon after, the mother showers, dries off, gets dressed, and puts on makeup.’ For each action, there was a corresponding picture. This format was the same throughout this VIP. Of the eight participants who opened VIP 3, six clicked on at least one highlighted word, which resulted in a mean number of 3.7 words clicked per participant. While other factors, such as knowledge gained from the focus groups, ISRs, or participants’ own trial and error, could have contributed to more interaction in VIP 3, the abundance of information presented in VIP 1 may have been overwhelming for participants, resulting in their skipping over it. While this abundance of information, glossed text, and images may be useful to some, the participants in this study may have been overwhelmed by the amount of information because they did not know how to use the information effectively (Tobias, 2006), resulting in the need for instruction on identifying the different components of the VIP and how to interact with them.

**Comments Summary.** The five categories provide insights into the participants’ interactions during the VIP. In many cases, their comments provided the reason the students interacted the way they did. Many chose to skip the VIPs because they did not know how to interact with them. Others felt that the design could have been improved to encourage learners to want to work with it. The participants discovered many technical tips during the focus groups and the ISR, but still did not know how to use the VIP to learn vocabulary. Some participants made changes based on their discoveries and others chose not to.

### VIP Summary

Based on the participants' behaviors alone, it appeared that they may have been avoiding the VIP to possibly finish their work faster, which is aligned with previous research (Collentine, 2000; Fisher, 2012; Fouh, 2014; Hwu, 2007; Weinberg, 2007). However, taking into account their comments, as well as their behaviors, presented a different picture. It appeared that the reason many skipped the VIP was because they did not understand the purpose, organization, or usefulness of the VIP. While it appeared that the guided technical training of exploring the features of the VIP during the ISR, the participants also preferred pedagogical training on the purpose of the features and how to use them to learn vocabulary which can help make the connection between the activity and the learning outcome or progress toward it.

### **Vocabulary Tutorials**

The second type of activity that participants are assigned to complete is the Vocabulary Tutorial (VT). The VTs, which comprise up to five different types of activities to help the students learn up to 10 vocabulary words at a time, are based on the vocabulary words introduced in the VIPs. While most of the words from the VIPs are also in the tutorials, sometimes there is not a one-to-one correspondence.

In a typical five-activity tutorial, the first activity presents the vocabulary item with a picture, as shown in Figure 14. Usually, the students can see the printed word, hear the pronunciation, and view a relevant image. In most cases, when the participant clicks on the picture, the audio plays and the word appears for approximately two seconds, and then the tutorial advances to the next word. Once students have clicked on all the words, a small shaded red arrow in the lower corner turns red indicating they can move on to the

next activity in the tutorial or move back as well (Figure 14). The tutorial allows the participants to advance only after they have clicked on all the words. In the upper right-hand corner of the tutorial screen, an additional arrow indicates the number of vocabulary items in the tutorial, as depicted in Figure 15.



Figure 14. First activity in Vocabulary Tutorial

The second, third and fourth activities are matching exercises where the students see or hear new vocabulary items and have to match each one to the appropriate picture.

Figure 14 presents an example.

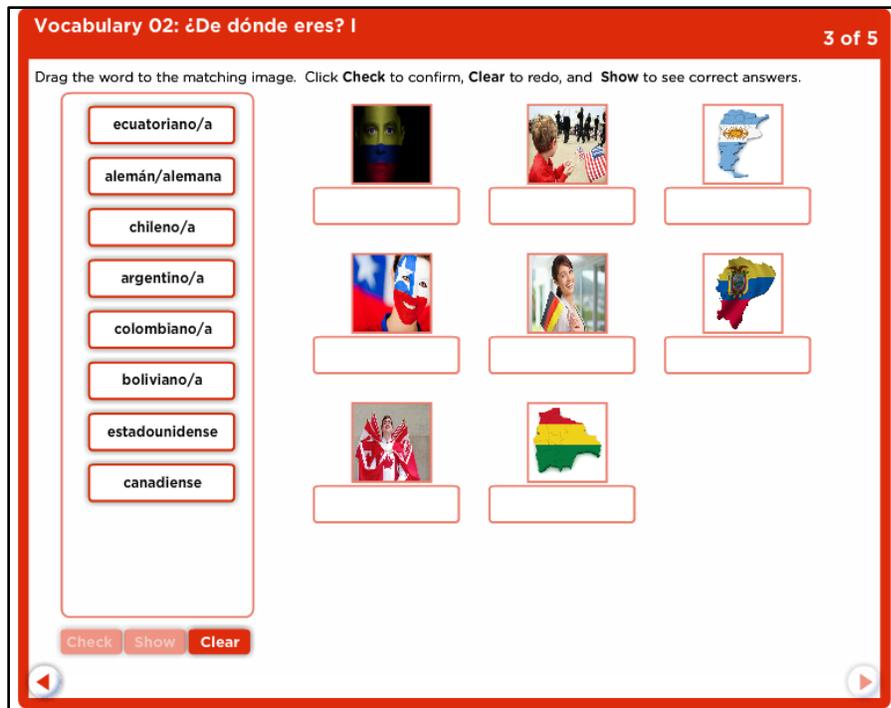


Figure 15. Example of activities 2–4 in Vocabulary Tutorial

The fifth and final activity in the VTs is a speaking activity where students can self-assess their pronunciation. Participants see the printed vocabulary word along with a picture. When they click on the word, they hear the pronunciation by a native speaker. Then, they can record themselves saying the word and compare their pronunciation with the native speaker model. Figure 16 shows an example.

Vocabulary Q2: ¿De dónde eres? I 5 of 5

Click **Record**. Click **Allow** on the pop-up message. Say the word and then click **Stop**. Click **Play** to hear your recording. Click **Compare** to hear the pronunciation of a native speaker followed by your recording.



alemán/alemana

Record Play  
Compare

1 of 8

Figure 16. Example of last activity in Vocabulary Tutorial

When a tutorial has only one activity, usually only the printed text in Spanish and English and the pronunciation are presented. A picture is not typically provided. See Figure 17 for an example.

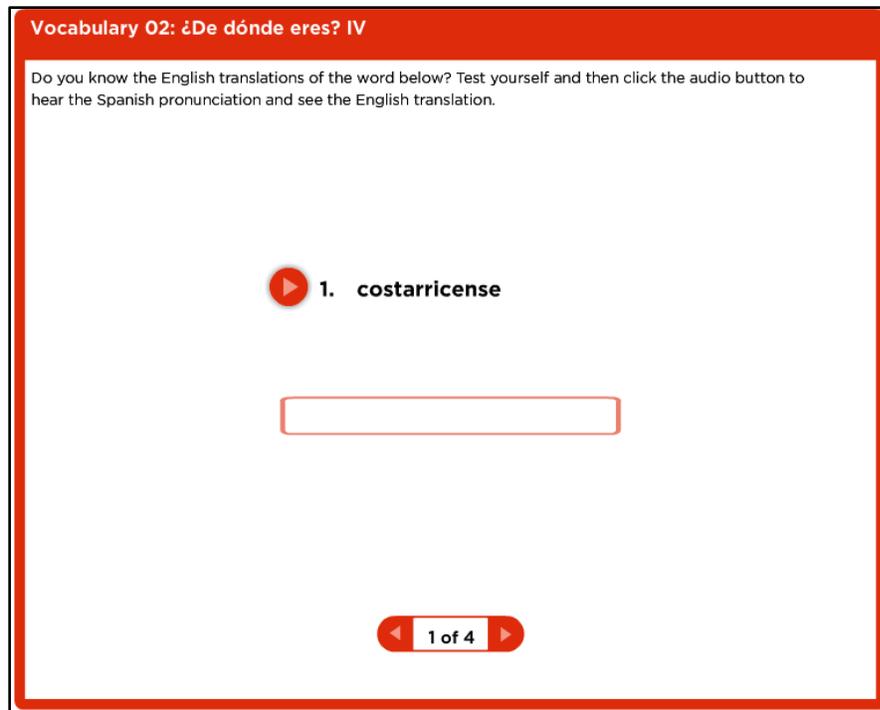


Figure 17. Example of Vocabulary Tutorial with only one activity

The length of each tutorial depends upon the number of vocabulary words and how much time students spend working inside the tutorial. For example, a student who clicks through a tutorial on the adjectives of nationality (eight vocabulary items) and gets them all correct on the first try will spend approximately five and a half minutes on the activity. Students can advance to the next activity in the tutorial only after they have earned 100% on it.

Similar to the VIPs, the VTs are completely in Spanish and could be similar to the information a teacher might present at the beginning of a traditional class as guided practice. In a class setting, the instructor might first introduce a new word with a relevant image, and ask the students to repeat the word. Then, the instructor might continue by projecting images while the students match the image to the text or the pronunciation of the word. The instructor might provide immediate feedback regarding accuracy and

pronunciation and reinforce as needed, just as the tutorial provides feedback. The students can view the VTs as many times as they wish and do not receive a grade for viewing. Upon clicking on the vocabulary tutorial link on their assignment calendar, the students receive a checkmark on their assignment calendar indicating that it has been viewed, as shown in Figure 18.



Figure 18. Screen shot of a viewed activity

#### Week 6: Online Interactions with VTs and Comments

During Week Six, the students were assigned to complete four VTs, in addition to the one VIP they completed prior to the tutorial and four Apply activities that they completed after the VT. The students recorded themselves as they worked on these assignments. The interactions exhibited by the participants as they worked with the VTs are discussed in the following section. In addition to recording themselves, the participants also provided insights on the VTs during the RTAs, the focus groups, and the ISRs. Their insights are presented throughout the next section as they relate to the VTs.

**Week 6, VT 1.** In Week 6, the students were assigned four VTs. Table 14 displays the name of each tutorial, the number of vocabulary items in the tutorials, the terms that were presented, the types of activities in each tutorial and the amount of time it took to click through each tutorial, provided that the first response was correct on all the matching activities. The tutorials focused on adjectives of nationality. In total, there were 16 activities within the four tutorials. Going through each activity for each tutorial would have taken approximately 16 minutes and 40 seconds.

Starting from the online assignment calendar, the students can take two approaches to working with each individual VT: (a) click on the VT link and then close before it loads; or (b) click on the VT link and interact with one or more of the four tutorials. As shown in Table 14, all the participants opened every VT and did at least the first activity for each tutorial in which they clicked though the terms to see the written word, listen to the pronunciation, and see a corresponding image. While all the students did go through the first activity, six of the participants stopped after that first activity and did not spend any time on the remaining tutorials. One participant completed all the activities and two of the students worked on all the activities except for the speaking activity. One participant completed a different number of activities in each tutorial. For example, he did three activities on the first VT, two activities on the second, one on the third and did the only one available for the fourth tutorial. The participants did not spend considerable time on them, averaging approximately four minutes total to work through four tutorials, with a total of 16 activities.

Table 14. Interaction with VTs, Week 6

	VT 1
Number of Tutorials	4
Number of Activities	16
Time Spent	2:00–18:50
Appx time to work through tutorials	16:40
Mean Time for 4 tutorials (16 activities)	3:59
Mean % activities completed	47.5%
<b># of participants who...</b>	
Closed before VT loaded	0
Opened and completed 1–5 activities	10
<b># of participants who completed...</b>	
...all the activities	2
...all <i>but</i> pronunciation activity	1
...varying # of activities	1

Table 14.—continued

...first activity <i>only</i>	6
...none of the activities	0
<b>Strategies used</b>	
Clicked on words	10
Repeated words	10

*Summary Week 6, VT 1.* Participants spent minimal time working with the four VTs. All the participants completed the first activity, but only two went through all the activities in each tutorial. Typically, it takes about five minutes per tutorial to go through all the activities, but the mean time for the group to complete all four tutorials (16 activities) was just under four minutes, demonstrating the minimal time spent. Clicking on the words and repeating them were the two strategies used.

#### Between Weeks 6 and 12

Between the first recorded think-aloud session that included VT 1 (Week 6), and the second recorded think-aloud session (Week 12), participants met in focus groups to discuss how they worked through the VIPs, the VTs as well as the Apply activities. Six weeks later, I met with each participant individually during the Individual Session with the Researcher (ISR) in which we watched video clips of how they interacted with the online components in the preceding weeks. Additionally, I asked them to explore the VTs and discuss how they might use the VTs to learn the vocabulary. Two days later, the participants recorded themselves once again as they worked through six additional VTs. Between the first set of data collection (Week 6) and the second set of data collection (Week 12), the participants had the opportunity to work with 11 VTs, potentially using what they had learned in the focus groups in their subsequent interactions with the VTs.

Week 12: Online Interactions with VT 2 and 3

**Week 12, VT 2.** Six weeks after the first VT and just a few days after discussing VT 1 during the ISR, the participants recorded themselves once again as they worked through two additional sets of VTs. On this day, the participants were assigned to learn material on two separate topics—activities that family members do (e.g., eat, work, play) and when or how often they do them; and daily routines that are expressed with reflexive verbs (e.g., *cepillarse los dientes*). As summarized in Table 15, the first set of tutorials comprise three tutorials with a total of 11 activities that reinforce 20 vocabulary words that were first presented in the VIP that the students had been assigned to work on prior to the VT assignment.

Table 15. Interaction with VTs, Week 12

	VT 1	VT 2
Number of Tutorials	4	<b>3</b>
Number of Activities	16	<b>11</b>
Number of words	26	<b>20</b>
Time Spent	2:00–18:50	<b>2:46–15:40</b>
Appx time to work through tutorials	16:40	<b>10:30</b>
Mean Time (in minutes)	3:59	<b>5:46</b>
Mean % activities completed	47.5%	<b>57%</b>
<b># of participants who...</b>		
Closed before VT loaded	0	<b>0</b>
Opened VT and completed 1–5 activities	10	<b>10</b>
<b># of participants who completed</b>		
...all activities	2	<b>2</b>
...all <i>but</i> pronunciation activity	1	<b>2</b>
...varying # of activities	1	<b>2</b>
...first activity only	6	<b>4</b>
...none of the activities	0	<b>0</b>
<b>Strategies used</b>		
Clicked on words	10	<b>10</b>
Repeated words	10	<b>10</b>
Wrote down the words	0	<b>4</b>

Similarly, to the first set of VTs, all the participants opened each tutorial and did at least one activity. The participants completed 57% of the activities, compared to 47.5% during Week 6. Furthermore, they spent more time working on tutorials with fewer words and averaged almost six minutes working through the tutorials. This time is still considerably lower than the approximate time that it would take to work through each activity, however.

Overall, the participants spent more time working with the first set of VTs during Week 12 and completed more activities than they did during Week 6. Furthermore, during Week 12, fewer participants closed the tutorial after the first activity and more participants completed more activities. Additionally, a new strategy appeared during this round of recordings—writing down the vocabulary words.

**Week 12, VT 3.** After the participants completed this set of three tutorials, they completed three Apply activities and then returned to complete three more tutorials. This set of tutorials, focused on daily routines, introduced reflexives verbs in context. The three tutorials comprise 11 activities that reinforced 25 of the vocabulary words introduced in the VIP that the students were to have viewed prior to working with the VT.

Table 16. Interactions with VT 3

	VT 1	VT 2	<b>VT 3</b>
Number of Tutorials	4	3	<b>3</b>
Number of Activities	16	11	<b>11</b>
Number of words	26	20	<b>25</b>
Time Spent	2:00–18:50	2:46–15:40	<b>0:41–11:01</b>
Appx time to work through tutorials	16:40	10:30	<b>11:00</b>
Mean Time	3:59	5:46	<b>4:15</b>
Mean % activities completed	47.5%	57%	<b>42%</b>

Table 16. --continued

	VT 1	VT 2	VT 3
<b># of participants who...</b>			
Closed before VT loaded	0	0	<b>1</b>
Opened and completed 1–5 activities	10	10	<b>9</b>
<b># of participants who completed</b>			
...all activities	2	2	<b>0</b>
...all <i>but</i> pronunciation activity	1	2	<b>1</b>
...varying # of activities	1	2	<b>4</b>
...first activity only	6	4	<b>4</b>
...none of the activities	0	0	<b>1</b>
<b>Strategies used</b>			
Clicked on words	10	10	<b>10</b>
Repeated words	10	10	<b>10</b>
Wrote down words	0	4	<b>0</b>

The participants' interactions with this third tutorial set was surprisingly different from their interactions with VT 1 and VT 2. In VT 1, the participants completed 47.5% of the activities and in VT 2, they completed 57%; however, in VT 3, the mean decreased to 42%. Rather than continue an upward trend of completing more activities on the third tutorial set, the participants completed the least amount of activities out of all the tutorials in the study. The two participants who consistently completed all the activities during the study completed only two and four activities on the third tutorial. Seven participants completed only the first activity and one completed none as he did not open it. In contrast to previous tutorial sets where all the students opened each tutorial and at least did the first tutorial, for this tutorial set, one student closed each tutorial before it fully loaded and therefore did not complete any of the activities in the tutorial, stating, "I don't have time for this." The remaining participants continued to do at least one activity per tutorial, but none of the participants did all the tutorials as they had done previously. Furthermore, none of the students wrote down any of the words from the VTs.

The behaviors observed were similar to the behaviors observed in the interactions with the first VIP in Week 6, where the participants engaged in clicking, scrolling, and closing, seemingly at random. In this last tutorial, participants opened, clicked through the pictures, and then promptly closed, saying “Oh, I am done with this.”

**Summary Week 12, VT 2 and 3.** The majority of the participants spent minimal time working with the six VTs during Week 12 (three with the first set, (VT 2) and three with the second set (VT 3) as they learned a total of 45 vocabulary items. In VT 2, the participants completed more than half of the activities (57%), but in VT 3, the completed less than half (42%). A noticeable difference between VT 2 and VT 3 is that more students did a varying number of activities in each tutorial. A new strategy of writing down the vocabulary items emerged in VT 2, but was not present in VT 3.

#### Summary of VT Interactions, Weeks 6 and 12

Figure 19 presents a summary of the participants’ results for Weeks 6 and 12. In regard to the percentage of activities completed, the number increased for VT 2, but then decreased for VT 3. Additionally, the number of participants completing all the activities in the tutorials decreased from 2 participants to no participants. The number of participants completing a varying number of activities, however, increased steadily over the course of the semester. Fewer participants also completed more than just the first activity over the course of the study. The next section which focuses on participants’ comments, sheds light onto the possible reasons for the possible changes throughout the semester.

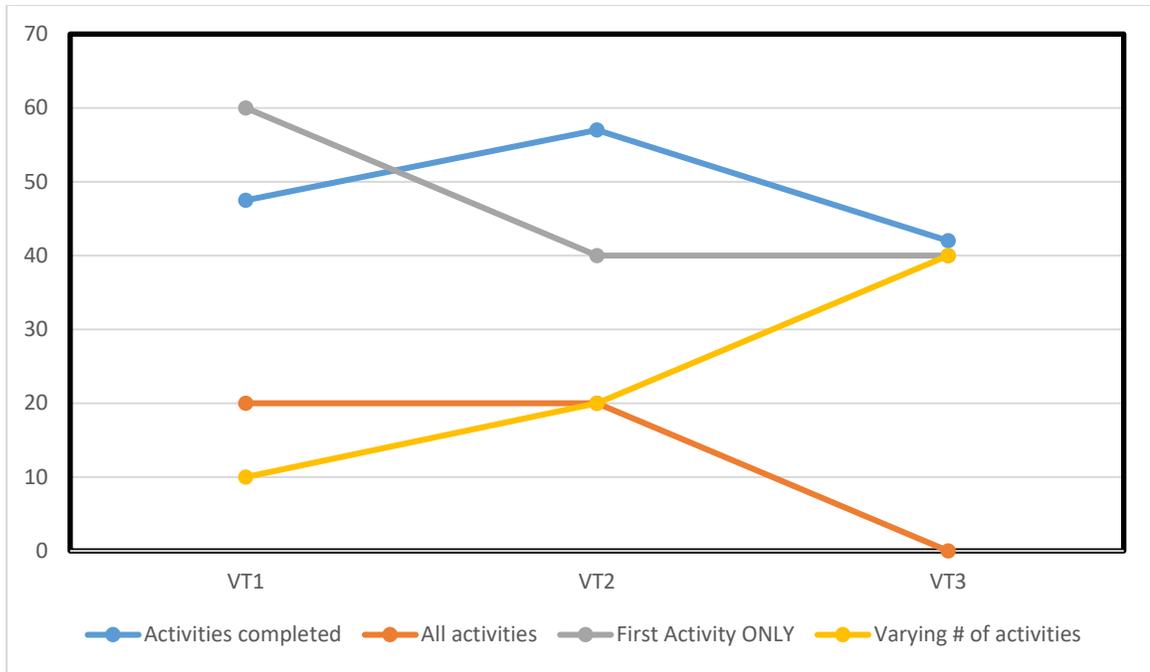


Figure 19. Summary of VT interactions

#### Themes from the Vocabulary Tutorials

During the RTAs, the focus groups, and the ISRs, the participants' comments provided insights on how they worked (or did not work) with the VTs. Table 17 illustrates their comments by type and number and provides examples. The majority of the participants' comments deal with how they approached the VT, their understanding of the purpose of the VTs, what they learned about the VTs, and the design of them. and their general uncertainties. Each category is defined briefly followed by student comments at particular stages during the semester. There were 140 comments in total regarding the VT during both sets of data collection.

Table 17. Summary of Categories for VT and Examples of Participant Comments

Category	Number	Example
Strategy	33	“I like to do the words in Spanish and then translate into English, and the ones I don’t know I’ll make a list of and then I’ll review on my own.” “If I feel comfortable with the topic, I typically will go through them once.”
Behaviors	29	“I quit halfway through.” “Done with that one.” “Skim through it.”
Purpose	25	“Gets you introduced to the material and give you some visual and some audio information to give you a background for when you go on to the other activities where you do vocab or grammar things.” “Help reinforce, like it’s five things of the same stuff, just in different ways, so it’s just repetition and helping you learn all the words.”
Design	23	“It makes you wait until the entire word is pronounced until you can click on it.” “It’s so slow.”
Pictures	15	“Sometimes the pictures aren’t descriptive enough.”
Discovery	15	“I didn’t know there were five activities until one of my group members mentioned it; then I started using it.” “I didn’t realize there was a next, second part to this [until my group told me].”
Total Comments	140	

**Strategies and Behaviors:** Although these categories are similar, there are important differences. A *strategy* encompasses a plan of action that participants had going in mind prior to opening the VT, and includes signs of metacognitive thought. In this category, the students not only discuss what they did, but also why they did it. For example, “I usually have a translator to figure out what words they are trying to say” or “I go through [it] when I need it.” A *behavior* refers to the student commenting on what they did, but without signs of metacognitive thought; for example, “I’m not doing those”

or “This last one for the recording, I never do,” or “I’ll go through and listen to how they are pronounced.”

*Strategies.* A new strategy emerged during VT 2 (Week 12) in which four participants wrote down some of the vocabulary words from the tutorials. Kelsey, who did all but the speaking activities, and Cassius, who did a varying number of activities, both wrote down the vocabulary words to review the vocabulary later. For Kelsey, she wrote down the words that challenged her during the tutorials and then when she was doing her homework later she had “an easy translation to refer to.” For Cassius, he wrote down the words to prepare for the exam. As he explains: “All those words, I’ve written them out in English on one side and I typically just put a piece of paper over it to quiz myself.” He may have also done this because he did not view the tutorials as very helpful “because they don’t put the English translation so I don’t know what they mean anyway and the pictures don’t help at all. There are a couple of times where I can’t even blow the picture up big enough to see what exactly it is.” He suggested to “have a translator ready and make your own list.”

Jake and John, who both only did the first activity and then exited the tutorial, also wrote down some of the vocabulary words. Jake understood that the purpose of the tutorial was to reinforce the vocabulary by presenting it in a variety of ways, and by the end of the tutorial he had a good grasp of the new vocabulary. However, he said that for him writing down the words served as reinforcement: “I used to do all five parts before I was writing it down in my notebook, but I figured what the tutorials do is repetition and stuff and that’s what I’m doing in my notebook so I’m just choosing one over the other.” While John was initially impressed by his newfound knowledge of the extra activities in

the tutorials (“they are mind blowing”) he continued to only do the first activity because he also started to write the words down in his notebook: “I write them all down in the notebook. I don’t do the other activities because of time consumption sometimes, but other than that, after I write it in a notebook and I write the word next to it.” He continued that “I don’t feel like I’m not going to learn because I’m just going to look at the notebook and look at the answer. Writing it down is my main go-to for everything.”

Participants who did more of the activities during Week 12 than they did in Week 6 tend to view the tutorials as a self-assessment on what they know and what they need to work on. As Cruz pointed out, “doing all five activities in the tutorial may be too time consuming if the material is easy enough for you” and the “tutorials are more to use if you need extra help.” Luke had a similar viewpoint: “It’s more like practice and I can recognize what I need to work on.” Ralph also pointed out that by looking through the tutorials “it makes it [the Apply activities] easier and it takes less time to look back.”

**Behaviors.** The amount of work on this particular day was double the amount they were typically assigned. Prior to this tutorial set, they completed one VIP, four tutorials, three Apply activities, and another VIP. Then after this tutorial, they still had three Apply activities to complete. While they completed 57% of the activities in VT 2, they only completed 42% of the activities in VT 3. Upon opening the second set of tutorials for that day, VT 3, one participant commented, “This one I’m not going to do today. I have a lot on my plate. I’m tired. I had two exams, probably won’t go through this.”

Regarding their daily online work, others also commented on the amount of time that it takes to do the online work: “Sometimes it’s like 10–15 minutes and other times

there is a huge list. I try to do it early in the evening because the time is different every day” and “I do MySpanishLab first because I never know how long it is going to take.” To plan for the variability in the amount of homework each day, the participants had different strategies from setting aside a specific amount of time each day to setting an alarm on their phones as a reminder to working ahead, weeks at a time. One student said that “I check MSL every day. I even checked it before I went to the *Batman Superman* premiere.” Based upon their interactions and their comments, at the beginning of the semester with VT 1, it appeared that students were skipping the activities because they stated that they already knew the information; however, during the second half of the semester with VT 2 and VT 3 being on the same day, it appeared that the chose to skip activities due to not having enough time to do all the assigned work.

**Purpose:** The comments in this category are related to how participants thought the VT could help them (or not) learn vocabulary. For example, “The tutorials help reinforce,” or “Correlating it to a picture or a person makes it easier to retain.” Anna and Michael did all the activities. For the entire semester, Anna could not open the VIP (she received an error message every time she tried), and therefore the VT was the only way for her view the vocabulary. Additionally, she found the VTs to be “kind of fun” because they “make sure you really understand it.” Michael found that the reinforcement through visual and verbal cues was helpful for him, and he suggested that other students “take their time to learn [with the tutorials] because they can also help students with different types of learning styles because if you’re a visual learner, the pictures will really help,” plus he mentioned that clicking on a word and listening to the pronunciation is “not hard.” He found that associating the words with pictures was best for him because he

could remember a particular image and map it onto the word. Kelsey, who did all the activities in the tutorial except the last one, the speaking activity, provided similar insights to Michael, acknowledging that tutorials “help you kind of get familiar with every word” because of how they are presented:

It’s more familiarity. You see it and then you match it and then you have to listen, pick a picture and then you could [do the speaking one]—I don’t do the speaking one, but it’s to keep it so you can get them [the words] in all aspects. (Kelsey, ISR #1)

Jake had a more varied approach to the tutorials, completing a different number of activities for each tutorial. He agreed with the other participants that “learning the same thing over and over again, just in a different way, is also very useful,” but “it depends upon your learning style” and “how much time you want to put in.” Jake’s classmate, Cassius, also took this same approach in that he does what he needs to do to feel comfortable with the topic:

I typically will go through them once. If I don’t know something then I’ll continue on with the second portion and do the matching and then do the speaking. I go through it when I need it. (Cassius, ISR #1)

Cruz also said that when the material becomes more challenging, he will do more of the activities in the tutorial. Only two students did the speaking activity during the RTAs. The remaining students had other reasons for not doing them. Jake, for example, does not do the speaking activity because the microphone on his computer is “really bad,” which was evidenced during the RTAs as he held broken headphones up to his ear with one hand and typed in answer with his other hand during listening activities. Cruz stated that he did the five activities once, but thought he “sounded pretty weird.” This

student may have possibly said this because his roommates may have been in his room while he recorded.

It appears that the participants understood the purpose of the tutorials in regard to how they help with learning vocabulary. Additionally, the idea that some of them used the VTs when needed demonstrates that they exhibited signs of metacognition and knowing when to do the other activities to get the practice they need.

**Design and Pictures:** The comments in this category refer to how the VT was set up. With an abundance of text and images, a student may become overwhelmed and therefore not know what to look at and, therefore, not place a high value on the online material. Regarding pictures, the comments relate specifically to the images in the tutorials, primarily regarding the ambiguity of the images.

The participants consistently discussed the design of the VTs as the design was the focus of 30% of the comments. The two main concerns with the design of the VT according to the participants is that they are inconsistent in their presentation and the pictures are ambiguous. Participants also mentioned the speed of the tutorials to be an issue. All three issues are discussed next.

***Inconsistency.*** Regarding inconsistency, each tutorial is designed slightly differently. Some tutorials present the picture, the word in Spanish as well as the word in English, while others only present the picture with the word in Spanish, and other just the word in Spanish and the English equivalent. The participants would like every vocabulary item in the tutorial to be presented with a picture, the printed word, an audio file for the pronunciation, and the English equivalent. Participants' comments on this point include, for example, "it should have the word because I don't know what the word

is now. Why do they have words for this one and pictures for the other one?” and “Oh these made me mad. It makes sense to have a picture, like to get a visual of it, but they should also have the English word” and “I wish that before they did the picture, they would do the English to Spanish word translation and then use the pictures.” Likewise, another commented that the students’ knowledge is sometimes taken for granted because “there’s definitely some terms that I have no idea what they mean in English so I have no idea what they are trying to say in Spanish.” By presenting each word in the tutorial as the participants suggested, the ambiguity of the pictures may also decrease.

**Ambiguity.** The ambiguity of the pictures at times warrants the presence of the English equivalent. “Sometimes the pictures aren’t descriptive enough exactly to get an idea of what the Spanish word actually means so you end up not really learning anything. I just memorize the picture, I guess. The word doesn’t really stick with me at all.” Oftentimes, students either memorized the picture or learned the word incorrectly. For one self-described visual learner, the pictures helped him associate the pictures with the words; however, he would most often match the picture with the word and not necessarily with the meaning. For example, upon seeing an image of someone’s face painted the colors of a country’s flag, he associated “painted face” with *colombiano* ‘Colombian.’ While the intended purpose of the image of the painted face was to create an association between *colombiano* and the colors of the Colombian flag, ultimately, it did not meet that goal. Subsequently, for this student, each time he saw the painted face, he knew it was *colombiano* because the face was painted not because the colors of Colombia’s flag are yellow, blue, and red. When the association between the image and the text is not clear enough, the purpose of the activity is somewhat lost. Another

participant commented that “it’s helpful because I match the word with the face paint or the flag, but one of the biggest issues that I have with this kind of activity is because it will tell you ‘oh, here are all these new words’ and you click on the word and it just pronounces it for you. I can look at them and pronounce them. That’s not hard.”

When the association between the picture and the word is not sufficiently informative, it is challenging for students to know what the Spanish word means. For some participants, the ambiguity hinders their understanding and, therefore, they memorize the picture rather than the term and view the exercise as an exercise in just image recall or just pronunciation rather than vocabulary reinforcement where they can map the pronunciation and the image onto the word. In a separate activity, the students were shown images of a map of a country and then the respective adjective of nationality in Spanish. Participants commented that the activities were difficult because “it’s not that we don’t know the words, but we don’t know the shape of the country” and therefore had to guess frequently to get the correct answer in the matching sections. In another activity, an image of a man putting on a tie was shown with the word *vestirse* ‘to get dressed.’. While the majority of the students who saw the image equated *vestirse* with “to get dressed,” one student thought *vestirse* meant “to put on a tie.” For the subsequent tutorials, he saw the image of a man putting on a tie and said, “to put on a tie,” therefore learning the phrase incorrectly.

**Speed.** Finally, some of the participants commented that the tutorial was not as learner friendly as they would have liked. They prefer to move through the tutorial at a much faster pace than the design allows. Currently, the tutorial is set up so that users may not advance to the next word until the pronunciation has finished. Additionally, they may

only move to the next activity, once they have scored 100% on the current activity. The programming of the tutorial is designed to force users to engage with each stage of the tutorial, which will help them learn the words. One student commented that “It’s so slow. It makes you wait until the entire word is pronounced until you can click it. I just memorize them on my own time and not do it (the tutorials).” Another agreed, stating “I hate that I have to wait to click on something—that drives me nuts.” It appeared that students seem to want more control in the program and to move quickly through the vocabulary words with which they feel comfortable.

In sum, in regard to the tutorial design, the participants mentioned the inconsistency of the presentation of the vocabulary, the ambiguity of the images and the lack of learner control. Together, these design elements may have resulted in some students’ disinclination to work with tutorials.

**Discovery.** This category includes comments that refer specifically to a moment in which the student learned something from another participant, on his or her own, or from me. Regarding Discovery, the most discovered topic was that each tutorial contained up to 5 different activities to reinforce the vocabulary words. The majority of the participants who did not know that each tutorial contained multiple activities closed the tutorial after the first activity. It is possible that the instructional design of the tutorial may have contributed to the students not knowing about the other activities. As seen in Figure 20, when these participants opened the tutorial, the browser window was not automatically maximized, and thus hid the arrow that directed them to move on to the next activity.

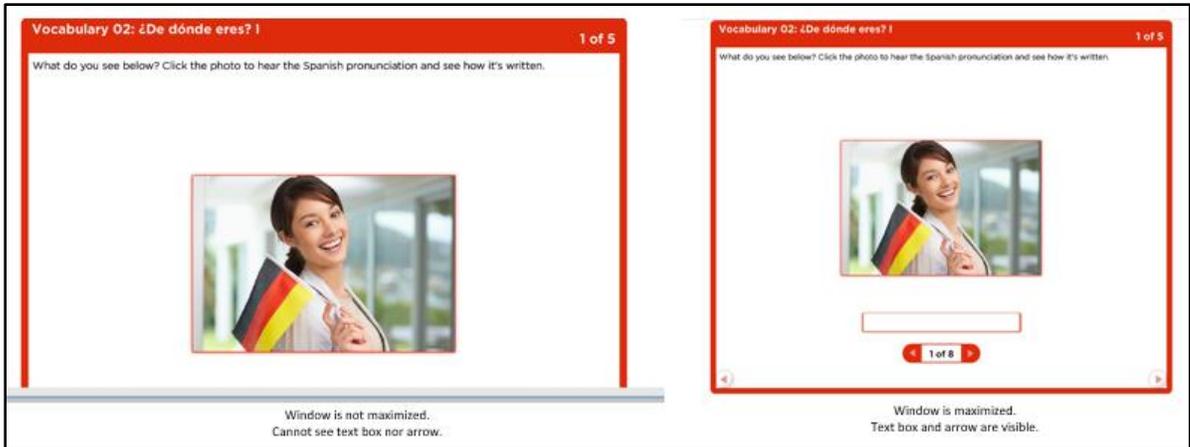


Figure 20. Maximized vs. non-maximized browser window. Image on the left depicts a browser window that is not maximized. Image on the right depicts a maximized browser window

These students learned either from me during the ISR or from their focus groups about the five activities. Excerpt 1 presents a discussion that happened during the first focus group in Week 6 with participants (Alicia, Kelsey, and Cruz). Cruz and Kelsey are explaining the five activities to Alicia, who did not know that there was more than one. At first, Alicia thought maybe she knew what they were talking about, but then after a few turns, she needed clarification and then finally understood that each tutorial has different sections.

#### Excerpt 1. Finding out about the Activities in the Tutorial

1. Cruz: I actually, the last one that you do the last one you record it or something
2. Alicia: Oh, the, like, where you...
3. Kelsey: Like where you do five, I've never done five.
4. Cruz: To record yourself
5. Kelsey: I just X out of it.
6. Cruz: I actually did five the first time I ever did it, but then I thought I sounded pretty weird
7. Kelsey: So I've never done it
8. Alicia: Wait. Do five what?

9. Kelsey: Step 5 because you keep going through them
10. Alicia: Oh you're supposed to say it out loud?
11. Kelsey: No, um, step five it has you record it doesn't it?
12. Cruz: Yeah. Step 5 you like say the word and record it and then it plays it back for you.
13. Alicia: I've never actually done that
14. Kelsey: yeah well
15. Alicia: Like how am I missing out on this? Oh because there's like multiple steps of the thing?
16. Kelsey and Cruz: Yeah
17. Cruz: I just go over it
18. Alicia: See and no one has ever told me I've done this wrong because it always just says viewed, right? So I didn't know I was missing out on this. Ok, so that's good to know.

Participants like Ralph and John did not explicitly state during the focus groups that they did not know about the different activities in each tutorial; however, during their ISRs their comments to me underlined what they had learned from their peers.

I didn't know there were five activities until one of my group members mentioned it. Then I started using it. It makes it a lot easier. It takes less time to look back. I didn't realize that there was the next, second part like this. (Ralph, ISR #1)

When we were in that little group and a girl showed us. It was mind blowing. Me and Luke were blown away about the different things you could do on this site." (John, ISR #1)

In discussing the VTs during the focus groups, learning about the existence of the different activities as well as the realization that some peers were completing the tutorials as needed rather than as assigned. As such, during VT 3, more students did a varying number of activities in each tutorial than in previous sets.

**Comments Summary.** The six categories provide insights into the participants' interactions during the VTs during Weeks 6 and 12. In many cases, their comments provided the reason the students interacted the way they did. Some did not go past the first activity because they did not know there was more than one activity. It appeared

from their interactions that others approached the VTs somewhat chaotically as they did a varying number of activities, when, in fact, they were using the VTs to self-assess their knowledge. When they felt confident enough with the vocabulary items, they moved on to the next tutorial. Many students felt that the design could have been improved to encourage learners to want to work with it more and to make it clearer that there were more activities after the first one. The participants discovered many technical tips during the focus groups as well as a pedagogical tip of working with the tutorials as a self-assessment rather than required activity.

#### Summary of Vocabulary Tutorials

This section discussed how students interacted with and perceived the VTs. From the beginning, the participants understood that the VTs were designed to reinforce their knowledge of the new vocabulary, but many were not aware of the different opportunities offered to practice the words. After gaining insights from their peers and from the ISRs with the researcher, the participants discovered that the additional activities in the VTs could be helpful in learning vocabulary, which was evidenced by the increase in the amount of activities completed during Week 12. However, the decline in the number of activities during the same day in Week 12 may have been the result of two different things. It was most likely the result of (a) fatigued students with an excessive and (b) inconsistent amount of work for one day or the new knowledge they received from their peers who commented that they view the tutorials as a needs-based assignment. Over the course of the study, the participants failed to complete the assigned number of activities due to: (a) not knowing about their existence; (b) viewing the VTs as a needs-based activity; or (c) disliking the tutorial design. An assumption from the research is that

students work through the material as quickly as possible to finish, and while in some cases that may be true, there may also be underlying causes as demonstrated and explained by the participants in this study. Additionally, publishers and designers create software to work in a certain way, but users often tend to use software in unintended ways.

#### Summary of Initial Discovery Phase of Learning

These first two sections of Chapter 4 have analyzed and discussed the participants' interactions and comments as they worked with the online components that make up the initial discovery phase of learning. In both Weeks 6 and 12, the participants were introduced to new vocabulary words through the VIPs and the VTs. Considering only the participants' actions, it appeared that their interactions were similar to what previous research found in that students want to rush through online material as quickly as possible. However, considering their comments as well as their interactions painted a much clearer picture of the reasons why they skipped an activity or seemingly rushed through another. The concluding section compares the ways in which participants interacted with and perceived the two components by discussing some of the themes that emerged from the data.

In regard to participant behaviors, it appeared that students skipped or rushed through the VIPs and the VTs; however, the participants did not understand the purpose behind the VIP and therefore did not know how to use the VIP to interact with it. As for the VTs, the students understood that the purpose was to present and reinforce vocabulary, yet they still seemed to skip or rush through them, but for reasons other than not knowing how to interact with it. The participants were either unaware that there were

more activities in the tutorial, or they viewed the VTs only to self-assess their learning. Jake viewed only the first activity in the tutorial as a way to create a list of vocabulary words to study later. Other participants reported that once they felt they knew the material, they stopped working with it. Ralph said that “I feel like the five [activities] is like-- it's almost like I get it at this point I don't need to learn anymore” and Cassius said that after the matching activity he said “I'm familiar with the words.” Upon discovering the additional activities, Luke found that the first four were helpful, but he did not like the recording activity at the end, commenting that

I liked all of them, except the last one, A lot of it was more memorizing what they mean, and what they go with, and the last one was more, pronouncing them. I felt like I had those ones, so I didn't really need to [do the last activity]. You know-- you do what you need to do. (Luke, ISR #2)

By viewing the tutorials as a self-assessment, they showed signs of understanding the pedagogical purpose of the online components, and therefore making made decisions how to use them according to their needs. Previous research stated that students often use the online materials in ways that are different from what the designer or the publisher intended; however, in this case, it may be that the participants understood that the tutorials, which were not evaluated for accuracy, were intended as study material available to them to use when needed.

As students discovered the purpose of the VTs on their own from the start, they could develop strategies, such as writing down the words from the tutorial and creating their own lists of vocabulary words, or deciding how much time they wanted to spend with the tutorials based on how well they knew (or did not know) the words. Because the

participants did not understand the purpose of the VIP from the beginning and never spent much time on it, they never developed strategies on how to learn from it.

Participants made only minimal changes to how they interacted with the VIPs, but they made substantial changes in how they interacted with the VTs. On one hand, they may have worked with the VIPs more since it was discussed during the ISR and they thought they should do something differently to appease the researcher, but did not see the value in working more with it for their own benefit. On the other hand, the participants viewed more activities in the VTs in more meaningful ways in accordance to their own needs understanding that by completing a certain number of activities was enough for them to learn the vocabulary.

The difference in the change (or no change) may have resulted from where the information originated or from the perceived value associated with each component, with their peers' suggestions and advice carrying more weight than the words of the researcher. During the focus groups, the participants shared mostly technical advice on how to work with the features in the VIPs and the VTs. They did not know enough about the VIPs to offer pedagogical advice to their peers, but they did offer insights to their peers about the value of using the VTs as self-assessments.

The final theme that was discussed regarding both online components was the design. The participants did not particularly like the design of the VIP because it contained a lot of information in one place. The design of the VT was displeasing because of the inconsistent presentation, ambiguous images, and not enough learner control. In total, 21% of the comments focused on the VT design, while only 9% of the total comments focused on the VIP design. Participants may have discussed the VT

design more since they used the VTs more or because they valued the VTs and wanted the design to be improved so they could learn more from them.

In sum, the participants minimally used the VIPs and the VTs, but for different reasons. The next session discusses how the participants consequently completed two challenging Apply activities, one in Week 6 and one in Week 12. These findings, as well as those from the Apply activities, are discussed in Chapter 6 as they relate to the development of the learning-how-to-learn model.

### **Apply Activities**

After completing the Vocabulary Interactive Presentation (VIP) and the Vocabulary Tutorials (VTs), the final portion of a day's assignment is the Apply activities. The Apply activities consist of multiple-choice, fill-in-the-blank, true/false, and listening exercises in which students apply the knowledge they gained from the initial discovery phase of learning. This section examines the resources and strategies taken by participants as they completed the Apply activities during Week 6 and Week 12. First, the design of and the feedback within the Apply activities is provided, followed by the findings from all the Apply activities as a whole. Then an overview of all the activities from Week 6 along with their respective mean scores, mean attempts, and mean time spent is provided. The types of resources and strategies used for the Apply activities during Week 6 are then presented, along with examples of how the participants used the strategies. Next, an activity that challenged the participants from Week 6 is explored in detail. Then the results are presented in the same manner for Week 12. The section concludes with a summary of how the participants approached working with the Apply

activities, in general, and how their resource use changed from Week 6 to Week 12, specifically regarding one particularly challenging activity.

#### Apply Activities Design, Feedback, and Overall Findings

Prior to the Apply activities, the participants worked through the VIPs and the VTs, learning new vocabulary words. Once they felt comfortable enough with the material, they moved on to the Apply activities where they applied the knowledge gained from the VIP and the VTs through multiple-choice, fill-in-the-blank, matching, and listening exercises. These activities are graded for accuracy and students have three attempts to complete each activity. Each activity begins with directions in English followed by the activity. Additionally, students have access to extensive resources (see Figure 21) as they are working, such as direct links to the VIPs and the VTs they worked with earlier, a complete set of all the tutorials for the book listed alphabetically and by chapter, a Glossary, a Verb Chart, Media Files under More Resources, the eBook, and a User Guide. Students are typically assigned between three and five Apply activities per lesson.

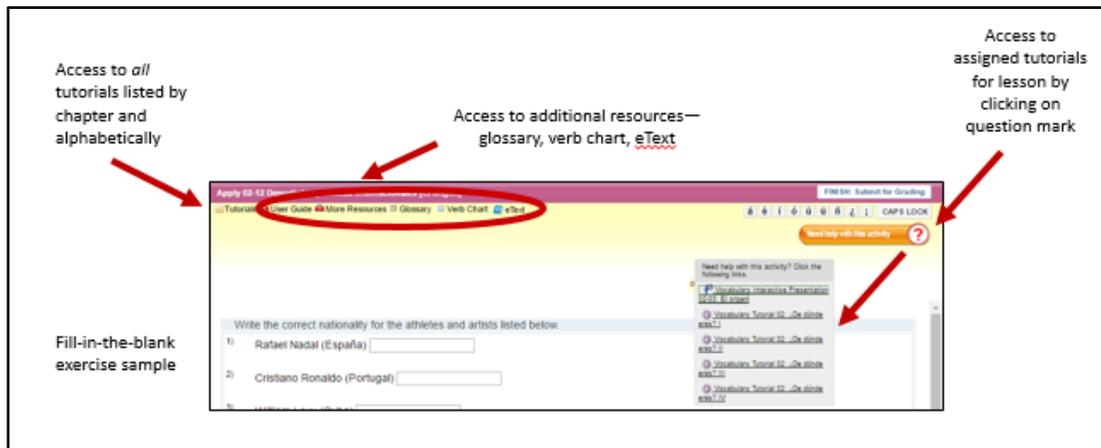


Figure 21. Available resources to use in an Apply activity

**Feedback.** After each attempt, students may receive feedback hints or a symbol indicating the answer is correct, partially correct, or incorrect. A partially correct answer indicates that the response is most likely misspelled or there is an error with accent placement. The feedback hints do not appear on their own as a small bubble next to the response must be clicked for the hint to appear. Participants do now know which questions will provide feedback hints until after the activity has been submitted. An example of feedback for a partially correct answer (see Figure 22) and one that contains a feedback hint (see Figure 23) are presented for illustration purposes. In Figure 22, the partially correct response, the participant did not type in the tilde or the accent mark. The feedback hint shown in Figure 23 prompts the students to reflect on their response to make changes.



Figure 22. Image of feedback for a partially correct response

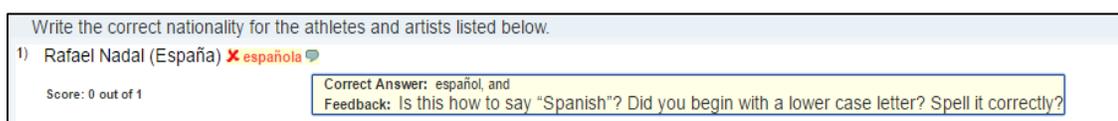


Figure 23. Image of a feedback hint for an incorrect response

**Overall Findings.** Over the course of the study, the participants completed a total of nine Apply activities—four in Week 6 and five in Week 12. Table 18 presents the main results from the activities. The mean score for all activities was 91.01 and the mean number of attempts was 1.8.

Table 18. Descriptive Statistics for all Activities

	Mean Score	Mean Number of Attempts	Words Spoken During RTAs
Anna	99.25	1.6	5608
Alicia	99.25	1.3	3988
Cassius	96.75	2.3	2776
Michael	98.5	2.2	2231
Cruz	98.63	1.6	2048
Kelsey	90.86	1.6	1903
Ralph	89.13	1.8	2083
Jake	75	1.8	1472
Luke	85	1.6	1105
John	77.75*	2.3	807*
<b>Total</b>	<b>91.01</b>	<b>1.8</b>	<b>2402</b>

\*Not included for Pearson Correlation Coefficient calculation

For this study, the participants were asked to think aloud as they were completing their work and the amount of thinking aloud varied considerably across participants, as shown in Table 18. The mean number of words spoken during the RTAs, including during the initial discovery phase of learning (VIP and VTs) was 2,402 words. The number of words spoken varied considerably across participants and ranged from 1,105–5,608 while the mean scores for all Apply activities ranged from 85–99.25. The number of words spoken consists of the number of words spoken during the Initial Discovery Phase of Learning (the VIPs and the VTs) as well as the Apply activities since what they learned from the VIPs and the VTs could be applied to the Apply activities. It also includes information that the read aloud as well as when they thought aloud. For example, reading the directions as well as thinking through a question are included. The Pearson Correlation Coefficient (R) between the number of words spoken and the score was .6258, indicating a moderate positive correlation. Although this result was not significant at the  $p = .05$  level, it demonstrates a tendency in which more thinking generally accompanies a higher score aloud, and vice versa. John's data were not included in this calculation. His microphone did not work during the first RTA and even though it was evident that he was talking (based upon his lips moving), it was not possible to determine what he was saying and therefore his results were not included in the correlation calculation focusing on the data from both RTAs. His data is shown only for the second RTA when his microphone did work.

Additional positive correlations were found between the number of words spoken and the score on the two activities that challenged the participants the most. In Week 6, the participants' mean score on Activity 4 was 90.75, while earning 100% on the

remaining activities. In Week 12, the participants' mean score on Activity 4 was 65.99, while earning 100% on the remaining activities. For Activity 4,  $R = .6276$  and for Activity 8,  $R = .5355$ . In both cases, the  $R$  value indicates a positive correlation with a moderate tendency for higher scores to be accompanied with a greater number of words spoken on challenging activities. Both activities (Week 6, Activity 4 and Week 12, Activity 4) are discussed more in detail later in this chapter.

Although the amount of time spent on an activity could be an important factor, in this study, the inclusion of the time may not be as relevant as the number of words spoken aloud during the RTAs. Regarding time, there were no correlations between mean time spent and the score and the time and score across participants varied. For example, in a short matching exercise, one participant spent 120 seconds because she read aloud every question and every response, while another participant spent only 22 seconds on the same assignment because he did not read any question aloud, nor did he read aloud as he was working, yet both participants earned 100% on their first attempt. This variation shows that there can be more than one path to earn a high score. The strategies that participants took are also discussed later in this section of Chapter 4. The next section in this chapter provides brief descriptions of each activity.

#### Week 6: Apply Activities Descriptions and Results

During Week 6, students were assigned to complete one VIP, four VTs, and four Apply activities. Each Apply activity is described, as well as the mean score and mean number of attempts taken and a summary of the data for the four activities is also provided. Additionally, the resources and strategies used by the participants during the activities are presented as well as an in depth look at a challenging activity.

**Activity 1.** Activity 1 focused on colors and had five multiple-choice questions. The students were given a written word, such as *banana*, and had to choose the correct color from five color options. The participants earned on average 100% on this activity in 1.4 attempts.

**Activity 2.** For the second activity, the students matched descriptions of five people with their country of origin. Each description had a drop-down menu with five options. For example, for the sentence *Félix Hernández juega béisbol y es venezolano. Es de...* ‘Felix Hernandez plays baseball and is Venezuelan. He is from...’ and they chose one of the five countries from the drop-down menu. The correct answer is Venezuela. They averaged 100% on this activity with a mean of only one attempt.

**Activity 3.** Activity 3, a fill-in-the-blank exercise with eight questions, focused on adjectives of nationality. The students were given the name of an athlete or artist, along with their country of origin in parenthesis. The students were instructed to write the adjective of nationality in the blank. For example, when given *William Levy (Cuba)*, they needed to type in Cubano ‘Cuban’, considering the adjective of nationality as well as number and gender. All the participants earned 100% on this activity and the mean number of attempts was 1.6.

**Activity 4.** In the final activity, the students were provided with a word bank containing eight Spanish-speaking countries and an image of a map of Mexico, Central America, and part of South America. Then below the map, they were instructed to write the adjectives of nationality for eight people. This activity entailed either already knowing the origins of the people listed or looking them up using their “favorite search engine,” as noted in the directions. Once the origin was known, the students typed in the

adjective of nationality, considering the rules of number and gender. The mean score for this activity was 90.75 and the mean number of attempts was 2.2.

Table 19. Summary of Results for Week 6 Apply Activities

	<b>Type</b>	<b>Questions</b>	<b>Mean Score</b>	<b>Mean # of Attempts</b>	<b>Mean Time Spent (minutes)</b>
Activity 1	Multiple-choice	5	100	1.4	1:31
Activity 2	Matching	5	100	1.0	1:06
Activity 3	Fill-in-the-blank	8	100	1.6	6:02
Activity 4	Fill-in-the-blank	8	90	1.9	8:20
Total		26	97.7	1.6	4:25

Table 19 summarizes the results for the four activities assigned during Week 6. The mean score for the four activities was 97.7%. The mean time spent on all four Apply activities during Week 6 was 16:51 (approximately 4:25 per activity) and the participants averaged 1.6 attempts per activity. For the first three activities, the participants did not encounter many challenges. They used, on average, 1.4 attempts to complete each activity with an average score of 100%, indicating that most solved the problem on the first attempt and did not require the use of many resources to help answer the questions.

For the fourth activity, the mean score dropped almost 10% and the mean number of attempts increased to 2.2, indicating that the participants were unable answer the questions correctly on their first attempt and many utilized additional resources such as the feedback or a Google search to aid in their completion of the activity. Furthermore, three of the participants exhausted their attempts on this activity and still did not earn 100%, while another participant quit the activity after two attempts.

### Week 6: Resources and Strategies

Although the data displayed in Table 19 shows participants' scores and number of attempts, it does not show the path they took to reach those scores. One of the benefits of screen-based tracking, however, is the ability to see that path. Therefore, this section focuses on the types of resources and strategies that the participants used to achieve their score. As I analyzed each participant's individual recording, I took note of the resources they used, how they used the resources, and any comments they made during the process. Table 20 provides a list of all resources used to complete the four Apply activities for Week 6, as well as how many participants used each resource during each of the four activities in Week 6. The data reflect how many participants used a particular resource at least once during the activity. Following the table is a description of each resource and the way(s) in which it was used.

Table 20. Participant Resource Use during Apply Activities in Week 6

	<b>Total</b>	<b>Activity 1 Multiple- choice</b>	<b>Activity 2 Matching</b>	<b>Activity 3 Fill-in- the-blank</b>	<b>Activity 4 Fill-in-the- blank</b>
Google search *+	12	2	0	1	9
No resources	11	4	6	1	1
<i>Prior strategy knowledge</i>	10	3	5	1	1
Vocabulary list	8	0	0	5	3
Google Translate +	8	0	0	3	5
Vocabulary Tutorials (VT)	7	2	0	3	2
Feedback hints	4	0	0	2	2
Spanishdict.com +	3	0	0	2	1
Wikipedia +	3	0	0	0	3
Glossary	2	0	0	1	1
Give up	2	0	0	0	2
Previous activities	1	0	0	1	0
Word bank	1	0	0	0	1
Paper dictionary +	1	1	0	0	0

\* For Activity 4, participants were instructed to use the search engine of their choice.  
+ Outside of the MySpanishLab management system

The students used a variety of resources and strategies during the Apply activities during Week 6. The participants did not use as many resources while completing Activities 1 and 2 as they did with Activities 3 and 4. Only one participant chose not to use any resources when completing Activities 3 and 4, while the others all used at least one resource. It is possible that the type of activity factored into the resource use. For example, the first two activities were multiple choice and matching. Based on the participant scores, mean attempts, and minimal time spent on these activities (see Table 19), these activities may not have been as difficult as the last two activities, which were fill-in-the-blank. Multiple-choice questions are typically recognition based while fill-in-the-blank activities require recall which tends to be more difficult to accomplish, particularly when the participants spent minimal time learning the material. Participants utilized between 10 and 11 different resources to complete the fill-in-the-blank exercises, but only between two and five types of resources for the multiple-choice and matching exercises. The next section discusses the types of resources and how they were used.

The first set of most commonly used resources were No resources, Google Search, the vocabulary list at the end of each chapter, Google Translate, and the vocabulary tutorials. These resources are explained in detail in the paragraphs that follow.

**No resources.** Participants did not use any resources either inside or outside of MySpanishLab to complete the activities, possibly relying on what they learned from the initial discovery phase of learning or from a prior language course.

**Google search.** The participants used the Google search engine to look up words in Spanish, as well as in English. For example, one participant typed “brown in Spanish” in the search bar and another typed “emerald color” in the search bar because he did not know the color of an emerald and therefore could not choose the corresponding color in Spanish. For Activity 4, the participants were also instructed to use their favorite search engine, if needed, to look up the origins of famous artists and athletes. The majority chose to use Google Search for this activity.

**Prior knowledge.** This category includes the types of resources and metacognitive strategies participants had absorbed during their academic careers, such as using a process of elimination, guessing, predicting, taking, and referring to notes, and using context clues. Regarding guessing, one participant did not recognize any of the options; rather than use a resource to look them up, he selected one of the options at random to trigger the feedback hints on the first attempt so that he might use them on the second attempt. Another participant tried to complete the items before viewing the answer options by covering up the answer choices with her hand. Two participants took notes prior to the day’s activities and referred to them during the activity. Finally, three participants used a context clue in lieu of reading the full sentence.

**Vocabulary list.** The end of every chapter contains a list of vocabulary words in Spanish. This list can be found online or in the hard copy of the textbook. Online, each word is linked to an audio file that, when clicked, enables participants to hear the pronunciation. The English equivalents of the words are not provided in either format. The participants in the study used the vocabulary list as a reference to check spelling and accent mark placement. All of them referred to the list in the hard copy of the textbook

only, and never viewed the list online while completing their assignments. They consulted the list only during Activity 4, the activity that challenged them.

**Vocabulary Tutorials (VTs).** The participants returned to the VTs to use them as a reference when searching for a particular vocabulary word. For example, the participants who used this strategy opened two windows on their desktops, one for a VT and one for the Apply activities. When they came upon a vocabulary word they did not recognize, they went back to each VT in search of the specific word. This process took considerable time for two reasons. First, oftentimes, the participants could not remember which tutorial contained the vocabulary word and therefore needed to open each tutorial which took time. Second, to advance to the next word in the tutorial, the participants first needed to click on each individual word/picture to hear the pronunciation. This also took time because they could not click as fast as they wanted to get through the list of words.

**Google Translate.** Google Translate was used as a translator and a reference, but only for the fill-in-the-blank activities. When participants did not know the vocabulary word they needed to produce, they typed the English word into Google Translate to retrieve the Spanish equivalent. They also used this resource if they knew the word but were unsure of spelling or accent mark placement.

The next set of resources (feedback hints, Spanishdict.com, key words, and Wikipedia) were used only a few times by the participants.

**Feedback hints.** Feedback hints were accessed for the fill-in-the-blank activities (Activities 3 and 4); however, upon clicking on the feedback bubble for Activity 3, the two participants were surprised that there was no feedback available. Feedback was available in Activities 1 and 2 as well, but the participants did not access them.

**Spanishdict.com.** This resource was used in a similar manner as Google Translate. Mostly it was used as a translator, but on one occasion it was used just for spelling. The participant was not sure of the spelling of the word and began typing the word into Spanishdict.com. The resource is set up to recognize a short string of letters, so a list of choices would appear. These choices changed as the participants typed more letters. Participants used spanishdict.com for Activities 3 and 4 only.

**Wikipedia.** The participants who used this resource deployed it only for Activity 4. In this activity, the participants were to use a search engine to look for the nationalities of famous artists and athletes.

These three resources were only utilized during the fill-in-the-blank activities. No participant accessed the feedback hints, spanishdict.com or Wikipedia during the first two activities that were multiple choice and matching. The last set of resources (glossary, giving up, previous activities, word bank, paper dictionary), were seldom used. One participant accessed a paper dictionary during Activity 1, one accessed a previous activity in Activity 3, one utilized the word bank in Activity 4 and one participant accessed the glossary for Activity 3 and 4.

**Glossary.** The glossary, a tool located within MSL, is readily available for every activity. When participants click on the glossary, they can enter a word in either Spanish or English. The glossary contains only the words presented in the *Unidos* text, and thus does not contain words from outside of the *Unidos* textbook. Additionally, the glossary search function is activated only if the participant types the entire word and spells it correctly. The glossary does not recognize partial words or conjugated verb forms. For example, typing *acuesta*, the third-person singular form of *acostarse* ‘to lie down’ would

not result in any entries; however, typing the infinitive *acostarse* ‘to lie down’ would reveal the definition. The same participant accessed the glossary in both Activity 3 and Activity 4.

**Giving up.** On the most challenging activity, two participants gave up, meaning that they did not exhaust all their attempts to earn the highest score.

**Previous activities.** This resource was used in the same way as the tutorials. One participant went back to the submissions of a previous activity to look for the spelling of a vocabulary word.

**Word Bank.** In Activity 4, the participants were provided a word bank consisting of the countries of origin of the famous artists and athletes featured in the activity. The participants matched each individual to the appropriate country in the word bank and then had to produce the corresponding adjective of nationality. One participant referred to the word bank to narrow down her choices on the last two questions of the activity.

**Paper dictionary.** One participant used a paper dictionary in the first activity to look up the word *pizarra* ‘blackboard’. Recall that, in this activity, the students were given an object and had to choose the associated color for that object. Upon finding the translation for *pizarra* ‘blackboard,’ he immediately associated the word with the color black and chose the word *negra* ‘black’ from the answer choices.

**Summary.** The paths the participants took to earn their scores varied as some activities required the use of more resources than others. Google Translate, the VTs, spanishdict.com, the vocabulary list, and the glossary essentially provided the same type of information, but getting to the information was different. One participant who used the VTs and spanishdict.com said spanishdict.com is nice because “it’s not searching through

the words,” but it really depends on “the first thing that comes to mind” in choosing which resource to use. The next section looks specifically at the Activity 4, which appeared to be more challenging for the participants than the other activities.

#### Week 6: Challenging Activity

Table 21 presents the results for Activity 4, the challenging activity, which was a fill-in-the-blank activity in which students were instructed to write the adjectives of nationality for eight individuals. First, they had to look up the origin of the individuals using their favorite search engine and then consider the rules of number and gender when writing out the adjective of nationality. The mean score was 90.75 with an average of 2.2 attempts. They spent approximately 8:20 in this activity and the average words spoken during this particular exercise was 415. John has zero words spoken since his microphone did not work during this first round of RTAs.

Table 21. Individual Scores on a Activity 4, a Challenging Activity

	<b>Score</b>	<b>Attempts</b>	<b>Time</b>	<b>Words Spoken</b>
Anna	100	1	5:48	580
Michael	100	1	3:41	380
Kelsey	100	1	4:15	239
Alicia	100	2	10:24	821
Cruz	100	2	8:11	426
Cassius	100	3	11:00	557
John	62.5	3	16:50	0*
Jake	75	3	10:09	261
Ralph	87.5	2	8:06	286
Luke	75	1	5:02	189
<b>Total</b>	<b>90</b>	<b>1.9</b>	<b>8:20</b>	<b>415</b>

Furthermore, Table 21 shows the variety of participant interactions within one activity. Three participants (Anna, Kelsey, and Michael) earned 100% on their first try, three participants (Allison, Cassius, and Cruz) earned 100% and needed up to three

attempts to do so. Two participants (Jake and John) used up all three attempts and still did not earn 100% and Ralph and Luke did not use all their attempts and settled for scores of less than 100%. Both across and within groups, each participant took a slightly different path and used a diverse array of resources to earn their score. The next section presents the resource use for this one challenging activity followed by a discussion.

**Systematic Approach: 100%, One Attempt.** Anna, Kelsey, and Michael earned 100% on their first attempt at this activity and coincidentally, Anna and Kelsey used the same resources in the same way. First, both read the directions to the activity. Then they each used Google Search as their search engine to identify the countries of origin and then used the vocabulary list in the back of the Classroom Manual as a reference to check for spelling and accent mark placement. It was evident from their interactions that they had a plan in place and knew which resources would help them complete the exercise. Michael's strategy was slightly different since he already knew the origin of many of the people.

Anna commented on her system of using Google and then the book:

At first, I think, I just realized that I didn't know what countries each person would go to. I went back to the book a lot because I wanted to make sure that I got the spelling right. (ISR #1)

Of all the participants in this category, Anna thought aloud the most. During the activity, she often drew upon information that she had just learned or knew stating, for example, "Ricky Martin. We already learned this. He is from Puerto Rico so I think we have to write that he is Puerto Rican, which is *puertorriqueño*." She looked up the spelling for *puertorriqueño* in the vocabulary list. Additionally, as she looked up the people in Google, she commented on them. For example, when looking up Gabriel

García Marquez, she said, “Okay. He is a novelist and he is from Colombia.” Likewise, for Emiliano Zapata, she commented “He’s from Mexico. Looks like he’s a figure from the Mexican Revolution. Interesting.” Then she said, “So, Mexico so we put *mexicano* which we already learned. I just want to make sure there are no accent marks (looks at vocabulary list) and there is not.” Based on Anna’s interaction and comments, it appeared that she understood that the purpose of this activity was more than just supplying an adjective of nationality, but also a cultural activity in which they learned about famous Hispanic figures.

Kelsey, who also earned 100% on her first attempt, had a different perspective on this activity. During her RTA, she did not talk aloud as frequently as Anna, but when she did, she focused primarily on the gender and number rules for adjectives. For example, she commented “since it’s feminine, there is an ‘a’ at the end” or “it’s masculine so you leave the ‘o’.” She also viewed the activity as “more like finding it [the vocabulary word] to plug it in. It wasn’t like let’s learn about these places and what’s important. It was A to B, A to B.” For the last four questions in the activity, she copied the person from the activity and then pasted it into Google Search and said, “I’m just going to copy and paste—makes it go faster” which it did. She finished the activity in just over four minutes and the mean time on task was eight.

Michael, a graduate student majoring in history, came to this activity with prior knowledge of many of the people. He googled only three of the people—Carolina Herrera, Jennifer Lopez, and Rigoberta Menchú. For Jennifer Lopez, he stated “She’s Puerto Rican, but I don’t think she’s from there” and then he googled the answer and for Rigoberta Menchú, he said, “I should know this one.” During the focus group, he pointed

out to his group members that he could have used the glossary for the spelling of the nationalities if he needed help. The mention of the glossary was a new resource for one of the group members.

Anna, Kelsey, and Michael earned 100% on their first attempt, but their approaches to the activity were different. Anna learned about famous Hispanics and practiced adjectives of nationalities, Kelsey seemed to want to finish quickly, and Michael required only minimal support to complete the activity, most likely due to his background and interest in Mexican history. After reading the directions, each participant created a specific plan in order to complete the activity using Google Search and the vocabulary list.

**Lack of Attention: 100%, Two or Three Attempts.** Three participants earned 100%, but needed more than one attempt to do so. Cruz and Alicia required the additional attempts due to misspellings, but Cassius required additional attempts due to his unique strategy.

Cruz came into the activity already knowing some of the famous people, but for the ones he did not know, he used Google Search to find their country of origin. Although, he used the vocabulary list from the Classroom Manual, he still made spelling mistakes on his first try. He commented on his spelling mistakes: “I think I actually know them, I just spelled them wrong. Two dumb mistakes. Sometimes I try to type too fast. I just forget.” After viewing the clip of himself working and making the spelling errors during the session with me, he reflected on his interactions and said, “maybe before I submit, I could look at each one to see if its spelled right because obviously I knew the nationality, but I didn’t check to see if the spelling was right.”

Alicia, like Cruz, also used Google Search to find the origins of the people; however, rather than consult the vocabulary list in the Classroom Manual for the Spanish equivalents of the nationalities, she used Google Translate. Alicia was unaware of the existence of the vocabulary list and commented that since she did not have “anything to look at, we’ll do it by looking at Google.” During the activity, she commented on the adjective rules as well as the information about the people: “If I remember how to spell that correctly, there are two ‘r’s’, *puertorriqueño*, and he’s male so it’s an ‘o’” or “Carolina Herrera, all right, she’s a fashion designer” or “Enrique [Iglesias] so he is Spanish. I didn’t realize that. I always thought he was Latin American.” After finding each nationality on Google search, she verified that the nationality she found was actually an answer by comparing it against the word bank provided. For the final question, she did not have to do a Google search since she had narrowed it down to one choice based on the only country left on word bank.

Throughout the activity, Alicia referred to the word bank that listed the countries to verify that what she found on Google was an answer choice for the activity. She required two attempts because she misspelled the English nationality for Colombia when she typed it into the search bar for Google Translate. She typed ‘Columbian’ rather than ‘Colombian.’ The results, therefore, first listed *colombino* ‘relative of Christopher Columbus’ followed by *colombiano* ‘Colombian.’ Upon viewing her incorrect answer in the activity, she complained that Google Translate often gives “alternate solutions” for the vocabulary words and sometimes those are not the ones that the MySpanishLab program accepts. She did not realize her spelling error until I pointed it out to her during the ISR. At that time, Alicia again expressed concern that there was not a complete list of

vocabulary words that was easily accessible. She continued to say that that she had “stumbled upon” the vocabulary list once after the first recording during Week 6, but could not remember how to find it and was confused as to the organization of the online content and the Classroom Manual content.

Cassius’s strategy to this activity was unique among his classmates in the study.

He shared his approach to Activity 4 with his peers during Focus Group #1:

Ok, with this one, I was frustrated. I didn’t know who the people are or where they’re from so typically what I’ll do is write in my best guess and then I’ll look at the hints the second time around. Oh, is this person really from Mexico?”

And that is exactly what Cassius did on his first attempt at Activity 4. When he saw Enrique Iglesias, he commented, “Enrique Iglesias is...I mean, how am I supposed to know where these people are from? Is there a video? I have no idea where these people are from.” Cassius did not read the directions to the activity, but rather saw the activity and said “*Nacionalidades* ‘nationalities,’ more of this stuff” and therefore did not know that he could have looked up the origins online. For Rigoberta Menchú, he said, “Rigoberta Menchú is from Venezuela we’ll say” but also considered the gender and number rules for adjectives, saying, “*venezolana* because I believe she is feminine.” For each question, he guessed an answer and then submitted. On his first attempt, he earned 37.5% and said, “Oh that’s not good. Now, I’ll look at the hints and it kind of helps you out.” Upon looking at the feedback hint for Rigoberta Menchú, he read the feedback, “Is this an adjective to describe a woman from Guatemala? Absolutely, not. I put *venezolana*.” Then he changed his answer to *guatemalteca* ‘Guatemalan.’ He corrected all his answers by consulting the vocabulary list in the Classroom Manual and submitted for the second time and earned 93.5% because he put an accent mark on a word that did

not require one. On his third attempt, he earned 100% and said, “I typically just try to get through this as quickly as possible because it’s just a lot of small work anyway.”

During the ISR session, he commented that he simply did not know how he was “supposed to know who these people were” and asked if he had missed something prior to that. I responded by asking him if he had read the directions. Upon reading the directions for the activity for the first time during the ISR he said, “So I did not read the directions because I did not use my favorite search engine.” He said that since the start of the semester, he had improved on reading the directions and slowing down, stating that “now it’s more of a study session rather than a just-get-it-done kind of thing.”

For Cruz and Alicia, their errors were the result of a lack of attention. Cruz typed too fast and did not pay attention to the Spanish spelling; and Alicia did not pay attention to the English spelling. Cassius’s errors also partly resulted from a lack of attention the activity, in that he did not read the directions; however, his strategy was to then rely on the feedback hints. Similar to the first group of participants (Anna, Kelsey, and Michael), this group also used minimal resources, but failed to pay attention to the information provided.

**Chaotic Approach: Less than 100%, Three Attempts.** John and Jake both used all three of their attempts in an effort to earn 100% on the activity, but were unable to do so. Jake earned 75% and John earned 62.5%. Jake read the first part of the directions “Can you identify the countries in the ...” and then said, “I have no idea.” On his first attempt, he used a combination of Google Search to look for the nationalities and then Google Translate for the Spanish equivalents. He considered the adjective rules for number and gender for one question and when looking up the people, he commented

briefly on them: “Carolina Herrera, fashion designer from Venezuela,” “Rigoberta Menchú won the Nobel Peace Prize, Guatemala,” and “Jennifer Lopez is from...is...Puerto Rican, er, no. She’s born in the United States. I’ll put Puerto Rican.” He earned 50% on his first attempt, missing four out of eight. Table 22 shows his first attempt, the error type, his second attempt, the resource he used to find the answer and the result of the changes he made.

Table 22. Jake’s First and Second Attempts with Challenging Activity

Correct answer	1st Attempt	Error	2nd Attempt	Resource Used	Result
1.puertorriqueño	Puertorriquano	Spelling	puertorriqueño	Google Translate	Correct
2.venezolana	Venezolano	Gender	venezolana	VTs	Correct
3.estadounidense	<i>puertorriquano</i>	Nationality	<i>puertorriqueña</i>	VTs Google Search	Nationality error
4.guatemalteca	Guatemalteco	Gender	guatemalteco	VTs	Gender error

Upon seeing his score of 50%, he said, “I must have missed some accent marks,” then sighed, and said, “damn.” He searched through the VTs to verify the spelling for *venezolano* and then realized he needed to change the gender. He used Google Translate to find the correct spelling for *puertorriqueño*. Based on his discovery of the correct spelling, he corrected the spelling of *puertorriqueño* (#3), and also changed the gender to match the person, Jennifer Lopez. However, his mistake was with the nationality, not the spelling nor gender. For *guatemalteco*, he assumed he forgot an accent mark and put one over the second ‘e’, but as he clicked through the VTs in search of other words, he realized that there was not an accent mark and left his answer as *guatemalteco*. In using the VTs to search for vocabulary words, he commented, “it’s annoying.” He spent 1:47 looking through the tutorials. On his second attempt, he earned 75%. Table 23 illustrates Jake’s third attempt at the activity.

Table 23. Jake’s Third Attempt with Challenging Activity

Correct answer	Third Attempt	Resource used	Result
puertorriqueña	<i>estadounidos</i>	VTs Google Search Google Translate	Spelling error
guatemalteca	<i>guatemalteco</i>	Nothing	Gender error

Jake was surprised to see the 75% and exclaimed, “What the hell!” He returned to the VTs to find the slide for *puertorriqueño*, moved in close to the computer screen to compare his answer with the vocabulary word and said, “what’s wrong with that? Oh. Maybe she’s not from there.” He used Google Search to look up Jennifer Lopez and said, “Oh, that was the girl that moved from the U.S., born in the Bronx.” Then he went to Google Translate to find the Spanish equivalent for United States, and Google Translate gave him, Estados Unidos and he typed in *estadounidos* for the nationality. He paused briefly over *guatemalteco*, but said, “you know what, whatever, I don’t even care. It’s good enough” and he submitted his last attempt. His score did not change, and he earned 75%.

During the focus group, Jake commented that the activity was challenging due to the spelling and knowing the origins of the people. He also learned about the glossary and commented that it would have been helpful to use the glossary for spelling in this activity. In the ISR, he commented that he returned to the tutorials because he was unsure how to spell the words but it was “a pain to have to switch back and forth between tabs and windows and try to figure it out.” Since then, he discovered spanishdict.com which was “pretty helpful and quick.” Plus, it allowed him to “put in whatever” letters and it provided him with a list of words and he felt it was “more reliable than Google Translate.”

John also used all three attempts, but did not earn 100% on the activity. Like Jake, he did not read the directions. In fact, because John did not read any of the directions for Activity 4, he used his first attempt to write the names of countries rather than adjectives of nationality (called for in the activity), which resulted in a score of 0% on his first attempt. John is one of the focal participants in the study and a detailed look at how he completed this activity is described in his case study in Chapter 5. Basically, John used Google Search to look up the countries of origin for his first attempt. On his second attempt, he referred to the notes he took as he worked through the VTs, but due to misspellings in his notes and not considering the gender and number rules for adjectives, he earned 50% on his second attempt. On his third attempt, he used Google Search and Google Translate to make changes, but due to not copying down the word correctly in his notes, not transferring the words correctly into the activity, not using Google Translate correctly, and not knowing the nationalities in English, his final score was 62.5%.

While neither Jake nor John earned 100%, they used all the attempts to try to earn the highest score possible. Jake did not speak much during the activity and John's microphone did not work. Interestingly, both took the longest times to complete the activity as they were searching for vocabulary words in the VTs and Google Search. In comparison to the previous two sets of participants, Jake and John, also used more resources in trying to find the answer in a less planned approach. The next and final set of participants did not use all their attempts and earned less than 100% on the activity.

**Giving up: Less than 100%, One or Two Attempts.** Ralph earned 87.5% with two attempts and Luke earned 75% with one attempt. Neither spoke very much during the activity. Ralph did not read the directions to the activity and said, *nacionalidades*

when he opened the activity. On the previous activity, Ralph returned to the VTs six times going through all the slides looking for specific vocabulary words so when he came to this activity, he had a better idea of the adjectives of nationality in Spanish. Plus, Ralph knew the origins of some of the people listed as well. He immediately entered *cubano* ‘Cuban’ for Fidel Castro and *norteamericana* ‘North American’ for Jennifer Lopez. He knew that Enrique Iglesias was a singer and Ricky Martin had a music video. Then he guessed on some and said, “I don’t care, whatever” and then looked up others using Google Search. He used the glossary in MySpanishLab to look up the adjectives of nationality once he found the origins on Google Search. On his first attempt, he earned 62.5% and said that he probably misspelled some of the adjectives. He verified his spelling by using the glossary and submitted the activity. On his second attempt, he earned 87.5%, but still had one word, *guatemalteca* ‘Guatemalan’ spelled incorrectly as *gualtemalteca*, but rather than change it, he said, “All right whatever. Got me there MySpanishLab. I know how to spell it.” Ralph said that this activity was challenging because he had to go out of his way to find the origins of the people. In the ISR, Ralph mentioned that during the focus group, he learned about the list of vocabulary words at the back of the chapter in the Classroom Manual and that the list might be easier to use than the glossary.

Unlike Ralph, Luke did read the directions and then used Wikipedia to look up the origins of the people. Luke knew all the adjectives of nationality for the activity except two—Colombian and Guatemalan, which he looked up on [spanishdict.com](http://spanishdict.com). On his first and only attempt, Luke missed two answers. For one he had the wrong nationality and for the other he had the adjective spelled incorrectly. When he used

Wikipedia to look up Carolina Herrera, two Carolina Herreras appeared, a singer from Colombia and a fashion designer from Venezuela. He chose the singer from Colombia and typed *colombina*, which was spelled incorrectly and not the response that was programmed into MSL, but had the correct gender. For the second one he missed, he again incorrectly misspelled Colombian in Spanish, typing in *colombino*.

On his second attempt, Luke clicked on the feedback for the question about Carolina Herrera, but did not read it. The feedback said, “Is this an adjective to describe a woman from Venezuela?” Had he read the feedback, most likely he would have recognized his mistake in the nationality as it stated Venezuela, not Colombia. For the misspelling of Colombian, Luke typed ‘Columbian’ into spanishdict.com rather than ‘Colombian’ and therefore, spanishdict.com gave him *colombino* first and then *colombiano* ‘Colombian.’ According to spanishdict.com, *colombino* describes people or things related to Christopher Columbus. The error in the misspelling of Colombia also happened to Alicia from the first group described. In the ISR, when viewing himself work on this activity he said, “Yeah, I just quit. That happens sometimes.” When I pointed out his spelling mistake of Colombian, he said that “by the end of all the activities, especially when it’s long, I’m ready to be done” and that is why he didn’t attempt the activity again.

**Summary of Challenging Activity, Week 6.** The participants mentioned that the most challenging aspect of this activity was that they had to look up the origins of the people. This was probably time consuming and required them to do some of the legwork, but from their interactions, it appeared that their lack of attention to the activity in regard to spelling and accents caused the most problems. In sum, the participants who

had a plan from the beginning had the necessary metacognitive skills to create a plan and follow through with it. This group of participants demonstrated information literacy skills in that they determined which resources were best suited for the task and knew how to effectively use those resources. Furthermore, they handled the cognitive demands of this activity which included searching for the origin, connecting the origin to the adjective of nationality, and considering the number and gender rules for adjectives. Furthermore, prior to undertaking the Apply activities, they spent considerable time interacting with the material in the initial discovery phase of learning. One worked through all the activities in the Vocabulary Tutorials, whereas the other participant did all the activities except the one for speaking. The participant who worked through all the tutorials could not view the VIP because she received a persistent error message, but the others interacted with various parts of the VIP. They tended to utilize the same resources for all the activities, using their resources often to verify their initial responses and not necessarily seeking out new content knowledge.

The second group of participants also had good information literacy skills and could handle the cognitive demands of the activity, but did not pay attention to the spelling and accent marks. The participants with a more chaotic approach to the activity did not seem to have a plan since they did not read the directions. Their information literacy skills were not as strong as the first two groups because they were unable to use the available resources effectively. In addition, they also had difficulty with the cognitive demands of the activity as they did not always know the nationalities associated with the countries. For example, Jake searched for “United States” when he should have searched for “American” and John did not that someone who is from Guatemala is Guatemalan

and therefore did not know what to search for in Google. The last two participants appeared to have good information literacy skills in that they had a plan going into the activity, using Google Search or Wikipedia to look up the origins and then the glossary or spanishdict.com to look up the nationality. They also handled the cognitive demands of the activity, but neither used up all their attempts to earn 100% and both appeared to just want to finish the activity and therefore did not use further attempts.

#### Week 6: Summary of Apply Activities

The mean score for the Apply activities in Week 6 was 97.7%, indicating that participants wanted to earn 100%, but took different paths to reach that goal. Also notable was that the majority tended to either earn 100% or exhaust their attempts in trying to do so. The types of resources participants used to earn 100% also varied. The most commonly used resource was Google Search but not using any resources and potentially relying on content learned from the initial discovery phase of learning was the other common process of participants. This section has considered the resources and strategies that participants used in Week 6. In the next section I analyze the types of resources and strategies that participants used during Week 12 of the semester as well as an in-depth look at a challenging activity.

#### Week 12: Apply Activity Descriptions and Results

During Week 12, the participants were assigned to complete two sets of Apply activities. The section begins with an overview of the activities by providing a description of each activity along with its respective mean score, mean attempts, mean time spent, and the level of difficulty. Participants were given three attempts on each activity.

During Week 12, students had to complete two sets of assignments. The first set consisted of one VIP, three VTs, and three Apply activities. The second set consisted of one VIP, three VTs, and two Apply activities. In this section, each Apply activity is described, as well as the mean score and mean number of attempts taken and a summary of the data for the five activities is also provided. Additionally, the resources and strategies used by the participants during the activities are presented as well as an in depth look at the activity that most challenged the participants.

**Set One.** For the first set, the participants were assigned three Apply activities. These activities are usually based on the material that the participants studied in the Vocabulary Interactive Presentation and the Vocabulary Tutorials. Typically, the activities contain vocabulary from these activities; however, only two vocabulary items (*novio* ‘boyfriend’ and *parientes* ‘relatives’) from the day’s assignment were assessed during the three Apply activities they completed in Week 12. Rather than focus on new vocabulary, these activities assessed vocabulary that the participants had studied in the VIP and VTs that had been assigned four days earlier.

**Activity 1.** The first activity was a listening activity that focused on the baptism of a baby boy. The audio, recorded by a male voice, was 46 seconds long. The speed on all listening activities can be adjusted. There are seven multiple-choice questions about the oral text, each of which have three answer choices—*cierto* ‘true,’ *falso* ‘false,’ or *no dice* ‘it does not say’ (i.e., the information is not given). The participants earned an average of 98.2% on two attempts.

**Activity 2.** For the second activity, the participants were given a paragraph with eight sentences about a young boy’s family to read. Following the paragraph, there were

five questions with a drop-down box with five options. Each question focused on the relationships among the family members. For example, participants saw *Adriana es mi...* ‘Adriana is my...’ and the drop-down box provided choices, such as *nieta* ‘grand-daughter’ or *sobrino* ‘nephew.’ The participants earned 100% in two attempts on this activity.

**Activity 3:** The third activity was a matching activity with five questions that focused on family members and relationships. The participants were given a sentence to read, such as *Tres tíos de Ana no tienen esposas. Ellos son...* ‘Three of Ana’s uncles do not have wives. They are...’ The five options in the drop-down box provided choices such as *parientes* ‘relatives’ or *solteros* ‘bachelors.’ The participants earned 100% in 1.6 attempts.

**Set Two.** For the second set, the participants were assigned two Apply activities. Similar to the first set of Apply activities, the vocabulary from the accompanying VIP and the VT was not broadly assessed, as only four items (*levantarse* ‘to get up,’ *acostarse* ‘to go to bed,’ *desayunar* ‘to have breakfast,’ and *vestirse* ‘to get dressed’) were included in the activities. In Activity 5, the items *tarde* ‘late’ and *temprano* ‘early’ from the first set were also included.

**Activity 4.** The first activity was a listening activity that focused on the descriptions of two families. The audio was 2 minutes and 20 seconds long and was recorded by a male and a female voice. There were 18 blanks to fill in with the name of a person, their relationship in the family or an adjective. The directions also provided a 4-step strategy on how to complete the activity—anticipate which relatives might be

mentioned, listen to get the gist of the passage, view the charts, and then fill out the information. The participants earned a mean score of 65.99% and 2.0 attempts.

**Activity 5.** The final activity of Week 12 focused on determining the appropriate time of day for an activity. There were eight multiple-choice question. Each question had three options—*mañana* ‘morning,’ *tarde* ‘afternoon,’ or *noche* ‘night.’ For example, after reading *Mi hermano mayor se acuesta muy tarde* ‘My older brother goes to bed very late,’ the participants needed to choose the correct response. The participants achieved a mean score of 100% after 2.5 attempts.

Table 24 shows that the mean score for both sets of activities grouped together was 92.9% with a mean of 1.84 attempts per activity. The mean time spent on each activity was approximately 4:15 seconds. Overall, the participants performed slightly better in Set 1 than in Set 2. For Set 1, the mean score was 99.5% with 1.63 attempts. In this first set of activities, the participants did not encounter many challenges with any of the activities; however, with the listening activity, they tended to use more attempts than on other activities. For Set 2, the mean score decreased considerably and the mean number of attempts increased. This pattern could have resulted from the increased level of difficulty for this set of activities. The mean for Set 2 was 83% with a mean number of attempts of 2.15.

Table 24. Summary of Week 12 Apply Activities

	Type	Questions	Mean % Score	Mean # of Attempts	Mean Time Spent (seconds)
<b>Set One</b>					
Activity 1	Multiple-choice, Listening	7	98.5	2	4:02
Activity 2	Matching	8	100	1.3	2:40

	Type	Questions	Mean % Score	Mean # of Attempts	Mean Time Spent (seconds)
Activity 3	Matching	5	100	1.6	3:04
<i>Subtotal</i>		20	99.5	1.63	3:15
<b>Set Two</b>					
Activity 4	Fill-in-the-blank, Listening	18	65.99	2	9:00
Activity 5	Multiple Choice	8	100	2.5	2:31
<i>Subtotal</i>		26	83	2.15	5:45
<b>Total</b>		<b>46</b>	<b>92.9</b>	<b>1.84</b>	<b>4:15</b>

#### Week 12: Resources and Strategies

Table 24 shows the participants' scores and number of attempts, but it does not show the path they took to reach those scores. This section focuses on the types of resources and strategies that the participants used to aid in their completion of the activities. During Week 12, the participants used a wide variety of resources to complete the activities. Although some of the resources were the same ones they had used in Week 6, new resources emerged and others disappeared during Week 12. In contrast to Week 6, Week 12's assignments included both written and listening activities. Therefore, the results for Week 12 are divided into two categories: written activities and listening activities, given that the participants used different resources for each category. As I analyzed each participant's individual recording, I took note of their interactions and any comments made during the process. Table 25 illustrates the resources used to complete the written activities as well as how many participants used each resource. Table 26 illustrates the resources used to complete the listening activities as well as how many participants used each resource. Following each table is a description of each resource and the way(s) in which it was used.

Table 25. Participant Resource Use during Written Apply Activities in Week 12

	<b>Activity 2</b>	<b>Activity 3</b>	<b>Activity 5</b>	<b>Total</b>
Feedback hints	3	5	3	11
No resources	3	2	1	6
Prior Knowledge	2	3	0	5
Glossary	1	1	3	5
Google Search	0	2	1	3
Vocab list	0	1	1	2
Spanishdict.com	0	1	1	2
Spanishdict.com App	1	1	0	2
Google Translate	0	0	1	1

For Week 12, the most common resources used were Feedback hints, No Resource, Prior Knowledge, and the Glossary. The feedback hints and the glossary were seldom used during Week 6. All three of the written activities in Week 12 provided extensive feedback to the participants, plus the participants were allotted three attempts. After guessing on each response, one participant said, “I’m just going to submit so I can get the answers.” Since most of the feedback provided was in English, another participant expressed gratefulness in that the feedback “tells me the answer.” For the written activities, many participants relied on the combination of feedback hints, the number of attempts, and the type of activity to receive the answers. One participant labeled this strategy as “playing the game” in which a participant submits any response for the sole purpose of getting the feedback.

For example, in Activity 5, a question stated *Mi hermana se levanta muy temprano* ‘My sister gets up very early’ and the participants were given three choices as to when this action took place—*mañana* ‘morning,’ *tarde* ‘afternoon,’ or *noche* ‘night.’ The feedback provided after the first attempt for this question read “Does my sister get up very early?” so if the participants knew the vocabulary for the three answer choices, they

did not have to reread the statement in Spanish, and many did not. On this activity, the mean number of attempts was 2.4 which was the highest number of attempts of all the vocabulary activities. In this activity, three of the participants did not read the questions, but rather clicked on any answer choice and submitted their responses. Once they had submitted them, they learned which answers were wrong. They changed these answers, submitted once again, and then corrected the answers that were wrong once more. Since they were allowed three attempts and there were three answer choices, the strategy worked in their favor.

The second most common resource used was not using any resource at all, either inside or outside MSL. Cruz and Michael tended not to use resources during the Apply activities because they wanted to see what they knew on their own without help, commenting that the number of attempts allotted gives them the opportunity to try it on their own without it affecting their score.

The third most commonly used resource was Prior Knowledge, such as guessing and predicting. Two other strategies within this category emerged during Week 12 in one participant—summarizing and graphic organizers. For Activity 2, in which participants were given a paragraph about family relationships, one participant drew a family tree to visualize the connections among family members, stating “this is confusing so I’m going to grab a piece of paper and draw a family tree.” The same participant summarized the paragraph in English as she read.

The fourth most frequently used strategy was the glossary. In Activity 2 and Activity 3, the participants located the word they needed by using the glossary; however, in Activity 5, neither participant could find the word they needed. One participant, Anna,

searched for *siesta* ‘nap’ and the other for the verb *se acuesta* ‘he/she goes to bed’; however, because *siesta* is not a vocabulary word in *Unidos* and *se acuesta* was not in the infinitive form, neither search yielded any results. Anna suggested that a training session that gives students tips such as “explaining the glossary, that it was only the vocab that’s in the book” would have helped her understand MySpanishLab and ease her frustration. In Week 6, the Glossary was rarely used.

A new resource that emerged in Week 12 was the spanishdict.com app on a smartphone which was used by one participant during two activities. In Week 6, two different participants used spanishdict.com on their desktop. Other resources that were commonly used in both Week 6 and Week 12 were Google Search, the Vocabulary List, spanishdict.com, and Google Translate

**Listening activities.** The resources used for the listening activities were like those for the written activities; however, new resources as well as new strategies as how participants used previous resources emerged. These are illustrated in Table 26.

Table 26. Participant Resource Use during Listening Apply Activities in Week 12

	<b>Activity 1</b>	<b>Activity 4</b>	<b>Total</b>
Feedback hints	7	6	13
Learner controls	5	6	13
Prior Strategy Knowledge	7	5	12
Give up	0	8	8
Vocabulary list	1	1	2
Google Translate	0	1	1
Google Search	0	1	1
spanishdict.com App	1	0	1
Google Translate Voice App	0	1	1
Glossary	0	1	1

**Feedback hints.** Feedback hints continued to be the primary resource used during the listening activities. In Activity 1, which was a multiple-choice activity with three

options (true, false, does not say), two of the seven participants who accessed the feedback employed the “playing the game” strategy where they took advantage of the number of attempts to earn scores of 100%. The other participants also “played the game” by using the feedback in English to earn 100%. None of these seven participants read the sentences or listened to the audio after the first submission, indicating that they were using either the feedback or the number of attempts to arrive at the correct answers. Interestingly, in Activity 4, in which students needed to listen to the audio and then fill in the blank with the correct family member name, relationship, or adjective, six participants accessed the feedback, but it was not what they expected. Rather than get an answer in English, as had been the case in previous activities, they discovered that the feedback for this activity was more general, such as “Who is Jorge? What is he like?” rather than provide specific clues such as “Is Jorge smart?” Feedback with such specific clues (e.g., Is Jorge smart?) prompts the participants to look for the word *smart*, which essentially converts the activity to an exercise in translation. In one case, a participant put a place marker (e.g., one letter) in each blank with the intention of using the feedback to answer the questions. Upon seeing that the feedback was not helpful, he closed the activity. The other five participants listened at least once more to the audio and attempted the questions again.

***Learner controls.*** Half of the participants slowed down the speed of the audio on the listening activities. Each listening activity begins with average speed, and users have the option to increase or decrease the speed, or to leave it as initially presented. Additionally, users can pause the audio. A few participants paused the audio to type in a word they heard.

**Give up.** On what appeared to be the most challenging listening activity, eight of the participants either did not score 100% or did not exhaust their three attempts, essentially giving up. This strategy happened with the most challenging activity during Week 6 as well, but only two participants gave up.

**Vocabulary list.** In a more challenging listening activity in which students were instructed to fill in the blanks with a word they had heard, one participant used the vocabulary list as a guide and listened for what the word he heard started with and then referred to the vocabulary list to find a match.

**Listening app.** Anna used the Google Translate Voice app on her phone to record the audio and then translate it for her. On her first attempt, she spent approximately eight minutes working with the listening activity without the app. She slowed down the speed of the audio, predicted what to listen for by reading the next question, paused, and summarized what she heard, and listened again to parts that were unclear for her. She commented that she had some difficulty with the spelling of the name *Adolfo* and on her first attempt she earned 63%. In addition to misspelling *Adolfo*, she missed other questions because of errors in number/gender agreement. Before listening to the recording once again, she took out her phone and said, “I’m going to cheat a little bit and listen to the app because I’m really confused on how to spell some of these words so we’ll see if the app can figure out some of these words.” With the use of the app, she verified the spelling of *Adolfo* and also realized that the nouns she wrote were correct, but the gender was incorrect. At that time, she referred to the name of the person and changed the gender to agree with the person. For example, she said, “oh Leonor is a girl so *abuela* ‘grandmother’.”

On her second attempt, she earned 94.4% and missed the name of one person. While she used the app on that name as well, she wrote the wrong name in the blank. By this time, she had spent 15 minutes with this activity, and she said, “I still got one wrong. I’m not sure what I got wrong. I don’t know why her name is wrong, but I’m okay with a 94%.”

**Summary.** Participants generally continued using the same resources for the listening activities in the same way as they did for the written activities, apart from a few new resources specifically for listening such as slowing down the speed and using an app that translated the audio files. Additionally, participants used feedback or attempted to use the feedback in a similar fashion as with the written activities. Participants also quit a listening activity when the feedback hints were not as helpful as expected.

#### Week 12: Challenging Activity

In Set 2, Activity 4 appeared to be a challenging activity for the participants given the mean score of 65.99 and the mean number of attempts of 1.9. In this particular fill-in-the-blank listening activity, students had to work with more than two modalities at the same time and had to deal with a high cognitive load. They were required to listen to the audio and type in an answer in the blank. Each question, had three parts and the students were provided with one of the parts and then had to listen for the other two parts. The three parts included writing (a) the name of the person being described, (b) the relationship to the speaker (mother, aunt, sister, etc.), (c) and an adjective to describe the person. The vocabulary used for this activity was not the vocabulary that the participants had learned in the VIP and the VTs a few moments prior, but rather the family member vocabulary was presented in a VIP days before and the adjectives six weeks before, thus

recycling both topics. Additionally, the participants also needed to consider the rules for the number and gender of adjectives.

With an increase in the difficulty of the activity and the demands on the participants, the data show a new trend for the participants. Both the mean score and the number of attempts were low, indicating that the participants (a) did not complete the activity, (b) did not earn 100%, or (c) did not exhaust their three attempts. These results are displayed in Table 27. Only two participants used all three of their attempts, but still did not score 100%. The remaining participants did not finish the activity, closing the program before they exhausted their attempts. Participants spent approximately 9:00 minutes in this activity and the average words spoken during this particular exercise was 153.

Table 27. Individual Scores on a Challenging Activity in Week 12

<b>Participant</b>	<b>Score</b>	<b>Attempts</b>	<b>Time</b>	<b>Words Spoken</b>
Anna	94	2	14:20	523
Alicia	94	2	9:38	430
Cruz	89	2	11:09	97
Ralph	83	2	11:04	50
Luke	80	2	6:45	3
Cassius	83	3	14:37	358
Michael	88	3	5:22	1
Kelsey	27	1	2:48	0
John	22	1	10:23	53
Jake	0	1	3:59	15
Mean Totals	65.99	1.9	9:00	153

Furthermore, Table 27 shows the variety of participant interactions within one activity. Two participants used three attempts, five used two attempts and three used one attempt. Table 26, which summarized the resource use, showed that six students accessed the feedback hints and six students accessed the learner controls such as slowing down

the speed, pausing, or moving the cursor forward and back. Five students used a strategy they had learned previously such as summarizing and predicting. For example, during the listening Cassius said the following: “So, I’m going to pause it. I’ve got a couple of ones here. Jorge is her padre and Adolfo is her hermano ‘brother’.” Then he continued to listen to another few seconds of the audio. At times, he moved the cursor on the audio bar backwards to listen again and said “oh, I just picked up on *conversadora* ‘talkative’ so I’m going go back because I feel like the name will be right before that.” When he came upon a word that he heard, but did not know it, he used the vocabulary list in the back of the Classroom Manual to find a similar word that starts with the sounds he heard. Google Translate, Google Search, and the glossary were used once by different students to verify the spelling and accent mark placement. Anna used the Google Translate Voice app to aid in her comprehension of the spoken language as mentioned earlier. Participants took slightly different paths and used a variety of resources; however, eight of the ten students gave up before earning 100% or using their three attempts. The next section presents the four main challenges that the participants encountered which, in many cases, may have been the reason for quitting this activity: assessment of names, lack of specific feedback, difficulty with audio control bar, and the amount of work assigned that day.

**Assessment of the Spelling of Spanish Names.** Alicia and Anna both earned 94% with two attempts on Activity 4. Alicia used learning strategies that she had learned prior to Week 12, such as predicting what she was going to hear and summarizing after listening to a portion of the audio as well as Google Search to verify spelling of adjectives. Anna also focused on using prior learning strategies, but she also used the vocabulary list to verify the translations of a few words, slowed down the speed of the

audio, and used the Google Translate Listening app. Both missed a question in which the correct response was the name of a person. Alicia misspelled the name Esther, while Anna actually missed the same question but because she wrote a completely different name (Carolina) in the blank, but did not recognize her error. Alicia recognized that her only error was the misspelling of Esther, but she did not know how to spell it as she stated during her recording: “I just can’t get this name right. I tried several names and I just cannot get it right. I’m not even going to bother with that one.” When viewing her recording during ISR #2, Alicia mentioned:

I really don’t know because I didn’t know that [Esther] was a Spanish name, first of all. I haven’t seen that name before. It’s not a common one, like Pedro. I felt like that was a weird question, actually, because it was more like, ‘Do you know how to spell this random name?’

Alicia was not the only participant with the same spelling error. In fact, seven of the participants also incorrectly spelled Esther. Only one participant, Michael, spelled it correctly, while Anna put a different name and Jake left it blank. The issue of assessing the spelling of the name which was unfamiliar was mentioned by five of the participants. During the recording, these four participants became somewhat frustrated with not knowing the correct way to spell Esther since they had never heard it before and not knowing where or how to find the correct spelling. Cruz said, “I still don’t know how to spell Esther.” Alicia said, “I’m not even going to bother with that one. I just cannot get it right.” Cassius commented, “All right. I am so done with this. I don’t know. Good enough.” Ralph expressed surprise at the fact that his answer was “partially correct for spelling a name I’ve never heard of before.” On Ralph’s second attempt, he pulled at his hair in frustration, said, “I’m so done with this. I’m done. I don’t care” and closed the activity. While Michael did not specifically mention the problem with Esther since he got

the answer correct, he did discuss the format of the listening activities in MySpanishLab and a possible reason as to why students tend to be frustrated with them:

The problem with the listening activities is that they're not having you comprehend the overall message. They're having you listen for very specific things. With the listening, you have to be exact and that doesn't seem to be helpful because if I'm in Mexico, I'm listening for the general idea. I'm not trying to say 'Oh, what did you say? You said *tienes* 'you have' rather than *tiene* 'he has.' (Michael, ISR #2)

These comments were further expanded upon during ISR #2. Cruz said that he was not sure where to find the name Esther since it was a name and not a vocabulary word. Interestingly, Cruz also had trouble with the name Andrés as he forgot the accent, but did a Google search for "Andres" and saw that it had an accent. He did not do the search for Esther because he had no idea what the name was to begin to do the search. He wrote *esere* for Esther in the activity. Anna, who actually wrote a different name altogether, commented that the hardest part for her was spelling the names "because I've never seen that name before. I just kept guessing." Ralph, who acknowledged his own lack of patience with the listening activities stated that sometimes the listening activities do not really help him and he was not learning anything because his goal was to just "get a good grade." When I showed Ralph this activity during the ISR, he exclaimed, "Oh my God. I hate that, spelling the names wrong. I can't understand what the guy's saying and it's pissing me off." Ralph further expressed his frustration stating that even if there was another place to find the names, he would not look for it because "when is that going to ever come back on a test?" The participants were clearly upset that they were being assessed on information that they had never seen before and could not use their resources to find the answer. The other names that caused problems for the students was Adolfo and Andrés.

**Difficulty Using Audio Control Bar.** The participants utilized the controls of the audio by pausing, moving the cursor forward and backwards in the audio file, and slowing down the speed. Five participants slowed down the speed of the audio file and all of them paused the audio at least once. Some successfully moved the cursor to a new location in the file, but three participants were unable to do so.

Cruz, Luke, and Michael expressed difficulty and frustration with using the audio control bar on the listening activities in general, but specifically for this listening activity since the audio lasted over two minutes. They all mentioned that they could not slide the cursor to a specific location on the control bar because the bar was too small. Michael suggested that each sentence should have its own audio file which would make listening more accessible since they are still at the beginning level. Luke also made mention of the audio files being too long for beginning language learners: “When the language is still new to you, it’s hard to remember a lot of information at once so you end up just kind of remembering the last part of everything.” Luke could move the cursor, but said that “it is a little difficult to work with especially to find where you were at.” Michael’s suggestion of creating smaller audio files could have also helped Luke. Figure 24 shows the audio control bar which is rather small so pinpointing the exact moment that a user wants to hear again is difficult. Michael and Luke did not listen to the audio file after their first attempt.

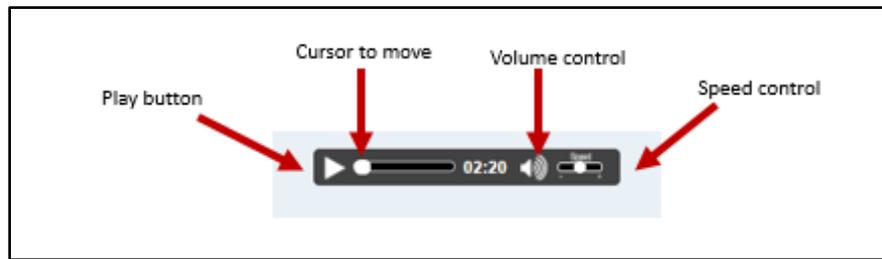


Figure 24. Audio control bar

Cruz also had trouble with the audio control bar and could not move his cursor at all. While this was frustrating for him as he had to listen to an entire audio file repeatedly, up to 17 times on one listening activity, he turned this setback into a new strategy. He started to read the questions ahead of time and then listened for that specific information.

**Lack of Specific Feedback.** Six students accessed the feedback, but most were surprised to find the hints to be more general rather than the specific hints that they had typically been given in previous activities. The feedback provided for this activity was the similar for each part of the question. Recall that of the three parts, the students were provided with one part of the answer so for the question in which they were given the name, the feedback read: Listen again. Who is Carolina and what is she like? When they were given the adjective for example, the feedback read: Listen again. Who is a hard worker?

Anna, Cassius, and John accessed the feedback looking for help to complete the activity. Anna began the activity by slowing down the speed on the audio, listened, paused, summarized, and then wrote in a response, but she was not certain about some of her answers. Prior to submitting her first attempt to be graded, she said, “So, I still didn’t all of them, but I’m still going to hit submit and hopefully their hints will give me the answer.” She was surprised that the hints were so general; however, and then took out her

smartphone to use the Google Translate voice recognition app and said, “I’m going to cheat a little bit and listen to the app because I’m really confused on how to spell some of these words so we’ll see if the app can figure out some of these words.” The app helped her spell Adolfo and Andrés, and helped her figure out the relationships and descriptions. On her second attempt, she got all the questions correct except the one for Esther, where she wrote in the name Carolina instead.

Cassius was also disappointed that the feedback was so general. Cassius was very good at “playing the game” as described in how he completed the challenging activity in Week 6 so he was expecting the feedback to get him through this activity. When he saw that the feedback was not helpful, he played the audio again and listened for specific details. For example, he said, “All right. So, I’m going to go to the top one again and I’m trying to find out who Antonia is” and his comment from earlier “oh, I just picked up on *conservadora* ‘conservative’ (which was the provided part of the answer) so I’m going to go back because I feel like the name will be right before that. Before he submitted his second attempt, he said, “I’m really trying to do the best I can on this, but I’m just confused.” He could correct most of his errors, but still had two names misspelled (Adolfo and Esther, which he spelled Aldolfo and Ester) along with an incorrect relationship and an incorrect description.

John, who scored 22% on this activity, typed in a few answers and then typed in any letter so he could get feedback after submitting, saying: “I’m just trying to look for feedback basically.” In the ISR, he expanded upon his behavior as follows:

It won’t let you submit unless you fill in everything, so I just kind of put in random words to do it. And then I thought I might as well try again because zero doesn’t

look good on there. And then I got like three I think out of all of them. (John, ISR #2)

Unfortunately, for John, the feedback was too general to give him any guidance, and he closed the activity after his first attempt saying, “I can’t understand him at all. I have no idea. I’m not even going to attempt it again. I won’t get it. That was rough.”

During ISR #2, he again expands upon his lack of comprehension in this activity.

I mean, like, they started off with nothing to do with Jorge. Then you hear little Jorge and then oh crap, you know, here it is. That’s why I’m always clicking back in the thing because I’m trying to get to that part. It’s just like when they do throw in Jorge, it’s like ten words and then there is a relationship, and then there is like another one how he is. Yeah. (John, ISR #2)

Unlike Anna, Cassius, and John, Cruz found the feedback to be helpful and used it to change the gender of his adjectives. For the name, Leonor, which was provided for the students, he said, “I didn’t know if Leonor was a woman or a man, but then the hint was like, ‘what is she like’” and that prompted him to change gender of the adjective from masculine to feminine.

**Overwhelmed.** The final theme that emerged from interactions during this challenging listening activity was being overwhelmed and tired, which may have prompted some students to quit the activity before earning 100% or exhausting their three attempts. Prior to this listening activity, the participants took their Spanish chapter exam in the late afternoon. Then, they worked through the first set of assignments (one VIP, three VTs, three Apply activities) and the part of the second set of assignments (one VIP, three VTs), and still had one Apply activity remaining. Kelsey, John, and Jake only attempted this activity one time. Jake attempted the activity, but never submitted the activity. The reasons for only one attempt varied among these participants. For Jake, he was running low on time. He returned home late from playing basketball and remember

that he had to do MySpanishLab work before the 11:59pm deadline. During this particular activity, he commented, “God, this is long” and then closed the activity stating, “I have no idea. I’m not doing this.” Although, he stated that he did not understand the activity, of the 16 answers that he filled in, 15 were correct; however, he knew that this activity would have taken more time than what he had so he closed the activity and moved on to the next one. Kelsey had the time, but “did not want to do it.” She knew that the activity entailed “stopping and listening sentence by sentence and looking through vocab lists” but that “was not something that I [she] wanted to do that night” after taking a chapter exam. She further commented that she “couldn’t justify doing it for what I [she] was going to get out of it.” She also assumed that the feedback “wouldn’t give me [her] the answers” and therefore would require more effort than she wanted to exert. Kelsey said that she had “put this class on the backburner as it got harder.” For Jake, he did not have the time and for Kelsey, she did not want to spend the time on the activity.

John’s situation was slightly different from that of both Jake and Kelsey. John was overwhelmed with trying to understand the language. He said, “I can’t understand. I have no idea. I’m not even going to attempt it again.” John actually started the activity and then about two minutes in, he saved the activity commenting that he was frustrating and needed to give the activity a rest. He returned to the activity, but again struggled with the spoken language. After he submitted his first attempt, he accessed the feedback, but commented that “it was all the same” meaning that the feedback was not specific enough to help him answer the questions and he would have to listen again, which he decided against. During the ISR, he said “I get so frustrated to the point where I just want to be like, ‘Yep, let’s give it a rest.’”

John's frustration may have also stemmed from the amount of work that he had to do that day as it did for Ralph. Ralph tried the activity twice, but became flustered on his second attempt, pulled his hair, and then closed the activity. During the ISR #2 he said that he "was just tired that day" because he had his "Spanish test and my other class had an exam and I had MySpanishLab homework and a Spanish quiz after. I'm just completely brain dead. I just want to relax and calm down for a bit."

**Summary of Challenging Activity, Week 12.** The audio for this activity was over two minutes long and there were 18 blanks that needed to be filled in. Although the answers for the blanks were not necessarily difficult as the participants had already practiced the vocabulary for names and descriptions of family during face-to-face time, the activity itself may have been overwhelming even before they began the activity due to the length of the audio, the combination of listening and writing in a single activity, and the amount of work they had prior to this activity. Once the participants started the activity, their frustration grew with their inability to figure out the spelling of Spanish names, the lack of specific feedback, and the difficulty of using the audio control bar to locate specific information in the audio file. The implications drawn from this activity are discussed in Chapter 6.

#### Week 12: Summary of Apply Activities

The mean score for the Apply activities in Week 12 was 92.9%. For the written activities, the participants tended to either earn 100% or exhaust their attempts in trying to do so. For the listening activities, the participants' average score was 83%, and on the second listening activity, many neither earned 100% nor exhausted their attempts. The types of resources participants used to earn 100% was also varied. The most common

resources used for the written activities were feedback hints, prior learning strategy, and the glossary. Additionally, many participants did not require the use of any resources to complete the written activities. For the listening activities, the most common resources used were feedback hints, slowing down the speed, and using a prior learning strategy.

Summary: Vocabulary Apply Activities.

This section detailed the scores, attempts and resource use by participants during Week 6 and Week 12. The mean score from Week 6 to Week 12 decreased from 97.7% to 92.9%. This decrease could be due to the increase in the level of difficulty of the activities, the addition of two listening activities, or possibly because the material assessed in Week 12 was information learned four days prior and not immediately before the activities, as is the case with other lessons.

During Week 6, most participants did not need to use any resource to complete the written activities; however, during Week 12, the most common resources used for both the written and listening activities were the feedback hints. This may be due in part to the activities during Week 6 being easier in terms of content and/or type (multiple choice vs. fill-in-the-blank and/or written vs. listening). Between Week 6 and Week 12, the students had the opportunity to complete 15 Vocabulary Apply activities which may have also contributed to their discovery of the feedback hints.

Table 28 presents the descriptive statistics for the challenging activities from Weeks 6 and 12. The mean number of attempts was the same and the time on task was similar, however, the score and the number of words spoken were quite different. The mean score for the challenging activity in Week 6 was 90 and the average number of words spoken was 415, whereas the mean score for the challenging activity in Week 6

was 65.99 and the mean number of words spoken was 153. A handful of factors can be attributed to the wide gap among the mean scores including the type of activity (written vs. listening), the number and types of modalities within the activity, the amount of work (beginning of the semester vs. end of the semester), the difficulty of the material, or the amount of thinking aloud. Recall that, the Pearson Correlation Coefficient indicated a positive correlation with a moderate tendency for higher scores to be accompanied with a greater number of words spoken on challenging activities. The participants spoke more during the Week 6 activity and earned a higher score while they spoke less during the Week 12 activity and earned a lower score. If the activities were either both written or both listening activities, the comparison could be more justified; however, due to the nature of the listening activity and the fact that the participants were already dealing with two modalities, (listening and writing) speaking may not have been an option for them. In fact, two participants apologized during two separate listening activities because they were not talking as much as they were devoting their attention to listening.

In sum, the way in which participants earned their scores and the resources they used varied considerably across participants. Some relied on prior knowledge of strategies while others discovered new resources via their peers or trial and error.

Table 28. Summary of Challenging Activities, Week 6 and Week 12

	<b>Week 6</b>	<b>Week 12</b>
Mean Score	90.75%	65.99%
Words Spoken	415	153
Number of attempts	1.9	1.9
Time	8:20	9:00

### Online Vocabulary Component Interactions

The sections summarize the principle themes that emerged from the VIPs, the VTs, and the Apply activities. Students did not spend considerable time or effort working with the materials in the initial discovery phase of learning for a variety of reasons. Although research has shown that students work through the material as quickly as possible to finish, the participants' interactions in combination with their comments have provided evidence as to underlying causes for the perceived rushing through the materials. The data collection procedures allowed for the examination of both the process of learning and the product. The data have shown that the process behind earning 100% on an Apply activity and receiving a green checkmark on the VIPs and the VTs is diverse in both strategy and knowledge gained.

**Value.** Publishers and designers create software to work in a certain way, but as demonstrated by the participants' actions in this study, users often manipulate software to fit their needs. In general, based on participants' behavior and comments, they were not sure of the purpose of the VIPs, which could have lowered their perceptions of the value of the VIPs and therefore, how (and how much) they would interact (or not) with the VIPs. Cassius commented that "I don't think the work outside of class is necessarily treated as if it's part of the class. I think it's treated as just extra work you have to do." His comment maintains that (a) the online work in this flipped course is the same as traditional homework, which it is not, and (b) he doesn't place much value in it since he does not see the connection with face-to-face time.

Additionally, the layout and design of the VIPs discouraged some participants from exploring them. Participants understood the purpose of the VTs, and their perceived

value seemed to be higher based on their understanding of the VTs, their interactions with them, and their comments.

On one hand, the VIPs and the VTs were not graded for completion because the purpose of both activities is to allow the students to study the material to develop and build a repertoire of skills. On the other hand, because the VIPs and the VTs were not graded for completion, the participants could have perceived them as having a low value as they still view outside-of-class work as a set of homework problems that result in a grade. If an activity is not graded, then it must not be important, demonstrating a weakness in their understanding of the design behind flipped learning—that the activities are designed to assist them in developing and building a repertoire of skills and should not be considered to be equivalent to simply completing a set of homework problems.

Regarding the Apply activities, the participants spent considerable time working with the activities and most of the time either used up all their attempts to achieve their goal of getting the highest score possible. For the participants, it appeared that the purpose of the Apply activities was to earn the highest score possible. Even on the most challenging activities, most of the participants attempted the activity at least twice to improve their score. John, who did not do well on the Apply activities in comparison to his peers in the study, returned to the challenging listening activity during Week 12 to give it another try to improve his score. Cruz mentioned that he always tried to “get 100 even though it really doesn’t matter. Pretty much if you get a 60 or 75, it will still say you passed, but I’m going to try to get 100 so I can try to better myself a bit.” Not all the participants viewed the Apply activity in the same way as Cruz. Many valued the points rather than the activity. Anna often exclaimed, “yep, I did it again, 100%” after earning a

perfect score and would often use outside resources to get 100% stating, “I don’t want to get it wrong, so I’ll look it up.” Other participants, like Cassius, and Jake, also wanted 100%, but rather than look it up elsewhere, they used the feedback hints or the combination of the number of attempts and the number of possible answer choices as Cassius commented: “So essentially I am just typing in answers at this point because I don’t know and I really don’t care to look,” but he still wanted 100%. Ralph also commented that he always tried “again until I get 100%” but like other participants, he was frustrated that he had to look up information outside of MSL, such as the origins of the famous people in the challenging activity in Week 6. Kelsey’s goal was also to earn 100%, but not necessarily to learn the information, as she often copied and pasted the question into Google because “it makes it go faster.”

In the challenging activity in Week 12, the majority of the participants gave up before earning 100% or exhausting their attempts. The majority also misspelled Hispanic names and five of the participants were frustrated by the fact that they were being assessed on an unfamiliar topic, essentially questioning the purpose of the activity and listening activities in general.

In sum, it appeared that when the participants understood the purpose of the activity, they may have attributed more value to it, therefore working with it more (the VTs) or trying it multiple times (Apply activities) to get the high score. Additionally, they developed strategies when working with the VTs and the Apply activities. Participants did not understand the purpose of the VIPs and did not know how to work with it, even after a brief explanation.

**Discovery.** The theme of discovery was evident in all the online components as participants learned about the location of the VIPs in relation to other online material, about the variety of activities in each tutorial, and the feedback hints and other resources available to help with the Apply activities. Some discoveries were made by the participants on their own, while others were pointed out during the focus groups or the ISR. In general, however, the participants took a linear path to complete their work, rarely straying from a single path: go to the assignment calendar to click on an activity, complete the activity, close the activity, and then return to the assignment calendar to click on the next activity.

During the ISR, most participants explored the VIPs for the first time, and even though certain features were pointed out, many participants had already developed a routine to complete their work, which did not involve viewing the VIPs. In regard to the VTs, although participants understood that their purpose was to reinforce vocabulary, many were not aware of the different opportunities offered to practice vocabulary because they did not explore the program. They opened it, clicked through, and when the tutorial no longer showed a new vocabulary word, they closed. Had they students explored the tutorial further, most likely, they would have noticed that the tutorial window was not maximized.

While completing the Apply activities, students used resources outside of MSL, but rarely explored the resources readily available to them inside the program, except for the vocabulary list and feedback hints. In Week 12, participants accessed the feedback hints more often and expected that the hints give them the answer. When the hints were not as helpful as they expected, the participants often quit the activity as shown in the

challenging activity in Week 12. Other participants discovered outside resources such as spanishdict.com (desktop and mobile versions) and Google Translate with voice recognition.

In sum, from the several opportunities of discovery during the study, the participants took the resources and strategies that worked for them and put them into practice.

**Overwhelmed.** Some participants may have been overwhelmed with not knowing how to approach the activities as well as the number of activities assigned. For the VIPs, for example, students did not know what to do with them or what they were supposed to learn from them. Consequently, rather than explore the different parts of an assignment, they closed it. Likewise, the participants also seemed to be overwhelmed by the listening Apply activities. There were numerous instances in which a participant quit the activity prior to exhausting the three permitted attempts. During the recordings, it was evident that the participants were unsure how to manage the listening activities. When the feedback hints did not help, many quit the activity because they did not know how else to make the listening more manageable.

While the assignments in Week 6 were consistent in both the material presented and the amount of work expected, the assignments in Week 12 were inconsistent regarding both quantity and content. During Week 12, the number of assignments (double the usual number) may have overwhelmed and fatigued the participants. The information presented in the VIPs and the VTs was not reinforced in the Apply activities which was a design flaw in *Unidos* and the assessment of Hispanic names frustrated many participants.

**Change.** One aspect of this study was to see what changes, if any, students made after learning new strategies on their own, from their peers, or from me. After gaining insights from their peers and from the ISRs with the researcher, the participants' interaction with the VIP and the VTs increased from Week 6 to Week 12; however, the change was minimal. In regard to the VIP, it appeared that (a) low perceived value and (b) overall design may have played a role in the amount of limited interaction. For the VTs, the initial amount of limited interaction was due to their not knowing about the number of activities in each tutorial; however, during Week 12, the participants failed to complete the assigned number of activities due to (a) viewing the VTs as a needs-based activity or (b) being turned away by the tutorial design. Regarding the Apply activities, participants accessed the feedback hints within the activity more so than the first recording.

**Design.** The last theme that emerged from the online components was the design of the platform. The participants did not particularly like the design of the VIP because it contained a lot of information in one place and they did not know how to approach it. The design of the VT was displeasing because of the inconsistent presentation, ambiguous images, and not enough learner control. The small size of the audio control bar and the inability to position the cursor at a specific location on the listening activities caused concern for some participants.

Chapter Four answered research questions one, two, and three by presenting the participants' interactions and comments as they worked through the online components. Additionally, the chapter focused on changes that participants made between Week 6 and Week 12 and from where those changes originated. Throughout the chapter, the

participants' voices are key in understanding their interactions. Next, Chapter 5 takes an in-depth look at three focal participants as they worked with the online components.

## CHAPTER 5

### Qualitative Case Study Analyses

Chapter 4 presented the overall findings and comments regarding how the participants, as a group, worked through the online vocabulary components. In this chapter, case studies of three participants are explored in detail. The purpose of these case studies is to identify the challenges the participants faced, how they overcame those challenges, and what influenced any changes in their online behavior. The case studies answer RQs #2 and #3 which ask, *What insights about learning in an online context emerge from discussions with peers?* (RQ #2) and *What insights about learning in an online context emerge from conversations in which learners view and talk about video clips of their online activity?* (RQ #3). The purpose of the focus groups was for students to share ideas, strategies, and resources with one another with the expectation that the new knowledge might be used in the subsequent recorded think-aloud sessions (RTAs). Likewise, the purpose of the Individual Session with the Researcher (ISR) was for each participant to view video excerpts of their individual recordings and reflect on their interactions and consider changes for the subsequent recording. This chapter draws on examples from the RTAs, as well as from ideas that were brought up in the focus groups and the ISRs.

The ten participants in this study had diverse interactions with the online vocabulary components, but their approaches to learning in an online environment could be categorized into three ways: (a) exploratory browsers (Alicia, Anna, Michael, Kelsey); (b) linear browsers (Cruz, Luke, Jake); and (c) chaotic browsers (John, Ralph,

Cassius). The researcher decided to choose one case from each category that embodied different, yet some similar, challenges to learning in a flipped language course. The exploratory browsers had strong metacognitive skills prior to enrolling in their Spanish class, which helped them handle the complexity of learning in an online environment with an abundance of materials. The linear browsers did not have many metacognitive skills at the beginning of the course; however, through guidance, reflection, and explicit instruction, they developed metacognitive skills and often changed their approach to learning. The chaotic browsers often lacked metacognitive skills as well as information literacy skills and in one case digital literacy skills. The chaotic browsers were unable to change their approach to learning as the material became more difficult due to their lack of skills coming into the course and the lack of training available for them. By the end of the study, the exploratory browsers were nearing autonomy in their learning as they were making appropriate decision regarding their learning while the linear browsers were still in the testing and reconciling phase of developing autonomy to determine the best approach for their learning. The chaotic browsers needed training in metacognitive skill development and information and digital literacy skills.

Each case study narrative begins with a description of the participant which in turn helps explain why that participant was chosen to represent a specific category. Then the challenges that the participant faced are explained followed by a description of how the participant overcame those challenges. Case Study #1 depicts a learner with an exploratory browsing pattern who developed new strategies from trial and error. Case Study #2 presents a learner with a linear browsing pattern who wanted to do well in the course, but needed explicit support along the way which he gained from his peers and the

conversations during the ISR. Toward the end of the semester, he developed new strategies and recognized the need to modify his approach to learning Spanish. The last case study depicts a learner with a chaotic browsing pattern who, despite support from his peers and conversations about his online activity, was unable to modify his online behavior to improve his performance in the course.

### **Case Study #1: Anna—An Exploratory Browser**

The first case study to be presented in this chapter is Anna, an 18-year-old first-year student majoring in Biochemistry. Anna was selected for this case study from the group of participants categorized as exploratory browsers, meaning that, for the most part, she was able to take advantage of her metacognitive skills to handle the demands of an online environment. This group of participants also had the highest mean score on the Apply activities that were included in this study and the lowest number of attempts, meaning they completed the activities well, typically on the first or second try, by using the information they learned from the initial discovery phase of learning and their resources. She studied Spanish in high school for two years. According to the College of Liberal Arts and Sciences, in which her B.S. degree will be conferred, Anna will need to complete four semesters of a foreign language. However, she was under the impression that Spanish was not a requirement for her and it was “something, I guess, like for fun.” At first, Anna did not grasp the concept of flipped learning, but during the study, she developed an understanding of flipped learning which she not only verbalized, but also demonstrated through her interactions with the online components.

According to the Reinders’ Learner Autonomy Model (2010), identifying strengths and weaknesses is one of the first steps to becoming an autonomous learner.

Anna stated that her strengths in Spanish were reading and writing and her weaknesses were speaking and listening. Although she identified listening activities as her biggest weakness, her demonstrated strength throughout the data collection period was her awareness of this weakness and adjustments she made to overcome it, which according to the Reinders model is another phase in the process.

Anna’s case study begins by discussing three themes that represent the way she worked online in this flipped learning setting: (a) amount of time spent in the initial discovery phase of learning; (b) her understanding of flipped learning; (c) her autonomous learning process. The first two themes are discussed first and are followed by excerpts from a listening activity to demonstrate her autonomous learning process, as well as the challenges she faced and how she overcame them (see Figure 25). All themes are supported with her comments from her RTAs, the focus groups, and the ISRs.

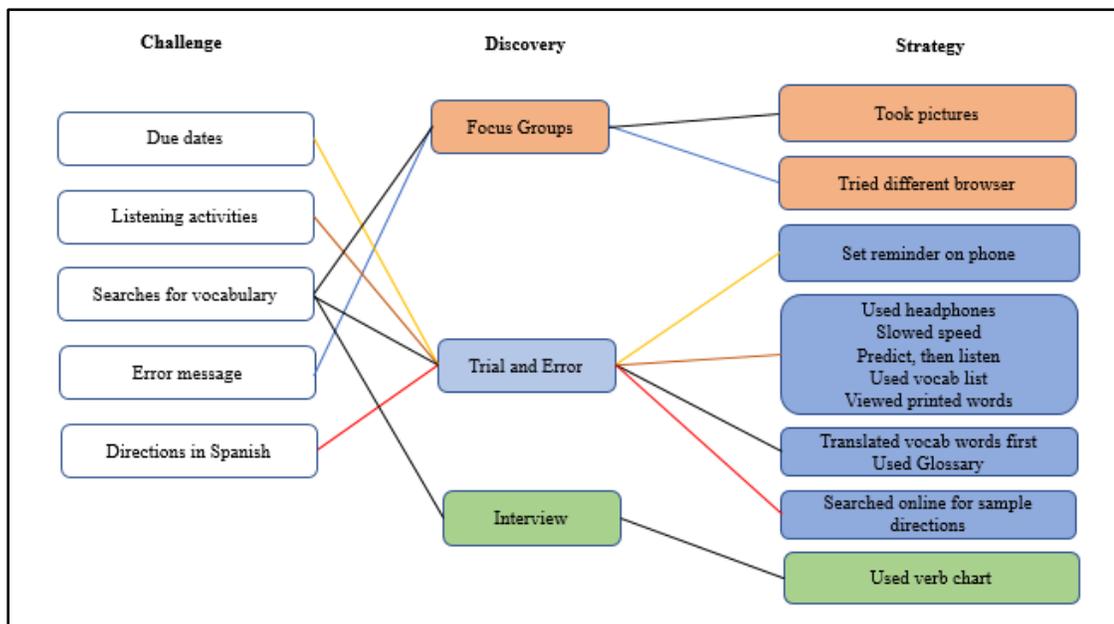


Figure 25. Anna’s challenges, discovery methods, and strategies

### Time Spent with Initial Discovery Phase of Learning

Anna understood the importance of making a connection between a particular online activity and the desired learning outcome; of all the participants in the study, Anna spent the most time working with the online assignments. Her first recorded session lasted 33:51 and her second lasted 1:03:50. Over the course of the semester, she divided her time almost equally between the initial discovery phase of learning and the Apply activities, as shown in Table 29. The table shows that Anna spent 49.4% of her online time studying the new material by working with the tutorials, and she spent 50.6% of her time applying her knowledge in the Apply activities. In addition to spending the most time working online, Anna also had the highest mean score with the fewest attempts on the Apply activities. The initial discovery phase of learning includes only the time Anna spent working with the Vocabulary Tutorials because, due to a technical error in the software that showed up on her screen as an error message, Anna could not view the VIPs.

Table 29. Time (in minutes) Anna Spent on Online Components

	Week 6 minutes	Week 6 %	Week 12 minutes	Week 12 %	<b>Semester Mean</b>
Initial discovery phase of learning	1155	57%	1603	42%	<b>49.4%</b>
Apply activities	876	43%	2227	58%	<b>50.6%</b>
Total	2031	100	3830	100	<b>100</b>

Thinking about the value of the activity is the first step in training learners how to develop their metacognitive skills (Zimmerman, 1994). Although many participants in the study tended to skip or rush through the initial discovery phase of learning, Anna

discovered—and acknowledged—that the tutorials helped her learn the vocabulary words before she would use them in the practice activities: “I think it [the tutorial] helps you learn the words. I like how it speaks the word and then you have to try finding it. It’s helpful to listen to the word and then find it.” This comment shows she understood the pedagogical purpose of the tutorial. Anna recognized that her classmates did not grasp the principles that underlie flipped learning and did not understand the value of the tutorials, commenting that “seriously, because a lot of people just skipped through MySpanishLab and they don’t really think about what you’re supposed to be learning.” During Focus Group #1, Anna’s group members mentioned that their goal was to complete their MySpanishLab (MSL) homework as quickly as possible, whereas Anna’s reported goal was “to get an A” in the course. While her classmates’ behaviors coincide with previous studies, which found that students want to finish homework quickly (Collentine, 2000; Fisher, 2012; Fouh, 2014; Hwu, 2007; Weinberg, 2007), Anna saw the value of the instructional materials toward increasing her repertoire of language skills and, therefore, she thoroughly completed the tutorials. Anna’s discovery and acknowledgement about the value of the tutorials impacted the development of her metacognitive skills.

Anna’s comments in her focus group discussions were often overshadowed by those of her group members, as Anna did not say much during the group session. In Focus Group #1, she had 18 turns while the other members had 28 and 42 turns, respectively. Additionally, five of her turns were brief comments, such as “yeah” or “I do too” or “that’s true.” It was evident from her comments during the ISRs #1 and #2 that she understood the concept of flipped learning and how preparation online affects learning, but she did not voice her opinions. Her two group members did not take the

class as seriously as Anna did. On one hand, by choosing not to express her understandings, she may have been saving her own face so she did not appear as a know it all. On the other hand, she may not have wanted to hurt the egos of her classmates. In the ISR #2, Anna commented that although it was helpful to talk with classmates about MSL, she would not use many of the strategies they suggested.

#### The Error Message

Due to design flaws and a lack of training, students may demonstrate unproductive involvement in the course. Throughout the semester, Anna received an error message every time she attempted to open a VIP. During her RTAs, she clicked on the presentations and then said, “this doesn’t work so we just skip it” assuming that the other students in the class also could not view the VIPs. At first, Anna really did not understand that she was actually missing integral material that she should learn, which is consistent in the results found in Ducate and Lomicka’s (2009) study of students failing to download required podcasts.

Often, peers can scaffold each other in a particular area. Even though Anna’s group members did not make the connection between the online work and skill building and they often skipped the VIPs, one member seemed to have more technical expertise and experience than Anna. When Anna mentioned that her VIPs did not open, someone suggested that Anna switch from using a Safari browser to a Chrome browser since that had worked for this member previously. Unfortunately, the switch did not solve Anna’s problem, and she continued to receive an error message, but the point is that this group member may have contributed to Anna’s understanding of MSL by telling her that they do in fact work, even though this member did not utilize them. This may have prompted

Anna to think even more critically about her own actions and therefore realizing that she needed to put in adequate time with the tutorials to compensate for information she was missing.

During ISR #2 of the study, which coincided with the last week of class, Anna commented that she still could not view the VIPs. At that time, I reached out to the publisher on Anna's behalf and after a brief email exchange, the issue was resolved and Anna could view the VIPs. At the end of the study, Anna commented that meeting with me during the ISR and talking about the different parts of MSL, "helped [her] learn what [she] was actually supposed to do like some parts of MySpanishLab that [she] didn't know about." Students in the Spanish program are provided with contact information should they encounter any technical issue with MSL and, in addition, they can ask their TA or the staff person in the Spanish Program who deals with technical problems for help. However, at first, Anna thought that the VIPs did not work for anyone. After discovering that other students could view the VIPs, she thought the problem was occurring because she had purchased the wrong access code. She believed that her access problem was in some way her fault, and for that reason she did not seek outside help to access the VIPs. This was a flaw within the MSL platform that had an easy fix; however, the TA did not know about the error since Anna did not tell her. A hands-on training session in which the TA shows the students the VIP may have prompted Anna to pose a question to her TA about the error message, therefore, leading Anna to discover a solution to her problem sooner.

In the email exchange with the publisher, the representative would not offer Anna a refund because missing the VIPs did not affect her grade in the course or cause her to

retake the course. For an exploratory learner like Anna, missing the information from the VIP did not affect her overall understanding of the material because she knew that the Vocabulary Tutorials (VT) also presented the vocabulary words. However, had this been a chaotic learner or even a linear learner who could not access the VIPs and did not know about the multiple activities in the VTs, the outcome may have been different. Due to Anna's metacognitive and study skills upon entering the Spanish course, she knew that she could get the input from another source and did just that; however, not without some misunderstandings along the way which are described next.

#### The Pictures in MySpanishLab

The *Unidos* approach of presenting new vocabulary is via images, audio, and words in context rather than through word lists with English translations. The issue that emerged among many of the participants was not with the *Unidos* approach, but rather with the ambiguity of the images presented in the VIPs and the Tutorials. Many times, the image was simply not a good match for the word it was meant to represent. An example in Anna's recording was the verb *lavar* 'to wash'; the image was of a man attached to a harness washing the windows of a skyscraper. Since the English translation was not provided in the tutorial along with the word, Anna assumed the translation for *lavar* was 'to wipe the windows,' when in fact, the translation for *lavar* is 'to wash.' When Anna first saw this picture in the tutorial she did not say aloud what she thought was the English translation, but instead said, "these ones are always difficult because it doesn't tell you what they are in English." In the same tutorial, when she saw a picture of a man with shaving cream on his face and a razor, she said, "to shave, *afeitarse*" as the picture was not difficult to interpret. Again, in the same tutorial, she saw the image of a

man getting dressed and said, “to get dressed, *vestirse*” and then saw the picture of another man getting dressed and said, “to get dressed again. See, I wish they had the English word with this” because she assumed that she had incorrectly translated one of the two images. For the second image, the vocabulary word in Spanish was *ponerse la ropa*, which is a synonym for *vestirse*. The tutorial was providing two ways to say, “to get dressed” in Spanish; however, Anna thinking that she had incorrectly translated one of the Spanish vocabulary words, changed the translation of *vestirse* to “taking off clothes” and each time she saw the word *vestirse*, she assumed it was “taking off clothes” rather than “getting dressed.” The word *vestirse* did not appear in any of the Apply activities that day so it is uncertain as to whether his misinterpretation of the word affected her understanding.

When the English equivalent is provided, the pictures become clearer, but without the English equivalent, the participants voiced concern that they did not know what the Spanish words meant and were expected to make a conscious decision regarding the meaning of the word through the images that were not always clear. Of course, the participants could have used the glossary inside MSL or Google Translate outside MSL to find the translation, but they did not. Another method in determining the English equivalents of the Spanish vocabulary words is to use the VIPs. The vocabulary in the VIPs is presented in context, typically along with the same image that appears later in the tutorials so students who view the VIP can make the connection with the word, the image, and the context. However, as explained in Chapter 4, the participants spend very little time with the VIPs and therefore have a tendency not view the images or on the vocabulary words in context.

While Anna's classmates had the choice to skim through the presentations or skip them altogether, Anna could not view them due to the technical error she received.

Nevertheless, she stated that she would have liked to have been able to view the VIPs because she believed they would have clarified some of the more ambiguous images in the Vocabulary Tutorials:

At first, I was confused with the slideshows [the tutorials] because how do you know what this picture shows? It's confusing and I have to Google it. [If I could view the Interactive Presentations first], I feel like I can look there and know what they are. I would've used it if I could've opened it. (ISR #1)

Anna's confusion with the images was a common point of concern among the other participants as well. Many times, the pictures were ambiguous even for the students who could view the pictures in the VIPs, partly due to the lack of direct correspondence between the image and the word meaning and partly because they did not look up words on their own. Because Anna could not view the vocabulary words in context nor the matching image first, the new vocabulary words presented an even bigger challenge for her. She often resorted to Google to look up the translations for the new vocabulary words.

Anna preferred to scribe the information she learned since she believed seeing the written word or examples helped her learn more easily. In response to not being able to view the VIPs, she said, "I would have probably wrote [sic] it down in my notebook and I would [have] put the meanings down and I would try [sic] that way." When viewing the VIP with her group member in Focus Group #2, she stated, "I wish I could look at these. Those would have helped me a lot" commenting on the various features of the presentations, such as the number of examples available, the pronunciation practice

provided by the audio files of words and phrases, as well as the option to print out the VIPs.

#### Understanding of MySpanishLab and Flipped Learning

Anna's thorough work ethic with the initial discovery phase of learning may have stemmed from her understanding of flipped learning and MySpanishLab, as she saw the connection between the online component and the face-to-face class sessions. Although Anna made that connection, she missed a week's worth of assignments during the first week of the semester because she "didn't know what was homework" since the TA "was not mentioning it in class." She rationalized her misunderstanding as "well, I guess you're supposed to know it or like supposed to understand this on your own." During class time Anna felt that "sometimes [she] had no idea what [was] going on in class." Anna was not alone in her confusion regarding the online work. During the second week of class, Anna said that when the TA realized that the students were not doing the work, she told the class that "yeah, you guys have to do that homework online." Anna suggested that to lessen any misunderstandings of the course structure in future semesters, the instructor "should go over what to do in MySpanishLab" during the face-to-face time. In addition to Kim, Kim, Khera and Getman's (2014) recommendation that a clear course structure be provided from the beginning to help students prepare for participation, Anna's comment suggests face-to-face training on what to do as well.

**Unspoken expectations.** Before the Spanish course starts, students in the Elementary Spanish I course are provided access to a 14-page syllabus and a 16-page course overview document. The syllabus displays the course calendar of assignments due before class and online as well as brief description of the topics covered during each class

period. The course overview explains the course structure, goals, grading, and administrative matters. The language in the course overview describes the course as a “computer-enhanced or hybrid course” and that it offers “self-pacing, immediate feedback, and ease of access.” The language in the course overview was not consistent with the actual expectations of the course. The course overview states only that technology will be used daily to “learn and practice Spanish outside the class.” On the first day of class, the TAs were required to present the “First Day PowerPoint,” a 36-slide presentation highlighting the main points of the course overview. The text on slide seven was “What does it mean by hybrid?” and slide eight showed an image of flipped learning in Figure 26.

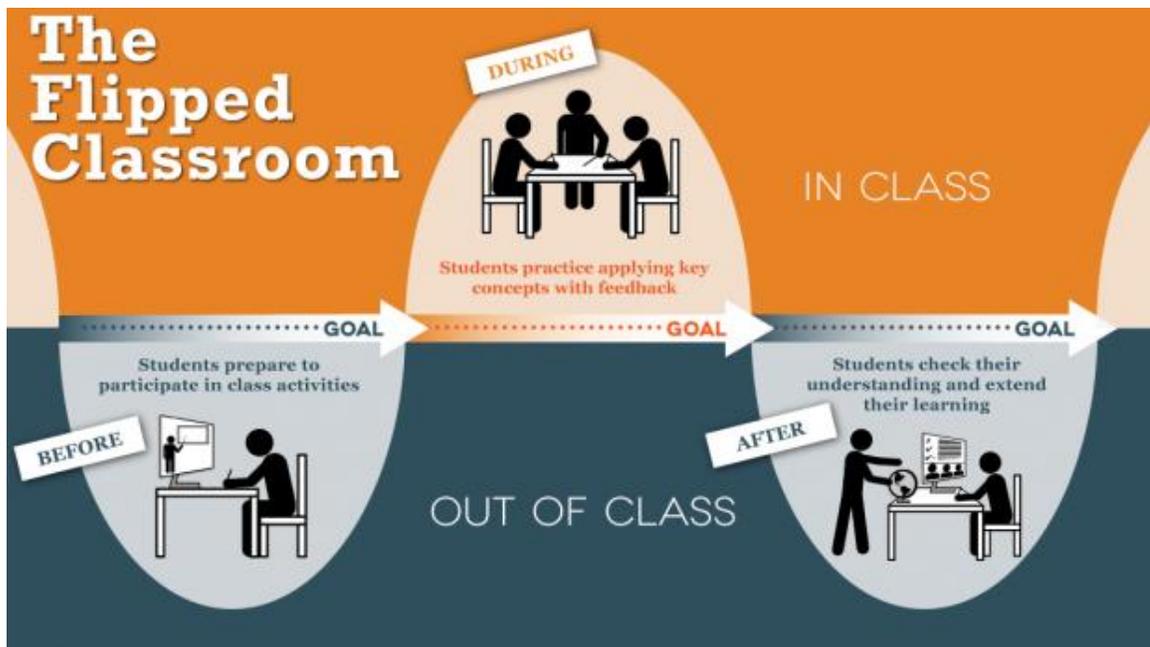


Figure 26. Flipped Learning Graphic in PowerPoint

What was actually said about flipped learning in each classroom varied among TAs since the TA orientation at the beginning of the school year did not include any sessions on flipped learning, only hybrid learning. A hybrid course combines face-to-face

learning with computer-mediated instruction and flipped learning is a type of hybrid or blended course that reverses the traditional learning environment by delivering instructional content outside of class, typically online, and reserves face-to-face time for communicative activities that logically follow from the online work. Essentially, the true course expectations were not provided to the students causing confusion and misunderstanding regarding their role in a flipped course.

A clear course structure and explanation thereof during the first week of the semester might have also made Anna's understanding of flipped learning clearer from the beginning. At the beginning of the semester, based on the information in the course overview, she assumed that the MSL work was "probably just homework online, but I wasn't sure what we were supposed to do with it." She thought it would be similar to her chemistry class, in which the online work reinforced what she had learned during the face-to-face lecture. Like many of her classmates, she did not realize that the work they were assigned online did not reinforce what they learned in class, but rather was new material that they needed to learn before coming to class. Toward the end of the semester; however, Anna described flipped learning as "basically, you learn all the information online, and then you apply what you've learned through classes." Furthermore, she understood the importance of doing the online work first, commenting that "if you don't [do the online work first], I think you are going to be lost in class" and "if you rush through the work, you don't know what to do."

Despite the lack of explanation of the course structure, Anna developed an understanding of flipped learning in which she valued the development of a repertoire of skills. Her focus group members, however, did not develop the same understanding. They

viewed the online work as a set of problems to complete, and they did not make the same connections as Anna did. One group member, who did not spend time working through the VIPs or the Tutorials, stated: “MSL doesn’t prepare you at all for this class. Class is all practice so I don’t learn anything.” For the beginning learner, the abundance of hypertext materials and user options in an online environment may create a “jungle of unknown flora and fauna “(Smith, 1991) because the students do not know how to navigate their way through “the jungle.” For some students, just the site of the “jungle” makes them avoid it because they are unsure where to enter. As Smith (1991) noted, it is important to have clear organization and devise a plan that students can follow as they desire or as the program requires. The abundance of resources and the ability to tailor learning to individuals is a benefit of flipped, blended learning, but rarely are learners provided with training on how to use and take advantage of the abundance of online resources (Hubbard, 2013) to tailor their learning and construct meaningful input. Based on comments from Anna’s group member, Anna’s classmates most likely would have benefitted from the type of training that Hubbard recommended.

Taking an exploratory path helped Anna navigate her way through the online components. Anna responded to her group members that she sometimes also felt lost during class time because she did not know how to use MSL to learn, stating, “sometimes I feel like I have no idea what is going on in class.” At the end of the semester, Anna also reflected on this statement by explaining that she did not know how to find or use the resources inside MSL, such as the verb chart and the glossary.

Some things were hard to understand, like you just had to use trial and error. You had to learn as you were going and it’s easy to miss a lot if you don’t pay

attention. It took me awhile because I didn't know how to find things or how to use things. I didn't notice it at first. (ISR #2)

In the first part of the semester, when Anna needed clarification on a specific topic, she would return to the monthly assignment calendar and then click on the day where she thought that topic was located and then scroll through the activities searching for the topic. Realizing that this was taking a lot of time, she developed a more efficient strategy. When she viewed the tutorials for the first time, she took pictures with her smartphone of the different pages in each tutorial and then referred to her phone during the activities. This way, she did not have to search through each day, but could simply scroll through the album on her phone. The idea to take pictures came from her group member, the same one who mentioned trying out a new browser. That group member took screenshots of the VIPs and tutorials and saved them to a folder on her desktop.

Over the course of the semester and as Anna's metacognitive skills developed, she took on a more exploratory approach to the online work by exploring the platform; she found tools and created new strategies to aid in her learning. Anna, a higher performing learner, had the metacognitive skills necessary to navigate the abundance of online resources fairly well.

**Planning.** Each of the four learner training models presented in the literature review in Chapter 2 place importance on the planning stage to develop autonomous learning skills. Because of her missed week of work, Anna developed a plan to avoid this situation in the future before she even logged onto MSL. Anna set aside a specific time of day to do her work so she did not miss any more work like she did during the first week. She explained her work plan this way:

I have a reminder on my phone because of the first week, and I remember I was upset. It was a bunch of them too, the culture ones. After that, I put a reminder on my phone, and it reminds me at 6:00. So, after dinner I usually come back here, and I'll finish it. (ISR #2)

Setting aside a specific time each day to work online was again a strategy that was unique to Anna, who demonstrated metacognitive skills and understood that the time outside of class was one credit hour in which she was supposed to be learning new information. For Anna, setting a regular work time may have made it feel more like class time as well. While doing the work at a specific time each day worked well for Anna, the same might not be true for other students. However, creating a work plan would be a productive strategy for all students. Knowing when or how much time they would devote to the course each day would aid them in developing their autonomy. Planning, as mentioned earlier, is typically the first stage in metacognitive development; yet five of the ten participants did not have a plan for when to do their online work and so they completed it “whenever it fit in their schedule.” Two participants tried to work online either early in the evening or do their Spanish work first, but did not have a set time. Two participants worked ahead when they had free time and one of them “knocked out all of April on a Saturday.” This strategy turned out to be helpful regarding planning his work schedule; he said that working so far ahead “didn’t hurt [him] in class and [he] didn’t notice much of a difference doing it like that.” This particular participant commented that the reason he did this was due to his frustration in regard to the inconsistent amount of homework assigned each night, suggesting that “if it [the homework] was spaced out a little bit better, it might be more helpful.”

Over the course of the semester, Anna developed a good understanding of flipped learning; however, her feelings toward flipped learning were mixed.

I sort of like that it's flipped, but then I don't because I like how she [the TA] goes over grammar that we don't get. She'll spend a little bit going over it. I wish she'd do that with everything because I think I would know about it more. (ISR #2)

Anna would have preferred more explicit explanation of certain grammatical points, but she also saw the benefit of taking what she has learned outside of class and applying it through communicative activities during face-to-face time. She further explains:

But then, realistically, we wouldn't have time to talk to each other and I think that helps a lot, too. In my high school Spanish class, we didn't really talk to each other and I think I'm picking that up a lot more now. We are actually talking it out to students, but we don't have time for both so I understand why we need to do that online like this. (ISR #2)

**Suggestions.** Wertsch (2007) noted that students learn technical skills by doing and by experiencing the model of a learner with more expertise. Anna suggested that to help other students like her group members better understand “how to find things or how to use things” in MSL, a face-to-face training session “would help a lot.” As she explains:

I would have learned it a lot better the first day, I think, if someone would have [sic] shown me, “Okay, this is what you do and then these are some tips.” It will definitely be more helpful to be exactly clear on what we're supposed to do and stuff like that. (ISR #1)

When asked if she would have preferred a tutorial online over a face-to-face explanation of how to access and use the online components, she said she would have preferred a face-to-face explanation. Anna's preference for training in a face-to-face setting is contrary to what worked with Lee's (2013) YouTube training videos, but Anna explains that because nobody watched the “videos assigned at the beginning of the year”

in her Spanish course, that nobody would have watched a MSL tutorial video either. The majority of her peers in the study commented that they preferred face-to-face over online training.

For the face-to-face training, Anna suggested macro and micro level recommendations for the course. At the macro level, she suggested that the instructor explain how MSL and the class components interact with each other and what they are expected to do for each module. At the micro level, she recommended training on how to find and use tools and features inside MSL such as the glossary, verb chart, and highlighting tools. A face-to-face training would allow students to learn by doing from more experienced technical users.

For Anna, a good course entailed making the material “useful” by discussing during face-to-face time what she and her classmates learned online; after all, the material they learned online was preparation for face-to-face time, which Anna understood. When Anna engaged with new material outside of class, but it was not covered during class time, she did not see the purpose of the activity and it may have felt more like homework or busy work to her, rather than preparation. She cited the example of the culture activities in MSL, which she described as “challenging, and not very useful because we never talk about them in class.” She said that those activities are the most time-consuming activities and she does not like to do them and actually gets upset when she sees them due to their level of difficulty. For Anna, since they are not discussed in class and are not on the tests, they do not hold a clear purpose to the course explaining that the “culture part in the exam has nothing to do with the videos.”

Once she determined that the cultural videos were not worth a grade beyond the activity, she became more interested in getting the answers and earning her A on the activity rather than learning, demonstrating an instrumental view of learning (Dörnyei, 1990) She attempted “googling the answers,” to just finish the activity and get the points; however, since the questions were specific to the video, she had to watch the videos first. Anna’s frustration with the culture activities was evident. She wanted to earn a good grade in the course, but she also preferred that the amount of time on task was valued by making the connection to it during face-to-face time and not making it feel like homework. Levine and Dean (2012) found similar results among millennial students who, they assert, are often incentivized by grades rather than by learning new material.

#### Thinking Aloud

The participants in the study were asked to think aloud as they completed their online work. Thinking aloud, or using private speech, a tenet of sociocultural theory, acts as a way to help learners internalize information that contributes to the process of becoming self-regulated learners. Of all the participants, Anna thought aloud the most during the recorded online work sessions, which may also have influenced the length of her recordings, but also aided internalizing the information. Anna read aloud all the directions for each online component and then thought aloud as she read each question. Anna had never thought aloud as she worked before and mentioned that thinking aloud was “very helpful” specifically with the directions because it gave her a better understanding of how to complete the Apply activities. Her first recording contained 1,842 spoken words and her second recording contained 3,766. The remaining participants had between 553 and 1,527 words on the first recording and between 552 and

2,471 on the second recording. Through Anna's thinking-aloud data, she was able to internalize the information she was learning as during the Apply activities she used minimal resources and relied on the information she learned during the discovery phase of learning. Additionally, Anna was the only participant who mentioned that thinking-aloud was a useful strategy when asked what was the most helpful part of taking part in this study. Anna viewed thinking aloud as part of her path to doing well in the course. As she explains:

I thought thinking out loud really helped. I was able to talk about what I was doing while I was doing; it helped me clearly see and understand how to answer the questions because I got a better understanding from reading the directions out loud, and understanding what I had to do for each part of the Apply activities. (ISR #2)

#### Autonomous Learning Process

Reinders (2010) developed a learner autonomy model that was based upon Holec's (1981) definition of learner autonomy and the skills that Little (2004) deemed necessary for language learners. The model, which is presented in Figure 27, is also discussed more in detail in Chapter 2.

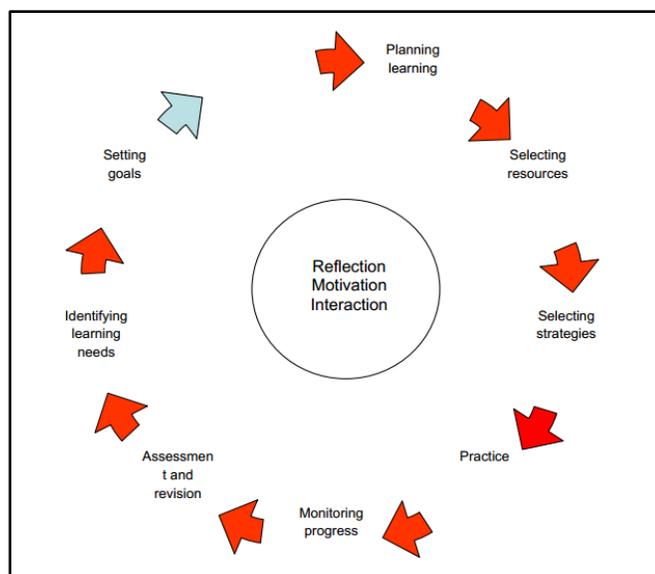


Figure 27. Reinders's Learner Autonomy Model

Excerpts 2–5, when taken, show that Anna's interactions are consistent with Reinders's autonomous learning process as she cycles through the Planning, Practice, and Assessment & Revision phases. Excerpt 2 presents the Planning phase at the beginning of a listening activity during Week 12. A coding key for the excerpts is found in Appendix L.

#### Excerpt 2. Planning Phase: Identifying Learner Needs

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1	{Opens activity}
2	<b><i>Qué hacen los parientes?</i></b> 'What are the relatives doing?' So, we already learned <i>los parientes</i> 'the relatives' which is the relatives so let's see what this one is about.
3	{Scrolls over the picture of the baby, who is wearing a white outfit, in the activity}
4	So, this will be about a baptism.
5	{Reads directions} <b>Read the statements below, and then listen to the description of the baptism of a new member of the Orjuela family.</b>
6	<b>Finally, indicate whether each statement is <i>cierto</i> 'true, <i>falso</i> 'false,' or <i>no dice</i> 'not given in the passage.'</b>

---

**Planning Phase.** This excerpt demonstrates Anna thinking aloud as well as her planning for learning, the first phase of Reinders’s model, in which she demonstrated metacognitive skills. Anna opened the activity, read the title of the activity (line 2), and remembered that she had learned the word *parientes* in the previous tutorial. Then she looked at the picture in the activity, which depicted a baby in a white outfit, and predicted that the listening activity would focus on a baptism (line 3–4). Finally, she read the directions to the activity (lines 5–6). These strategies, such as previewing the activity in search of an orientation toward its content and calling to mind what she already knows about that topic aids in her understanding of the listening activity. Anna commented that the titles tell “you what you’re learning. I like how, like when it says *career*, you know you’re going to be learning about that the whole time.” To recall, reading the directions aloud helped Anna understand how to approach the activity as she discovered the learning objective which helped in her overall comprehension of the learning task.

Although Anna did not always understand everything in Spanish, it typically did not affect her ability to complete the activity since she also used additional information from the context to help with her understanding of how to approach an activity. For example, when reading the directions (lines 7–9), in line 9, she said the words *cierto* ‘true’ and *falso* ‘false’ in Spanish, but then said the phrase “no dice” in English rather than *no dice* ‘it doesn’t say’ in Spanish to refer to something that was not given in the passage. The verb form *dice* is the third person singular of the verb *decir* ‘to say, tell.’ Although the meaning of *decir* was introduced in a previous vocabulary tutorial, Anna did not connect the verb *decir* and its meaning to the phrase *no dice* (it doesn’t say, to mean that the information is not given in the passage). In fact, in the vocabulary tutorial

that introduced *decir*, she never learned the word *decir*, but remembered the image that was presented with the verb. Upon seeing the image, she said, “*decir* is to...I can’t remember what *decir* means, but I know it’s the last one” and then on another activity stated, “*decir* is this one [clicking on the correct image]. I still don’t remember what the English translation is.” Based on her comments, it was clear that Anna did not know the word *decir* nor the conjugations since they had not yet been introduced. Additionally, because she had not learned the base form or the meaning, she was unable to make a link between *decir* and *dice*. Despite her initial misunderstanding and mispronunciation of the phrase *no dice*, Anna could complete the activities without incident because the meaning of *no dice* was given in the directions as “not given in the passage.” She does, however, continue to say, “no dice” in English rather than *no dice* in Spanish for the remainder of the activity, alluding that Anna did not know.

In addition to planning an approach to completing each activity, Anna also planned for the final exam. Anna was anxious for the final exam because the directions on the exam would be written in Spanish. Until this point, the directions had been in English. She said that she had been using Google Translate to translate sample instructions that she wrote in English into Spanish so that she could get an idea of what the potential questions or instructions might look like. Anna’s interactions with the online components demonstrate that Anna not only set goals for the outcomes she wanted, but she also devised plans on how best to achieve those outcomes.

**Practice Phase.** The second phase of Reinders’s model includes practice, which requires that learners develop and monitor their progress. In addition to thinking aloud, Anna found that watching the excerpts of herself working online helped her. Viewing

herself at work enabled her to “take a step back” to reflect on her interactions, especially when completing the Apply activities. She often referred to what she had just learned or what she had learned in previous classes, such as rules like “like you can’t conjugate two verbs in a row.” It appears that both thinking aloud and reflecting upon her own actions helped Anna mediate cognition. Excerpt 3 continues to demonstrate how Anna employs the second phase of Reinders’s model using strategies such as thinking aloud, predicting, and reflecting during the same listening activity as the one as in excerpt 3.

#### Excerpt 3. Practice Phase: Strategies

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1	I’m bad at listening to things so we’ll see how this goes.
2	We’ll turn down the speed so it’s easier.
3	{Slows down speed and plays audio}
4	Ok, I think I heard <i>su hijo</i> ‘their son.’ I’m not sure how to pronounce that but I’m pretty sure I heard that word. But that makes sense.
5	{Reads statement} <b>Los Orujuelas van a celebrar el bautizo de su hijo</b> ‘The Orujuelas are going to celebrate the baptism’ which means the family is going to celebrate the baptism of the son so that makes sense.
6	{Reads statement} <b>La hermana del bebé se llama Ana María</b> ‘the baby’s sister is called Anna Maria’ so I think the sister of the baby is named Ana María so we’ll see if they say that.
7	{Listens to audio}
8	I didn’t hear the name Ana María so it either could be false or no dice so
9	I’m going to skip that one for now.
10	{Answered the other questions and returned to the question about the sister}
11	didn’t say who the sister was so I’m also going to put no dice.

---

Throughout this episode of thinking aloud, it is evident that Anna employs a wide range of strategies. In line 1, she was aware that listening comprehension is one of her weaknesses, and so to compensate, she slowed down the speed of the audio to make it more comprehensible (lines 2–3). Anna learned on her own at the beginning of the

semester how to change the speed of the audio recordings. After listening to the first part, she paused the audio because she recognized the word *hijo* (line 4), and then she read the next comprehension question (line 5). Upon reading the statement in Spanish and then translating it to English, she made the connection between the word she had heard and the printed word in the statement (line 6), which according to Rubin (1987) is a cognitive strategy demonstrated by good language learners. Then before listening to the audio again, she read the next statement to predict what she might hear (line 6) and listened specifically for the name Ana María, which she did not hear (line 8). She skipped that statement to listen to the rest of the audio and returned to the statement before submitting the activity, stating that since it did not say who the sister was she chose the option *no dice*, (which she pronounced: no dice in English) (lines 9–11). She began by slowing down the audio, then predicted what she might hear by first reading the statement, listening for key words, and pausing the audio when needed to summarize and/or translate what she had heard.

Although this is a snapshot of only one activity, Anna's interactions remained the same throughout this listening activity as well as through the tutorials and the other Apply activities. Anna commented on her interactions.

I think just hearing what, I don't know, me saying it, that I know what I'm supposed to look for. And if it says something similar to that in a recording, then I know it's probably true. This is why I feel like they were true or false. (ISR #2)

In this excerpt, Anna used a variety of cognitive skills such as translation, deductive reasoning, and summarizing. Anna is a high-performing learner who knew how to take advantage of options such as the speed on the audio. Hegelheimer and Tower

(2004) found that learners who access these types of options tended to have more success with listening comprehension.

Anna did not always have success with listening comprehension, however. At the beginning of the semester, she assumed that more input was better, which was typical of the low-performing learners in Hegelheimer and Tower's (2004) study. Recall that one of Anna's strengths is her ability to recognize her weaknesses, which pushed her to discover and incorporate more effective online learning strategies progressively over time. Earlier in the semester, Anna admitted that she tried doing the listening activities by listening first and then answering the questions, but she soon gave up that approach. As she explained it, "it was a lot more confusing because I thought maybe if I just listened to the whole thing, I could just answer the questions, but no. I would not remember what I was listening to." During one of her first listening activities, she spent 20 minutes doing one listening activity by replaying the audio over and over, but by the end of the semester, she had learned that what worked best for her was reading the questions first and then listening to the audio clip. Additionally, she listened for key words, paused the recording, looked at the timer on the audio file to pinpoint the time of the key word, and then answered the question. When asked for ideas on how to improve students' experience with the online component, she suggested that the audio bar be expanded because it is "hard to pinpoint where exactly I need to be" since the bar is so small. Consistent with Collentine's (2011) findings, Anna's exploratory approach, her use of strategies, and her ability to plan for learning increased her exposure to input.

Excerpts 2 and 3 from Anna's online sessions demonstrate that she not only did the assigned work but that she also reflected on her interactions with the online

components. These illustrations of her metacognitive skills show that she was aware of the importance of planning her approach to an activity before she started working on it: She read the directions, assessed her prior knowledge, and predicted what she might hear. As she worked, she used learner controls to aid her comprehension, such as slowing down the speed of the recording and pausing to review what she had just heard. Anna's metacognitive strategies described in this section were unique among the participants in this study. Only two other participants, Alicia and Cruz, predicted what they might hear in a listening activity by also reading the questions first. One participant was unaware of the learner controls in the listening activity and therefore did not access them until they were pointed out to during the ISRs. This lack of awareness of resources and tools within the online learning environment is consistent with the results from Hegelheimer and Tower's (2004) study.

The act of thinking aloud not only demonstrated her use of metacognitive skills that other participants lacked, but it also allowed her to reflect on her interactions. Anna realized that “through the weeks of having to do these recordings that I'm going to have to listen—like know what I'm trying to look for,” which prompted her process of developing a new listening strategy. Anna read the questions first before listening to the audio. In addition to using metacognitive skills to plan and work through an activity, Anna also used both a variety of resources and metacognitive skills.

***Resource Use.*** A well-designed online environment allows students to manage their learning by using the resources. Excerpt 4 depicts how Anna managed her learning as she continued working with the same listening activity presented in excerpts 2 and 3. In Anna's development towards learning autonomy, she used resources to help mediate

her learning. Excerpt 4 shows how Anna thought aloud throughout the duration of the activity as well as how she used her vocabulary list, the verb chart, her previous knowledge of baptisms and, to a lesser extent, the feedback hints to aid in her understanding during the activity.

Excerpt 4. Practice Phase: Resource and Strategy Selection and Use

- 
- 1 {Reads statement aloud} **El niño se llama Adolfo José como su padrino**  
 ‘The boy is called Adolfo José like his godfather’ so I think it’s...the baby’s name is Adolfo José so I’m going to pull out my book to see what *padrino* ‘godfather’ is...
- 2 {Looks in hard copy of *Classroom Manual*.}-
- 3 Oh, okay *padrino* ‘godfather’ means godfather so that makes sense for the baptism so I’m going to listen to it again
- 4 {Listens again}
- 5 I think they said someone else so I’m going to put false. I’m not entirely sure, but the next one is *los abuelos van a ser los padrinos* ‘the grandparents are going to be the godparents’
- 6 I forgot what the verb *ser* ‘to be’ means so I’m going to look at the verb chart
- 7 {Clicks on the verb chart inside MSL. Types in *ser* ‘to be.’ Views conjugations.}
- 8 Oh yeah, *ser* ‘to be,’ I know what *ser* ‘to be’ means.
- 9 {Closes verb chart}
- 10 Ok, so the *abuelos* ‘grandparents’ are going to be the *padrinos* ‘godparents’ so they are going to be the godparents.
- 11 {Listens to the audio again}
- 12 So that is true.
- 13 {Chooses the answer choice *cierto* ‘true.’}
- 14 Ok so that’s *cierto* ‘true’
- 15 So, the baptism {reads statement} *el bautizo va a ser en una iglesia* ‘the baptism is going to be at a church.’
- 16 So, the baptism is going to be at the church so I’m assuming that is going to be true.
- 

*Vocabulary List.* Anna thought that maybe one reason for her difficulty with the listening activities was that she could not see the written text. Her perceived strength was reading and writing, so seeing the word and knowing “how to spell the word” was

helpful. For this reason, she started to use the vocabulary list as an aid to comprehension, since she could see new words from the chapter which, as she correctly guessed, would likely occur in the audio material.

In lines 1–3, Anna read the statement aloud and then translated the statement into English, but she was unsure what *padrino* meant and therefore took out *Classroom Manual* and turned to the vocabulary list at the end of the chapter to find the translation for *padrino*. The vocabulary list in the *Classroom Manual* is only in Spanish, with no English translations; however, at the beginning of each chapter, Anna looked up each vocabulary word and wrote the translation next to the Spanish word because, as she said, “it’s easier to find and it helps to have the words in front of me.” She recalled that she developed this strategy at the beginning of the semester.

The first time when we started the chapter, I go to the back and they’re [the vocabulary words] not translated yet, which is annoying because then I always have to go translate them for myself. I sit there for about 10 minutes. I don’t know if everyone else does this, but I’m a little nerdy. I usually translate them, then I’ll write them right next to the word. (ISR #1)

The multiple exposures to the vocabulary words aided Anna when confronted with challenging fill-in-the-blank listening activities as she could learn the form of the vocabulary words. Anna looked for a match between the words she heard and the word she needed to supply, focusing on the word form, primarily the phonological and orthographic form and not on the semantic nor syntactical information. In a more challenging listening activity in which students were instructed to fill in the blanks with a word they had heard, Anna used the vocabulary list as a guide and listened for the initial sound of the word she heard and then referred to her vocabulary list to find a match. She developed this strategy through trial and error, as she explains next.

I open the book and I'll listen. I'll look at the verb list and I'll see which word sounds like that word. It took me awhile to figure this out. The first times, I usually just got them all wrong, but then I realized, "okay, they're probably using a vocab word in the book" because they wouldn't use a word that we don't know yet, hopefully. So, I would just sit there, and go like "okay, it has to be one of these words. Maybe if I look at them, I'll be able to see what they're saying. It's helped a lot." (ISR #2)

Anna stated that she often struggled with the listening activities, and that they were so stressful and confusing for her that she often gave up. She reported that she often did the listening activities first to get them done because "they stress me out." She later came to the realization that the Apply activities were designed to reinforce what she had learned during the tutorials and therefore, the words she needed to produce were most likely found in the vocabulary list. Her strategy of finding a match is in line with the *Unidos* pedagogy in the Vocabulary Tutorial activities. Through multiple exposures of the words in the different activities, students learned the form of the word by matching the phonological form or the orthographic form to an image. Other than the translation (if shown) in the first activity of the tutorial, the semantic and syntactic information of the word was not the focus.

*Verb Chart.* Tools and resources are designed to help students regulate their cognitive development, but are often used in ways that differ from their intended use. In lines 3–5 of Excerpt 4, Anna made a connection between godfather and baptism and then listened to the audio, but she did not hear the name of the baby, Adolfo José, so she chose to respond *falso* 'false' and move to the next question. In line 5, she read the statement, but in line 6 she realized that she did not know what the verb *ser* meant and decided to use the verb chart, a resource that is built into MSL. In lines 6–9, she typed the word *ser* into the verb conjugator in MSL (called the verb chart), and when she saw the conjugated

forms in the present tense she remembered what *ser* meant. Then she restated the question in a mix of Spanish and English. The choice of using the verb conjugator to look up the translation of a word was interesting because the verb conjugator in MSL only contained the conjugations and did not provide translations. In ISR #2, Anna stated that “I think I thought it [the verb chart] was going to show me a definition but it didn’t really. It just showed me the conjugations and then I realized it was [the verb] to be.” Anna used the verb conjugator expecting the translation, but after seeing the conjugations, she made the connection with her prior knowledge and mapped the form to the meaning. From a sociocultural perspective, this also demonstrates that tools often bear certain limitations as well; however, given Anna’s cognitive ability to connect prior knowledge to new information, she used the tool effectively.

*Prior Knowledge.* Anna drew on her prior knowledge about baptism to approach the current context. In lines 3 and 15–16, Anna recalled what she knew about a baptism to orient herself to the content of the activity. For example, in line 3, she said that “*padrino* means godfather so that makes sense for the baptism” and in lines 15–16, she read the true/false statement in Spanish and then translated it to English and could respond based on what she already knew about a baptism—that it typically takes place in a church.

Anna reported difficulties of two types: understanding the oral Spanish and hearing the recording. Although the vocabulary list, the verb conjugator, and her prior knowledge were sufficient support for comprehension in this particular listening activity, Anna also tapped other resources to aid in her understanding. At first, Anna thought her difficulty in hearing the recording affected her ability to understand. Rather than rely only

on the built-in computer sound, she used headphones to make the audio clearer; however, even then she said, “it’s just really hard to understand what they’re saying.” Then she slowed down the speed of the audio, a strategy she learned from her focus group. Still she had trouble with comprehension. It was frustrating for Anna because she could understand her friends in class.

Anna always attempted the activity on her own first, but if after the second time, she still did not understand, she said, “I’ll let the app listen to it.” The app, which she downloaded to her smartphone, is Google Translate with voice recognition. This app translated the audio for her and also gave her the printed text.

During the ISR #1, Anna said that she felt as though she were cheating because the app was doing the work for her. By the time of ISR #2 near the end of the semester, she reported that her position had changed.

I thought it was more cheating before, but I think it’s a lot more helpful now. So, I realized even the app helps me in learning what the words say because I’ll go back and be like, “Oh, so that’s what the word is.” I think it’s more helpful than me not knowing at all. (ISR #2)

When she told her focus group members about the app, one responded that “that’s not cheating, that’s just being efficient.” Anna preferred seeing the words written out and the app both speaks the translation aloud as well as provides the written translation. Additionally, she reported that her listening skills had improved over the course of the semester, although she could not pinpoint the exact reason. She commented only that “I think I’ve gotten better at understanding other people speaking Spanish.”

In a constructivist environment, such as MSL, learners are expected to be manufacturers of their own learning (Collentine, 2000). Learners in this type of

environment need strong metacognitive skills to think about own learning and think about which strategies could be the most effective to solve certain problems. From the way Anna interacted with the online components and through her thinking aloud, it was evident that her metacognitive skills were well developed before she began learning Spanish and entered the study. Because of the skills she brought, not only was she able to apply them to how she studied the material, but she was also able to transfer them to learning with technology, which was new to her. As she explained, “I never really expected to use my computer when learning Spanish because I never had to in high school. I mean, I used Google Translate, but I don’t think I used other resources as much.”

**Assessment and Revision.** In the third phase of Reinders’s model, Assessment and Revision, learners are given opportunities for assessment and are then encouraged to reflect on what went well, what did not, and why. Excerpt 5, which presents Anna’s interactions after she submitted her answers for the listening activity, shows how she used the feedback hints as well as her own reasoning to correct the statements she missed.

Excerpt 5. Phase 3: Assessment and Revision

- 
- |    |  |
|----|--|
| 1  | I have put in all of the answers so I’m going hit submit   |
| 2  | {Submits activity and sees that she got two wrong}   |
| 3  | And it looks like I have a couple wrong so let’s see which ones I got wrong.                             |
| 4  | So apparently the <i>abuelos</i> ‘grandparents’ are not going to be the godparents                       |
| 5  | I’m not sure. I thought they were the godparents   |
| 6  | {Checks over her right and wrong answers}  |
| 7  | It was at the church. They didn’t say what time it was going to start, but I did get the last one wrong. |
| 8  | {Clicks on the feedback bubble for the computer-generated hint.}   |
| 9  | The hint is <b>Listen again. Who will attend the baptism?</b>  |
| 10 | Ok. We’re going to listen to it one more time so let’s try again.  |

(continued)

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Excerpt 5. Phase 3: Assessment and Revision (continued)

- 11 {Clicks on the 'Try again' button}  
12 {Listens again}  
13 Oh, okay so it says also *los amigos* 'the friends' so that's why. Okay.  
14 So, I know why 7 is false because it also says *los amigos*, 'the friends' the friends are coming.  
15 {Looks at another statement}  
16 And this one I thought it was the *abuelos* 'grandparents' but I'm going to assume that it is false because it does talk about the godparents, but I'm not sure exactly who they are.  
17 So, we are going submit  
18 {Submits activity}  
19 Okay one hundred percent. Now we are going to move on to the next activity.
- 

In lines 1–3, Anna finished her first attempt at the listening activity and submitted the answers for grading. She missed two questions. In lines 4–8, Anna reviewed both the questions and her responses and commented on why they might be wrong. She correctly answered the question about the location of the baptism (line 7), but missed the question about who would be the godparents (line 4–5) and who would attend the baptism (lines 8–9). In line 8, she clicked on the feedback bubble to see if the feedback might help her answer the question.

The last statement in the activity was *Solo la familia va al bautizo* 'Only the family goes to the baptism.' When Anna listened to the entire audio file again (lines 10–12) she heard *los amigos* 'the friends' and realized that the answer was *falso* 'false' because the friends were going to the baptism as well (lines 13–14).

For the second question she missed, she reread the statement and then made an educated guess that the answer was false rather than true since the passage mentioned godparents, but did not mention who they were (lines 15–16). In fact, the names of the godparents were mentioned, but they were two close family friends, not the grandparents

as Anna had first thought. The excerpt ends as Anna submitted the activity for a second time and earned a grade of 100% (lines 17–19).

***Feedback Hints.*** Previous studies (Hsu et al., 1993; Pujolà, 2002) found that learners often did not use the feedback or help options because they did not know how to manage the feedback. Anna also did not access the feedback hints often and in the excerpt accessed the feedback only once; however, unlike the learners from Hsu et al., (1993) and Pujolà (2002), Anna, perhaps because she was a higher performing learner, could manage the feedback, but she commented that she preferred feedback hints “that don’t actually give you the answer.” She further elaborated “I always get mad because I like when they give you like a hint that sort of helps you find the answer, but when they tell you the answers, it’s like ‘Okay, I’ll just put the answer.’” Her reasoning verified Hwu’s (2007) findings that problem-solving hints worked well for high-performing learners as they typically had greater metacognitive skills. In MSL, at times, the feedback hints do include the correct answer in English, and in those cases students need only to find the translation. For example, in an activity in which students were asked to use their favorite search engine to look up the nationality of the person given and then write in the correct nationality, the feedback provided was “Is this an adjective to describe a man from Cuba?” In this case, the students could type anything in the blank on their first attempt and then use the clues on the second attempt to find the correct translation for a man from Cuba, thus eliminating the first step of the activity, which entailed using a search engine to find the country of origin of the individuals.

Throughout the study, Anna preferred to do the work on her own. She used what she learned from the tutorials, as well as learning strategies she developed during her

online sessions to complete the Apply activities. Her approach differed from the strategies of most of her classmates. During the Focus Group #1, one group member commented that his preferred strategy for the Apply activities was to “write in my best guess and then ... look at the hints the second time around.” Based on Anna’s comments below during an ISR, it was evident that she did not agree with that strategy:

A lot of people told me in class, they just click it until they show you the answers, and they can just put in the answer for last attempt. I don’t know. I wouldn’t recommend that. I wouldn’t try it. I don’t like when they give me my answers because I like doing it by myself. I don’t think people should do that, but when they told me that, I was like, “Okay.” I think they should at least try. You get three attempts. I get they want to get 100%, but you won’t know what to do later on. (ISR #2)

After her misunderstanding during the first week of the semester about the out-of-class work expectations, Anna took control of every aspect of her learning so that she could do the work by herself. She looked up the translations for the words in the vocabulary lists, worked through the all the activities in the tutorials, wrote out additional examples and models to include in her notes, relied on the information she learned during the tutorials to complete the Apply activities, and created new strategies when needed.

**Summary.** Excerpts 2–5 demonstrate how Anna cycled through the autonomous learning process. She identified her learning needs and developed an approach to the activities by reading the directions. Then she selected resources and strategies that aided in her completion of the activity. Finally, upon seeing her incorrect answers, she reflected on her mistakes and revised her answers. As the model is cyclical, in the assessment and revision phase, she also identified her learning needs again by viewing the feedback to seek a hint in developing new approach to the activity. A combination of selecting and using new resources and strategies such as the feedback that advised her to listen again

for key words and her own deductive reasoning, she was able to successfully complete the activity.

### Summary

The research questions were answered throughout the case study mainly through the analysis of excerpts from one of Anna’s listening activities. Table 30 summarizes how Anna overcame or tried to overcome some challenges she faced.

Table 30. Anna’s Challenges, Discovery Methods, and Strategies

<b>Challenge</b>	<b>Discovery</b>	<b>Strategy</b>
Due dates	Trial and Error	Set reminder on phone
Listening activities	Trial and Error	Used headphones Slowed down audio speed Predicted before listening Used vocabulary list Accessed written translation
Searches for vocabulary words	Trial and Error	Translated vocabulary words first
	Focus group	Took pictures of vocabulary tutorials
	ISR	Used Verb Chart and Glossary
Error message in MSL	Focus group	Tried different browser
Directions written in Spanish	Trial and Error	Google search for potential directions

At the beginning of the semester, Anna missed a week’s worth of assignments. To avoid missing any further assignments, she set an alarm on her phone to complete the assignments at the same time every day. Anna also had difficulty understanding the listening activities. She developed variety of strategies to reduce the gap between her listening comprehension skills and the task of understanding the audio text of the listening activities: she used headphones, slowed down the speed on the audio file, referred to the vocabulary list at the end of each chapter to listen for key words, used the

Google Translate app as a last resort when she could not understand the audio text, and she developed a listening strategy in which she predicted what to listen for by reading the questions first. Also, at the beginning of the semester, Anna would often search for a vocabulary word or the spelling of a word by looking for a relevant tutorial on the assignment calendar. However, she abandoned this strategy because it was so time consuming. Instead, she tried out three different strategies. She first translated all the vocabulary words at the beginning of the chapter to avoid searching for words during the Apply activities. When she opened the Tutorials, she took pictures with her smartphone and saved them to an album so she could easily refer to them during the Apply activities. A similar strategy was introduced during Focus Group #1 in which another participant took screen shots of the tutorials and saved them to her desktop. Then, during the Apply activities, she referred to the translated list of vocabulary words, the saved pictures from the vocabulary tutorials, and/or used the verb chart or the glossary inside MSL as an aid. She learned about the verb chart and the glossary during ISR #1.

Throughout the study, Anna tended to be very much in control of her own learning process and used a variety of cognitive and metacognitive strategies to support her learning. At the beginning of an activity, she had a plan in place for how to approach the activity (reading the title, directions, and the examples). During the activity, she used context clues, slowed down the speed of the audio, made educated guesses, sought out additional resources, and developed new strategies when needed. Knowing that (a) there is a feature in MSL that allows students to slow down the speed and (b) she knew how to use it indicates that she took an exploratory approach to her learning. Although Anna demonstrated the skills an autonomous learner, both pedagogical and technical training

might have aided in her development throughout the semester. Anna even suggested that pedagogical training be provided on how to use the resources to learn Spanish, and although Anna stated that she “learned how to learn with a computer” throughout the course, technical training might also have helped Anna to solve sooner the problem of the recurring error message.

### **Case Study #2 Cruz—A Linear Browser**

The second case study to be presented in this chapter is Cruz who was taken from the group of participants categorized as linear browsers. Cruz, a heritage Spanish language learner, wanted to do well in the course, but was not always sure how to do so. Linear browsers typically complete the activities as they are presented and tend to use features which are introduced explicitly. He, along with the other participants in this category, had lower mean scores on their Apply activities as well as a higher number of attempts than participants characterized as exploratory browsers, indicating that they needed more guidance. Cruz was chosen from the participants in the linear browser group because he was the only participant to show improvement in his mean scores and number of attempts from Week 6 to Week 12. His mean scores increased and his number of attempts decreased, meaning that he needed fewer attempts to earn a higher score, even when the activities became more difficult. With the help of his focus group members, viewing himself working online, and trial and error, he developed an understanding of the course structure and how to use his resources efficiently.

Cruz is a 20-year-old male sophomore majoring in business. Cruz’s need for explicit instruction began from the first day of the semester when he communicated with his TA that he felt he might be improperly placed in the Elementary Spanish I course

since he grew up hearing Spanish in his home. His TA told him to talk to Karla, referring to the director of the General Education Spanish Program; however, Karla was also the name of his academic adviser, who at that time was on vacation. By the time he reached Karla, his adviser, to discuss his placement, the drop/add period had ended and therefore he needed to remain in the course. He did not realize he needed to talk with Karla, the director of the General Education Spanish Program, and so Cruz remained in the Elementary Spanish 1 course. This was an unfortunate circumstance for Cruz at the time; however, upon completing Elementary Spanish I, he moved to Intermediate Spanish 1 bypassing Elementary Spanish II. One reason students are given permission from the director of the program to take Elementary Spanish I even if they have previous Spanish language experience is to solidify their understanding of the language before moving on to the next level. Cruz entered Elementary Spanish I with a solid language base; however, as will be discussed in this section, he often thought he knew more than he actually did and the class gave him the opportunity to slow down as he worked and learn the material. He commented that the class helped him “put sentences together.”

Cruz’s reason for learning Spanish was considerably different from that of the other participants in the study. The eldest of three children, Cruz grew up hearing Spanish in his household. Both of his parents are Puerto Rican. His father was born and raised in Puerto Rico and his mother was born and raised in the continental U.S. His parents spoke to him in Spanish, but because he always answered in English, he only developed receptive listening skills. He described his language abilities as “I’m that weird person that can understand; they can speak to me in Spanish all they want, and I can understand it, but I can’t speak it.”

By the time his younger siblings were born, the language of the household had switched from Spanish to English, so they did not develop even receptive language skills. Between him and his parents, the Spanish language was both a bond and a source of tension. He explained that at certain times, his parents would speak Spanish to him to keep a secret from his siblings: “If my mom didn’t want them [my siblings] to hear something like, “Oh, I’m going to give them a birthday present or something,” she’ll be like “I’m going to the *tienda* ‘store.’”

However, at other times when he responded in English, his parents took this as Cruz refusing to speak Spanish, rather than not being able to speak Spanish, as he explained:

They get a little upset at me because they say I don’t want to speak it, and it’s like I do want to speak because it sounds really nice. I’d love to speak in Spanish with my other family. I felt like I was, I guess, kind of just embarrassed to speak it. So, I didn’t want to sound so stupid. (ISR #1)

Although Cruz had a desire to speak in Spanish, he did not have the linguistic abilities to do so. He also said that because his family is from Puerto Rico, they tend to talk “really fast,” which is something that he’d also like to do. However, when he tried to talk quickly either with his family or with his classmates, he realized that his skills were not at that level yet, “I don’t got everything with me right now, so I got to go slower.” He acknowledged that he needs to “learn how to slow down” and he noticed that when he slowed down his speech during an oral exam, he felt “better and very calm.” Cruz stated that his weaknesses in Spanish are his pronunciation and “rushing through things” and his strength is understanding spoken Spanish.

Cruz’s case study discusses the main challenges he faced throughout the semester, how he overcame those challenges, and how he discovered a solution that would work for him. The core categories for Cruz’s case study are structure and organization. The main challenges he faced were: (a) not understanding the course structure and organization, (b) unawareness of purpose of VIP, (c) pronunciation, (d) spelling, (e) listening activities (f) inefficient use of time, and (g) lack of knowledge about resources. The challenges and newfound strategies are supported through Cruz’s own comments and actions from his two RTAs, as well as his comments from his two focus groups and two ISRs and are presented in Figure 28.

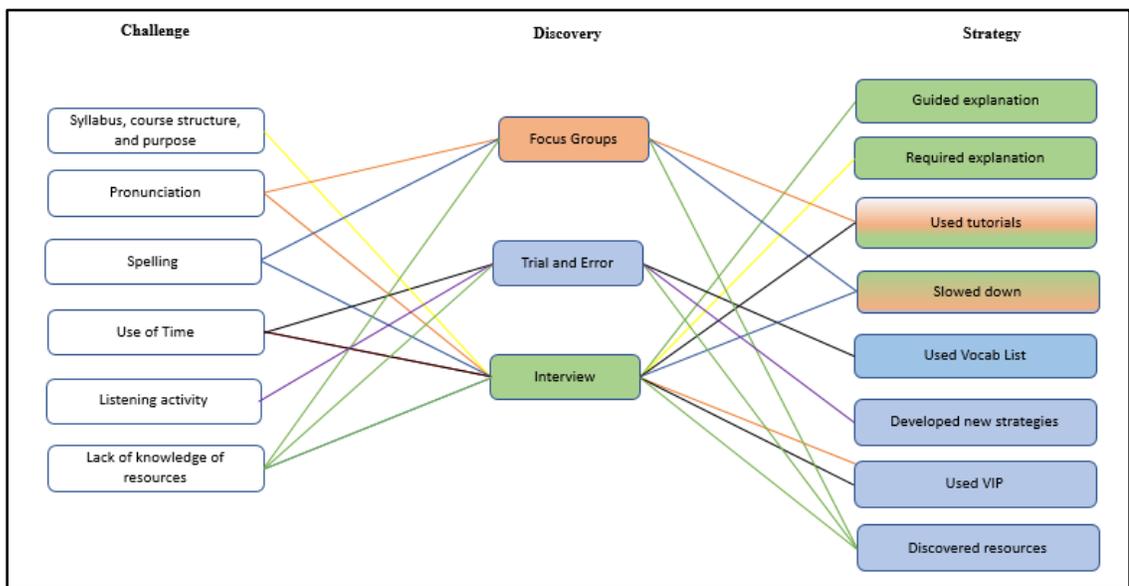


Figure 28. Cruz’s challenges, discovery methods, and strategies

### Course Structure and Organization

Similar to Anna’s case study, Cruz did not understand the course structure. At the beginning of the course, Cruz expressed the structure of his Spanish course by saying that “it lets you do work in class and work on the computer,” which only approximates the structure of this and other flipped courses. Having taken previous 4-credit courses, Cruz

knew from the beginning of the semester that a 5-credit course “was going to be a lot of work”; after realizing that he would have outside-of-class work to do for the course every day, he exclaimed: “Wow, this is a lot.” Although he was prepared for the workload, he did not understand how the online work was assigned and had difficulty understanding the syllabus.

Not only does the course need to be clearly structured, but students and TAs also need to understand the organization of the materials to access relevant information. The course structure and organization of the materials needs to be made explicit. The syllabus was designed so that the students would complete the online work the day before they went to class; however, this was not clear to Cruz, due in part to the fact that his course TA did not always follow the syllabus and often accepted work late.

The TA frequently covered material in class before the students had worked on the corresponding materials on MSL, rather than afterwards. Based on Cruz’s comment, it appeared that the TA at times would cover the material that was due on a Tuesday night during Monday’s class rather than Wednesday’s class, and at the same time accept Tuesday night’s work on Wednesday. The TA not having a solid understanding of flipped learning or not following departmental procedures caused two issues. First, Cruz did not know when to do the work. He believed that he was behind in his work because “at times [the TA] will say, ‘This is on MySpanishLab,’ but it’s like, ‘Oh wait, I’m not there yet’ so maybe I’m behind or something.” He continued saying that:

I’m a little confused because I’m not sure if you’re supposed to do your MySpanishLab for the day of [class] because—on Monday, I have a class at 2:30, but I usually don’t do it until Monday after class, so I’m not sure. They’re due at

night, so it's a little confusing actually. So, I'm not sure when I'm supposed to do them. Maybe Sundays? (ISR #1)

Second, accepting late work impeded both students' preparation and their understanding of the course structure. While the TA might have considered her leniency an act of kindness, she may not have realized that this contributed to the students' confusion of the course structure. Flipped learning has the potential to lose its pedagogical integrity when the students are not accountable for their learning (Mills, Herron & Cole, 2013). To avoid a loss of pedagogical value, O'Flaherty and Phillips (2005) suggested the need for instructor and student training so that instructors and students understand the reason for accountability.

Cruz did not understand the course structure when he suggested changing the out-of-class assignments so that they would be "due the day before class, maybe, so it could help you know what you are doing," I explained to him that that is actually how the syllabus was designed since the online work should prepare you for the material that you will learn in the face-to-face class.

Considering what he learned about the course structure during ISR #1, including a better understanding of the syllabus, Cruz's developed a more thorough understanding of the course structure, commenting that "first it would be out-of-class work, preparing yourself for the in-class work, apply it in class, and keep on going in a cycle (Focus Group #2)." Furthermore, he valued that the online work prepared him for face-to-face time and he understood the importance of putting in the work at the beginning to do well during class time:

It [the online work] actually helps you know the vocab coming into class because a lot of the Spanish class, there's a lot of participation and group work. So, I feel like if you put in the work, you will be more prepared for class and they'll [the online materials] help you interact more and gain participation points. (ISR #2)

This comment also underlines the fact that grades incentivized Cruz. He connected the work he did outside of class to the participation points he would earn in the face-to-face class sessions.

### Metacognitive Development

Cruz's metacognitive development over the course of the semester was the result of scaffolding from his peers and his self-reflection as he watched himself work online and reflected upon his interactions. In particular, Cruz's metacognitive development included (a) deciding what input to pay attention to, (b) becoming more self-aware, and (c) making conscious choices in regard to resource and strategy use. The case study references Zimmerman's (1994) metacognitive model, which consists of three phases: forethought, performance control, and self-reflection. The phases of the model are discussed in Chapter 2. The following sections discuss in detail the development of Cruz's metacognitive skills.

### Attention to Detail

Cruz's misunderstanding of the syllabus and course structure carried over to the online material as well. In this subsection, the Vocabulary VIPs are discussed, followed by the Vocabulary Tutorials. Each section presents how Cruz interacted with the materials as well as how the development of his metacognitive skills influenced the input to which he attended.

**Using Resources Productively.** An exploratory browsing pattern enables the learner to discover tools and resources that have the potential to aid in their learning.

Cruz told his Focus Group #1 members that at the beginning of the semester he clicked on everything in MSL, thus taking an exploratory approach, but then found a routine. As he explained: “Once you figure it out, you just kind of stick to it, and you don’t want to keep exploring, so you miss a lot of things, and I’ve missed a lot, too.”

In regard to the VIP, Cruz may have been overwhelmed by the information or the organization of them as he often either skipped them or spent very little time interacting with them. Considering Smith’s metaphor (1991) about the online environment resembling a jungle of flora and fauna, Cruz may not have known where to start. During the recording, he explained, “I don’t know what to really look at.”

In Week 6, Cruz spent 26 seconds inside the VIP, scrolled up and down and then closed it, stating, “So this is just vocabulary from the book and things like that.” It appeared that Cruz exhibited a chaotic browsing pattern with the VIP; however, he also showed a desire to improve as evidenced by his reflection while viewing the recording of his interactions during the ISR:

Actually, I was thinking about like things I could improve and this is one of those things because I open it up and I don’t know what I’m supposed to do or what I’m supposed to be looking at. (ISR #1)

A constructivist environment is designed so that the learners will be the manufacturers of learning. One way to initiate the process of constructing his learning is to ask questions, which is what Cruz did by asking himself how to improve. Zimmerman (2002) suggested that learners need to be taught strategies to help them improve their metacognitive skills, which would in turn encourage them to take a more exploratory approach to the learning environment. Because Cruz did not know how to interact with the VIP, he expressed some frustration with them.

Now, it's the middle of the semester, I just started like open and just close because I really didn't know what to look at. I don't know if it's even on the right chapter. (Focus Group #1)

These two comments from Cruz express uncertainty, defeat, frustration, and confusion, and they demonstrate Cruz's difficulty in handling the demands of an exploratory environment. First, Cruz skipped over the VIP because he did not understand how to use it to learn. Then, he commented that he did not know if he was even on the right chapter when he opened the VIP. In addition, Cruz was confused about the organization of the online materials and the *Classroom Manual*. He did not realize that the materials online and the materials in his *Classroom Manual* were different; instead, he assumed that the VIPs online were also in his *Classroom Manual*. When he did not find the VIP in his *Classroom Manual*, he thought he was in the wrong chapter. The confusion of not knowing if he was in the right chapter or what actually to do with the VIPs prompted him to skip them altogether for the first half of the semester. This behavior of skimming and then skipping the VIPs became routine for Cruz.

To recall, a constructivist environment places the learner at the center of learning. In ISR #1, to encourage Cruz to be the agent of learning rather than the recipient, I asked him to open a VIP and focus on the different parts and features. As Cruz worked through the features, I asked probing questions, such as "Why do you think some words are highlighted?" This question prompted Cruz to scroll to the highlighted word and then, when he explored a little more, he clicked on it and saw a picture or heard the pronunciation of the word. He read the title and the directions, and then he moved through the different interactive features, such as the highlighted words and the audio files. When I asked him how to find the end of the lesson, he did not know how to do so.

I showed him the yellow arrow at the bottom of each page of the VIP that indicated the end of that lesson. The yellow arrow says “APPLY. Now you are ready to move on to the next Learn or Apply item (s) in this Learning Module in the Online Component.” The yellow arrow is not clickable, but rather indicates that at that time, the students can return to the assignment calendar to move on to the next activity. After about a minute and a half of interacting with the features in the VIP, he exclaimed, “Wow, I did not know you can do that” and then acknowledged the value of the VIP:

Actually [it] helps a lot. I actually like this a little better than the tutorials because it’s all in one whereas the tutorials, you go to click on the next one and then I forget one. So here, I feel I like it as all in one image, so it’s like all the tutorials in one. So, I actually like this a lot. (ISR #1)

A misconception of flipped learning is that it is synonymous with self-instruction. Benson (2001) and Little (1996) suggested that teacher promote autonomy through practice, which therefore enables learners to take control of their learning environment. Essentially, Cruz viewed and interacted with the VIP and its features for the first time during ISR 1. But by taking a very brief and guided approach to the activity, Cruz developed a better understanding of the organization of the materials and could make an informed decision about what input to attend to and incorporate into this learning environment which he did during the second recorded think-aloud session in Week 12.

Cruz chose to focus on certain aspects of the VIP after he discovered that the VIP contained all the vocabulary words in one place and that the audio files could help with his pronunciation, which he felt was a weakness. He opened the VIP, read the first paragraph aloud, and listened to the audio of the vocabulary words. He spent double the amount of time on the VIP than he had during the first recorded think-aloud session in Week 6. He made the following comment in Focus Group #2:

It basically gives you an overview of the inside of the chapter [lesson] so everything highlighted is what you're going to be learning. It's actually going to help you with the Apply activities and it also gives you a bit of a jumpstart into the tutorial so that way you know what you're expecting. (Focus Group 2)

His actions shown here as well as the comment show that Cruz better understood the VIP by purposely deciding what input to attend to in the VIP, which marked a distinct change from Week 6, when he skipped the VIP altogether. He also showed characteristics of the first phase of Zimmerman's metacognitive model, *forethought*, in that he saw the online work as skill building rather than as homework by making the connection between the VIP and the Apply activities. Likewise, as he also commented, he found that the tutorial helped him understand what he was going to be studying, which demonstrated additional characteristics of the *forethought* phase.

While Cruz seemingly made the connection between the VIPs, VTs, and the Apply activities, his understanding of the VIPs and the VTs was that they constituted study material and not homework which, in turn, affected his approach to the VTs: "Study what you need to study and if you feel comfortable with it, it's your decision if you really want to spend too much time on it. If you've mastered it, skip it." Cruz made this comment in reference to the five activities in each tutorial.

**Not Using Resources Productively.** Even when some resources are pointed out and learners understand the benefit of using them, learners still chose not to incorporate them into their learning for a variety of reasons. Cruz commented that the Vocabulary Tutorials aided his pronunciation as he heard the pronunciation of the new vocabulary words, saw the written words (which helped with his spelling), and then said the words aloud. Cruz stated that hearing the words helped with his spelling because "if I can remember how to pronounce it, I can kind of just spell it." The tutorials provide the

opportunity to hear and repeat the vocabulary words five different times through five distinct activities.

However, Cruz, only worked with the first activity in the VTs for three reasons. First, he forgot about them. At the beginning of the semester, he did all the activities in the VTs at least once, but then as mentioned before, established a routine that, in this case, did not include all the activities. During Focus Group #1, Cruz explained to his group member about the existence of the five activities in the tutorial and reflected upon his rediscovery: “I actually kind of forgot that it [the five activities] was actually there until we did it again with our group. I was like ‘Oh, wow, they’re still there, I remember!’”

Second, he commented that he “sounded pretty weird” repeating the words aloud in his dorm room, possibly in front of roommates; in addition, he initially thought that the fifth activity, the recording, was “a little pointless.” But later reflecting on the tutorials, he stated they “could’ve been very helpful with the pronunciation because when you play the correct version versus yours, you may try to emphasize on what’s different”

Third, the material was not challenging enough for him to warrant going through all five activities, but in reflecting upon the five activities, he said the repetition of hearing the words five times could have made the words “stick” better while he was doing the Apply activities. In the future, he said that if the material were to become more challenging for him, he would “go through all five steps, maybe” again citing the need to use the material on a needs-only basis.

In a sense, Cruz was stuck in a difficult situation. He acknowledged that the tutorials could aid in his pronunciation and therefore help him sound more like his Puerto

Rican family members, but at the same time felt weird about talking aloud to himself as a study method. At the end of the study, Cruz did not change his approach to working with the Vocabulary Tutorials, but he reminded himself of the five activities and acknowledged that the five activities could help with his pronunciation and retention should he need study materials.

Cruz's increased understanding of the course structure and organization of the online materials gave him the opportunity to make an informed decision regarding the amount of type of input he paid attention to. Cruz found that VIPs to be helpful since all the vocabulary words are found in one place and decided to only attend to the input from the first activity in the tutorials since he viewed them as a study material and not homework. Previous research has suggested that low metacognitive skills may also affect the way in which students handle the cognitive load associated with a constructivist environment (Ma, 2007; Rouse, 2011). Even though Cruz took an exploratory approach at the beginning by viewing all the activities in the tutorial, he was not coached at that time in how to plan and organize his learning to take advantage of the different activities, and he therefore developed his own way to working with the material.

#### Making Conscious Choices

The second phase of Zimmerman's metacognitive model is *performance control*, in which learners focus on strategies and monitor their behavior as they work. Regarding strategies, when resources and tools were pointed out to Cruz, he reconciled them with previous knowledge to determine how he could use them for learning. In regard to monitoring his behavior, Cruz benefitted from guidance and from reflecting upon his own interactions. In phase three of the model, students adjust their strategies based upon their

previous actions in the *forethought* and *performance control* stages. This section presents an excerpt depicting how Cruz approached an Apply activity during Week 6 with the use of the Vocabulary Tutorials and then discusses how his approach changed due in part to the resources that he discovered and on viewing his interactions.

Cruz had one strategy as he completed the Apply activities—return to the tutorials. As pointed out earlier in his case study, Cruz did not complete all the activities in the tutorials, yet he returned to the tutorials as a resource to help him complete the Apply activities. Excerpt 6 shows how Cruz worked through an Apply activity and how he relied on the tutorials for answers. In this particular activity, given the country of origin for a set of artists or athletes, students were instructed to supply the correct nationality in Spanish, as shown in the following example:

Cristiano Ronaldo (Portugal) \_\_\_\_\_

Prior to this excerpt, Cruz opened the Apply activity, read the directions aloud, and typed in the correct response for the first question without consulting any resources.

#### Excerpt 6. Cruz's Use of Online Study Time

- 
- |    |  |
|----|--|
| 1  | Um, <i>Cristiano Ronaldo es portugueso</i> 'Cristiano Ronaldo is Portuguese.' I'm actually going to open two windows and see if I go back to one of the things that I already viewed. May have been [tutorial] 3 |
| 2  | {Types <b>portugueso</b> in the answer blank }   |
| 3  | {Opens two windows on his screen—the activity and the assignment calendar which lists the tutorials }  |
| 4  | {Opens Tutorial #3 }   |
| 5  | Has Portuguese in it?"   |
| 6  | {Clicks through all the pictures looking for Portuguese }  |
| 7  | Um, wasn't that one. Maybe [tutorial] 4  |
| 8  | {Opens Tutorial #4 }   |
| 9  | {Clicks on the first picture }   |
| 10 | Nope. {pauses} Well, maybe, actually   |
| 11 | {Continues clicking through the pictures }   |
| 12 | {Finds the picture with <i>portugués</i> written on it }   |
-

---

13	Oh, here it is <i>portugués</i> 'Portuguese'
14	{Types in <i>portugues</i> }
15	Okay, accent over the e
16	{Uses the accent box to add the accent over the e}
17	{Moves to question 3}

---

Upon reading the name of the athlete and the country, he knew that Cristiano Ronaldo was Portuguese, but he did not know the word for Portuguese (line 1), which is *portugués*. Instead of *portugués*, he thought it was *portugueso*, which is a nonword in Spanish. In line 2, he returned to the list of vocabulary tutorials in his assignment calendar to find the tutorial containing *portugués*. He opened two windows on his computer (line 3) to view both the Apply activity and the tutorials at the same time. In lines 4–7, he clicked through all the pictures in a tutorial looking for *portugués* but did not find it. Then in line 8–10, he opened a new tutorial, and at first, he did not think he would find *portugués* (line 10), but continued (lines 11–13) and finally found it (line 13). He typed the answer into the blank, added the accent mark (lines 14–16), and moved on to the next question (line 17).

In this interaction, Cruz spent almost 90 seconds looking for the form and spelling of one vocabulary word by returning to the tutorials. He did the same for questions 4 and 5 [*estadounidense, canadiense*] and then said, “I’m going to try to do these ones [*puertorriqueño, francés*] without going back.” Before submitting, he said “I’m not sure if the last two, if the spelling is right, but I’ll just try.” Cruz acknowledged that at times he was overconfident with the material and rather than look up the spelling of a word, he would keep guessing until he used up his attempts and eventually “just ruin it” by earning a lower score than what he was capable.

For this activity, he earned 100% and said “I actually did well on those. I just need to work on the spelling.” Cruz partly knew the nationalities in Spanish, but he did not trust his spelling of the words, and therefore relied upon the tutorials. Cruz watched himself as he searched through the tutorials looking for a word and reflected on his interactions:

Okay. Like I try to spell it out, but I’m not sure about it, so then I go back to the tutorial, *but if I actually would’ve known about the first one* [VIP] where it has all of the different nationalities, that would’ve been better. (ISR #1)

Until Cruz’s ISR #1 in Week 6, the tutorials were his main source of reference for content as well as for spelling; to find an answer, he searched through the tutorials, demonstrating a linear browsing pattern. In a linear browsing pattern, learners do not want to stray from an activity for a variety of reasons, including (a) not wanting or not knowing how to try out a new resource, or (b) feeling that they can figure it out on their own without help. Both reasons could account for Cruz’s actions at the beginning of the semester. At the same time, however, learners are often motivated by practical considerations (Weinberg, 2007), including time. Given that Cruz spent considerable time returning to the tutorials in search of specific words, he may have just wanted to finish the Apply activity and for that reason he completed the remainder of the activity without consulting other resources.

From viewing and then reflecting on his interaction displayed in Excerpt 6, Cruz realized he was not spending his time wisely with his strategy of “trying to hit each tutorial to see which one is which.” He adjusted his strategy based on viewing his interaction and monitoring his behavior during the second half of the semester as described next with Cruz’s discovery of the vocabulary list at the back of each chapter.

**Vocabulary List.** Cruz was not aware of the vocabulary list until at least seven weeks into the semester, as shown by a comment he made during the Focus Group #1 (Week 6):

When you're doing the activities, you know a word that was in your tutorial and you don't remember what tutorial it was in and you go to the third tutorial and it is not that one and it's not the fourth tutorial so a list would actually be very beneficial. (Focus Group #1)

His partner in Focus Group #1 also did not know about the vocabulary list and therefore did not mention it during the focus group. After Week 6, through his trial and error, he discovered the vocabulary list when he was completing a fill-in-the-blank listening activity that was challenging for him. He attempted to write the words he heard, but he could not comprehend the recording. His inability to understand the audio led him to look in his *Classroom Manual* for a word that started with the same sound that he had heard: "So, I said, you know what? I'm going to open the book and let me see if I can try to listen to what he says and if I could find a word similar to it." Then, when he turned the page, he saw the list of vocabulary words and said, "They're all in alphabetical order [in the vocabulary list] so I could find a word similar to it [the word in the recording]." From that moment, Cruz made the conscious decision to use the vocabulary list, whether he was working on a listening or other type of activity because it helped him avoid "dumb mistakes" like spelling errors, which are discussed next.

In addition to using his newly discovered resource, the vocabulary list, he also independently created two strategies for listening based upon a challenge he faced. At the beginning of the semester, Cruz had difficulty replaying the audio in the activities and assumed that replaying was not an option within MSL. He stated that since "I'm not sure if you can rewind it, I'll just wait there until it's done and I just go back." For one

listening activity, he listened to an entire 44-second audio file 17 times because he did not know how to stop in the middle of an audio clip, return to an earlier point, and replay it.

Due to the issue with replaying, Cruz developed a new approach to the listening activities. Rather than listen to the audio and then answer the questions, which was often a time-consuming approach, Cruz first read the questions to the activity to predict what he might hear and then he listened for the answer in the audio, which reduced his overall time work:

Before I couldn't really rewind stuff. So, what I started to do was just try to read the questions that it is asking me so I'd just have something in my mind so I can listen to it because I'm very good at listening. I would try, I guess, read the questions that it is asking me so I can see what I'm looking for. (ISR 2)

Also, in watching and reflecting upon a listening activity during the final ISR, Cruz pointed out another strategy that he could use in addition to the vocabulary list and predicting the content of the audio clip by reading the comprehension questions first. As he watched himself miss an answer, he commented, "Well, thinking about it again, I could have just used the context so instead of just replaying it or anything like that, I could have used the context."

#### Awareness

Awareness of metacognitive skills often leads to autonomous learning. This section describes how Cruz became aware of two of his weaknesses—spelling and working too fast. In the Apply activities, Cruz referred to the errors he made as "dumb mistakes" or "typos," as he often left out or transposed letters. Although he often knew the meaning of the vocabulary word, he had trouble with the form and attributed his mistakes to trying to finish the work too fast. The difference between previous research that also showed that students often work through the online work quickly and want to

finish is that Cruz was cognizant of his speed and wanted to stop making what he called “dumb mistakes”: “I guess I just try to go a little too fast. I need to learn how to slow down and double check before submitting.” In the second focus group, the participants gave suggestions to a hypothetical student who was new to flipped learning as they worked through an Apply activity. Interestingly, Cruz typed in a response to a question and then, based on his own experience, stated:

What I usually mess up on is typos, going a little too fast. That would be my advice. Try to look at it, review, there’s no rushing anything, and make sure you spell out everything right. (Focus Group 2)

Ironically, after submitting that same activity, and reviewing the answers, his group had one question wrong and then Cruz said, “Oh, that was mine. Oh, I spelled it wrong. I’m the one who gave you the advice of slowing it down, make sure you spell everything right, and I still got it wrong.”

Cruz liked to challenge himself to spell the vocabulary words on his own, but he would often get the spelling wrong. He explained that “all it took was for me to get my book out and get it, instead of me just trying to think like I know it.” This comment reflects one of the reasons that students who take a linear approach do not want to leave an activity. With the material becoming more challenging toward the end of the semester, Cruz re-lied more on the vocabulary list along with the tutorials to double check his answers before submitting:” I just try to go a little too fast. I need to learn how to slow down.”

Cruz continued to struggle with spelling; however, viewing himself working in the video and through collaboration with his group members, he reflected upon the importance of slowing down and reviewing his work: “Maybe I’ll go through a little

slower or think about the answers a little more.” In sum, he recognized that slowing down his speed and thinking about the answers, could help him overcome his weaknesses and, in turn, push him to complete the Apply activities.

Throughout the semester, Cruz learned how to use his resources. Specifically, from participating in the study, he learned various strategies during the ISRs and from his classmates and could choose what worked best for him.

In ISR #2, he said that he had come to use “a lot of my resources now whether it be the book or whether it be the tutorials on MSL. I’ve learned a lot about how to study and use my resources appropriately.” He continued to say that he had been able to apply the study skills he learned from his Spanish course to his other courses as well:

I’ve learned more general studying so that’s a big key. I’ve learned how to study and use my resources very well, not just for only this class. I guess it started in this class. I use the book. I use the tutorials. I use online resources—anything that I need that I really need, I’ll use. And usually it actually helps me in different classes because now I’ll use my textbooks for different classes. I’ll use the online material that other classes provide me. So, I’ve learned how to study very well as well as use my resources way more efficiently. (ISR #2)

While this was only one comment, it showed a lot of growth on Cruz’s part. At the beginning of the semester, he had one approach—returning to the tutorials to seek out answers. Then as the semester progressed and he was scaffolded by his more knowledgeable peers and by the researcher, he could identify areas of improvement on his own and incorporate them into his work habits.

This section described Cruz’s metacognitive development, which was based upon his ability to decide what input to attend to, his awareness of an issue, and his ability to make conscious choices to improve his autonomous learning skills. Cruz’s development can also be seen with reference to Zimmerman’s metacognitive model. He demonstrated

*forethought* as he thought about the value of the activities, and he monitored his strategy and resource use in the *performance control* phase. Most impressive was Cruz's self-reflection phase, where he adjusted as needed to create and modify his learning environment. Cruz learned from his peers and from trial and error, but he was most able to reflect when he saw himself work online and reflect upon it.

### Suggestions

Cruz navigated MSL well toward the end of the semester, but he referred to his use of MSL at the beginning of the semester when he suggested that because the platform has a lot of resources, it is possible that not everyone was aware of what was available: "because it's not that people are intentionally ignoring things, it's just that they don't know it's there." He suggested that students slow down and explore MSL like he did, but also that the instructor or someone else offer training "on how to use everything because it does get a little tricky at first." If he were training students, he said he would first show the students all the tutorials and the presentations, and then have them practice on their own to make sure they could navigate the MSL platform by themselves. And rather than the first assignment be in Spanish, it could be similar to a scavenger hunt with "cool activities about MySpanishLab." He reiterated that training might eliminate surprises halfway through the semester as he offered suggestions to a hypothetical new student:

I feel that if she knows everything about MSL in the beginning, she's going to know how to use it way better than if she didn't know and then finding out in the middle of the semester "Oh, this is this" like I did. (Focus Group #2 on training a hypothetical new student)

Cruz started out the semester stating that he took an exploratory approach, but because he did not receive any strategy or metacognitive training, he did not know what

to do with the information he found. Therefore, the training that he suggested would have been beneficial for him.

### Summary

Cruz was confused at the beginning of the semester. He did not understand the syllabus or the course structure and organization which impacted his approach to the Apply activities. With support from his peers, trial and error, explicit instruction, and self-monitoring, Cruz developed a better understanding of the course and the materials and developed metacognitive skills. Table 31 summarizes Cruz’s challenges, strategies, and what influenced the strategies.

Table 31. Cruz’s Challenges, Discovery Methods, and Strategies

<b>Challenge</b>	<b>Discovery Method</b>	<b>Strategy</b>
The syllabus	ISR	Required explanation
The course structure	ISR	Discussed course structure
Purpose of VIP	ISR	Interacted with features of the VIP
Pronunciation	Focus Group	Used tutorials
	ISR	Used VIP
Spelling	ISR	Slowed down
	Focus Group	
Inefficient use of time	ISR	Used VIP
	Trial and Error	Used vocabulary list
Listening activity	Trial and Error	Developed new strategies
Unaware of resources	ISR	Discovered resources
	Focus Group	
	Trial and Error	

From a discussion in Focus Group #1, Cruz was reminded of the different activities in the tutorials that could help with his pronunciation. Additionally, he realized the importance of slowing down and double-checking his work with the help of the new

resources he discovered (or remembered), such as the vocabulary list, the VIP, and the Vocabulary Tutorials.

To overcome the challenges he faced with the listening activities, Cruz discovered new resources and strategies on his own. He found the vocabulary list at the end of the chapter of his *Classroom Manual* and realized he could use the context clues to aid in his comprehension of the listening texts. Additionally, to overcome not knowing how to rewind and replay portions of the listening texts, he chose to first read the questions and then listen to the audio, which allowed him to predict what to listen for.

Cruz gained information both from his peers and from trial and error, but the greatest influence for him were the two ISR sessions, where he could discuss the course in detail and view himself working online. Although Cruz was motivated to learn Spanish, he did not possess the autonomous learning skills to do so on his own. Cruz required more socially situated learning in which he was guided and supported through the different aspects of the course. His challenge was not necessarily with the content, but with the structure of the course and the available resources. He needed a detailed explanation about the syllabus, the course structure, and a guided explanation about how to use the VIP to understand how to do well in this course. Even though he had the materials in front of him, he did not know how to decipher them. At one moment at the beginning of the semester, he did not even know if he was on the right chapter in the online work. After Cruz had received a more explicit description of the course and the resources had been pointed out to him, he understood how to participate in a flipped course. Knowing how to use the VIP and the Vocabulary Tutorials provided Cruz with

additional resources to verify his spelling, practice his pronunciation, and work efficiently. Cruz also became a more conscientious learner. During the recordings, he realized that he made careless mistakes, mainly with spelling, and he acknowledged that he needed to slow down and verify his responses as he worked.

This case study described a motivated learner who wanted to do well in the course, but who did not possess the skills to do so on his own. He required explicit guidance along the way specifically regarding the course structure. By the end of the semester, he recognized the need to modify his approach to learning Spanish and, in response, he developed new strategies.

A constructivist environment encourages the use of development of metacognitive strategies, yet beginning learners often lack the metacognitive skills necessary to plan, monitor, and evaluate their own learning. A flipped environment, in turn, has potential to help students develop their metacognitive skills as they become autonomous learners.

### **Case Study #3: John—A Chaotic Browser**

The third case study presents the case study of John, a participant from the group of students categorized as *chaotic browsers*. Chaotic browsers typically cannot establish learning objectives or apply effective strategies and therefore leave activities incomplete or move from one activity or resource to the next trying to compensate for lower language ability by searching out different perspectives of the same concept (Ercetin, 2003). The participants in this group had the lowest mean score on the Apply activities and the highest number of attempts. John was chosen from this group because his mean score on the Apply activities was the lowest and the number of attempts was the highest, meaning that even after exhausting all his attempts, he still earned a low score. John did

not do as well in this course as other participants because he lacked information and computer literacy skills. The other two participants in this category who also did not do well had information literacy skills, but lacked motivation. One participant had decided to transfer to a different university at the end of the semester and the other wanted to finish the work as quickly as possible.

John is an 18-year old first year male student majoring in business. He did not take Spanish in high school and was self-conscious about his language skills in comparison to the other students in the class because “some people in the class had already taken Spanish before and I’ve never heard a lick of it. I try to understand it, but I guess that’s why I don’t talk very much because I don’t know as much as other people.” John did take two years of French in high school. In addition to not having any previous Spanish language study, he did not like technology and preferred using paper and pencil: “I, myself, hate computers, so if I don’t need to use them, I don’t.” In fact, John’s first recorded think-aloud session did not have sound because he did not allow his microphone to record. While this should have been resolved in the practice session during the face-to-face training session, John recorded on a classmate’s computer because he did not bring his to class that day, and therefore did not know how to set up Panopto to record. Because John did not have any previous study of Spanish study and was not comfortable with technology, learning in a flipped, blended course was a challenge.

John’s case study focuses on the main challenges that he faced throughout the semester and how he tried to overcome them. It also discusses why John was unable to overcome many of those challenges. The main challenges he faced were (a) unclear understanding of flipped learning, (b) lack of computer literacy skills, (c) incomplete

notes, (d) comprehension difficulties in the listening activities, and (e) writing in Spanish to complete the written activities. The challenges and outcomes are supported through John’s own comments and actions from his two RTAs and his comments from two focus groups and two ISRs and presented in Figure 29.

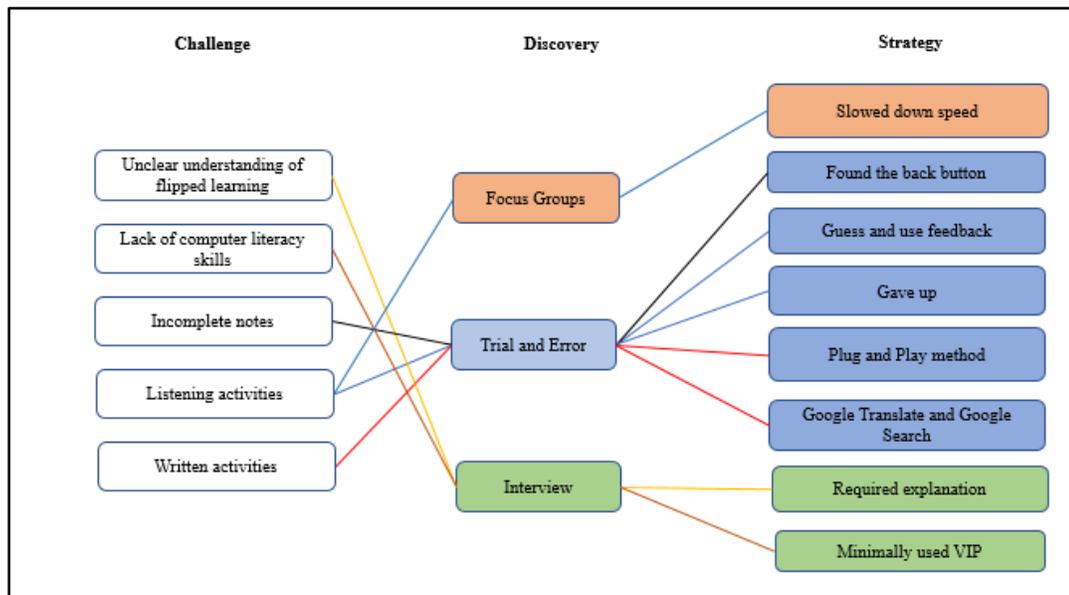


Figure 29. John’s challenges, discovery methods, and strategies

### Unclear Understanding of Flipped Learning

John did not understand what it meant to be in a flipped Spanish course or why he earned 5 credits for a course that met in face-to-face class sessions only three times per week. He understood flipped as being “homework, then class” and “half in class and half online.” As discussed later, John did not know how to learn from the initial discovery phase using the online materials, such as the VIP and the Vocabulary Tutorials. Instead, he skimmed through them and then tried to complete the Apply activities without enough information about the linguistic content. Therefore, when he described flipped learning as “homework, then class” he meant that students do homework online about a topic that

they had never learned before and without any instruction. He did not understand that the VIP and VT were the instructional materials and, together with the Apply activities, would help students prepare for the next day's face-to-face class. Because of this misunderstanding, he often felt that he was a day ahead in his online work because the instructor had not yet presented the vocabulary that he was working with online: "When I do my homework, it's like I haven't really learned it yet so it's a little iffy, and then when you go to the next class, they kind of clear it up." He prefers a traditional class rather than a flipped class: "I feel like it might be better to have class, then homework than the other way around."

John further explained that he "wasn't getting anything with the homework first before class because it just feels like you didn't know. I'm always unsure if this is right because I haven't done it yet." John suggested that students be given an additional assignment the day after the material was practiced during the face-to-face session to "clarify everything." John interpreted the online work as traditional homework, which is intended to reinforce new material learned in class. Instead, the online work is just the opposite.

Due to John's misunderstanding of the online work, he only felt "somewhat prepared" for face-to-face time and was not able to understand his instructor:

She talks Spanish and well I don't know Spanish so I'm trying to put it all together and she [the TA] is from Spain and she is like 'blah, blah, blah' sometimes. It's hard putting it together. (ISR #1)

In addition to not fully comprehending the instructor, John also did not come to class fully prepared because he did not know how to prepare. He did not know how to gather information from the VIP or the VTs. Instead, he was doing the Apply activities

and going to class with little knowledge of the new material. This may have contributed to the fact that John did not talk much in class.

John may also have felt only “somewhat prepared” since he felt that the online homework gave students a “gist” of what they needed to know for class and did not view that work as two credit hours’ worth of course work in which he was expected to be learning and applying new material:

It’s a five-credit course because there is a lot of homework and it obviously takes up a chunk of time. I mean, the first half of it is kind of teaching yourself and then you apply it to the tutorial. (ISR #2)

This comment was taken from ISR #2, which took place during the last week of the course. At first, it appears John might have gained an understanding of flipped learning, grasping that he had to study the material on his own and take responsibility for learning it. However, his comment that what you teach yourself is applied to the tutorial is not logical; in fact, the tutorial contains the new material that he should have been learning. John’s comments in conjunction with his interactions, described in the following sections, paint the picture of a student who did not understand the structure of the course or the function of the online components.

#### A Linear and Chaotic Learner

John’s lack of understanding of flipped learning, in addition to his lack of computer literacy skills, affected his interactions with the online components. John was not comfortable with technology and preferred “paper and pencil” learning to learning with the computer. His lack of computer literacy skills was evident in his linear and chaotic approach to the VIP and the VTs. Linear learners generally only seek out information that is immediately relevant and accessible to them and tend to miss key

features of a program, either intentionally or otherwise (Cárdenas-Claros & Gruba, 2009; Pujolá, 2002). Chaotic learners may be able to view the key features and even use them to a certain extent, but typically do not know how to handle the information within the program. John is both a linear learner and a chaotic learner. First, he took a linear approach to the VIPs and the VTs by skimming through parts of them. Once the features of the VIP and the VT were pointed out to him, he still did not know how to work with material inside the components. The next section focuses on the features in the VIP and the on the VTs.

**Presentation of Vocabulary.** Before discussing the VIP and the VT in depth, it is important to recall how vocabulary is presented in the chapter. First, some of the vocabulary words are presented in context in the VIP. The vocabulary words are highlighted and clickable. When clicked, an image or audio file appears. Then the students learn more vocabulary words through the VTs. Each VT has a set of specific vocabulary items that are presented and then reinforced through five different activities. Most often, the case is that not all the vocabulary words are introduced in the VIP and the VT. The students are also provided with a full list of vocabulary words at the end of each chapter. This list is in Spanish and the students are expected to look up the translations when needed.

**Features in the Vocabulary Interactive Presentations.** Most often, a linear learner seeks resources that are easily accessible and relevant. For John, the VIP did not appear to be either accessible or relevant. In Week 6, John opened the VIP, wrote down the title in his notebook, and closed it commenting, “I just skip these sections.” During the focus group, he further explained why he skipped them: “there’s just no point really.

They don't help because they are all in Spanish." Many participants in the study expressed similar views about the VIPs because they did not know how to work with them. For John, who had never taken Spanish before, seeing a page of written Spanish was overwhelming for him, and in many cases not accessible for his skill level. To make the VIP more relevant and accessible, I prompted John to interact with the different features available in the VIP. He read the title and the phrases, listened to the audio files, and clicked on the highlighted words. After a few minutes of exploration, he said, "That's new stuff I just learned there."

**Highlighted words.** Each VIP contains vocabulary words in context for the chapter. The vocabulary words are highlighted, and when clicked, an image or audio file appears. Not all the vocabulary words are presented in context in the VIP. John said, that while he had previously noticed that some words in the VIP were highlighted, he assumed that they were highlighted "because they were important" but did not know they were clickable. Although he knew those words must be important, he failed to do anything with the words, such as write them in his notes, which was surprising. As stated earlier, John was an avid note-taker who loved taking notes and often worked solely off his notes to complete the Apply activities. However, his failure to copy down the vocabulary words from the VIP further indicated that he did not understand that the highlighted words were also the vocabulary words for the chapter.

**The second page.** A member of his focus group told him that sometimes the VIPs were comprised of two pages, but he had only ever viewed the first page. During ISR #1 he recalled learning about the second page "I missed out every time on those, until that one girl showed me and Luke. We had no idea." When asked if he had tried going to the

next page between Weeks 6 and 12, he admitted that he did not know how to advance to the next page. He was then shown how to do so during ISR #1 by clicking the arrow on the side of the page.

*Week 12.* John continued a linear browsing path, ignoring to a great extent the information that he learned during the Focus Group #1 and ISR #1. Similar to the results of Cobb & Stevens (1999), John did not take advantage of the features available to him even after they were pointed out. He opened the VIP, clicked on one picture, and then advanced to the next page, which, turned out to be a lesson on grammar. Even though he was on a different lesson, he clicked on one more picture and then closed. He did not make the connection that the topic changed. From these interactions, it appeared that John was only mimicking what he learned from the discussions in Focus Group #1 and the ISR #1—clicking on the highlighted words and advancing to the second page; however, he still did not understand how to use the VIP which coincides with Fouch (2014) that students do not know how to use the materials available to them to improve their own learning. Furthermore, John is a low performing learner and according to Hegelheimer & Tower (2004), this type of learner often equate interactivity with learning so by clicking on a picture and advancing to the next page may have meant that he was learning.

When John watched his interaction with the VIP in Week 12, he commented that “everyone I talk to skips it because they don’t know what’s going on.” It appears since his classmates skipped it and it did not seem to affect them, then he could do the same as well. The issue with John’s thinking is that his peers knew how to use other resources from which to learn the vocabulary words such as the Vocabulary Tutorials or the

vocabulary list at the end of the chapter. John did not know how to use those resources effectively.

In addition to taking a linear approach inside the VIP, John also demonstrated chaotic browsing because he underutilized the instructional materials that contained important aspects of the lesson like the participants in Collentine's 2000 study. John's lack of computer literacy may also have affected his interaction as maybe he did not feel comfortable exploring the VIP to try out the features. It appeared that John did not see the relevance in the VIP and the material was not accessible at his skill level.

#### Structure of the Vocabulary Tutorials

John's lack of computer literacy skills and information literacy skills also prevented him from effectively utilizing the tutorials. First, John was unable to write down the words from the tutorial; and second, he did not understand the structure of the tutorials. In John's RTA #1 in Week 6, he opened the VT, clicked through each of the words in the first activity, and then closed it. As he clicked on each new word, he also attempted to write it in his notebook; however, the written word was visible for only a few seconds, which did not allow him enough time to write down the entire word. This could be traced back to a design issue. Rather than the words appearing for only a few seconds, a learner control could be put in place to allow for students to copy down the words. He stated that the tutorials "move too quickly and you can't pause it. There is no stop button so you can look at it and write it. I can't write that fast and try to learn it too." Indeed, the tutorials do not have a stop button. Since John was unable to handle the high cognitive demands of reading, listening, writing, and manipulating the controls in the tutorial, he decided to focus only on the written word rather than on the spoken word: "I

write it down first. I don't even listen to what they're saying. I just write the words down then I go through it real fast." By the end of the semester, through trial and error, he learned that by clicking the back button on the tutorial (see Figure 30) the word would appear again for a few seconds so he could finish writing it down.

John did not know that each Vocabulary Tutorial contained a distinct set of vocabulary words and that each tutorial contained different activities. When John clicked on a tutorial, it opened in a smaller window (see Figure 31) and John needed to scroll down to see the vocabulary words that he wanted to copy into his notes. In the tutorial, John saw a number under the vocabulary word and assumed that when he reached the last number, he had completed the tutorial. Because John's one focus was copying down the vocabulary words, he never noticed the other set of numbers in the upper righthand corner that indicated the number of activities in each tutorial, as shown in Figure 31. He also never noticed the forward and back arrows in the bottom corners that learners click on to advance to the next activity.

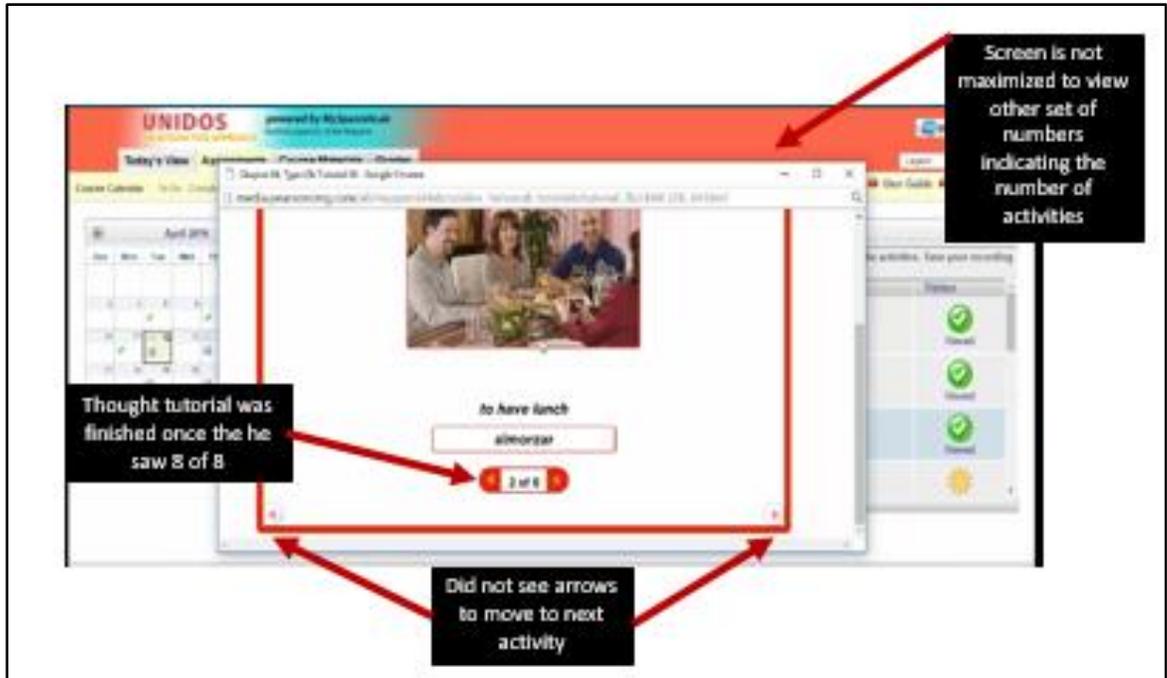


Figure 30. Annotated screenshot of John's open Vocabulary Tutorial

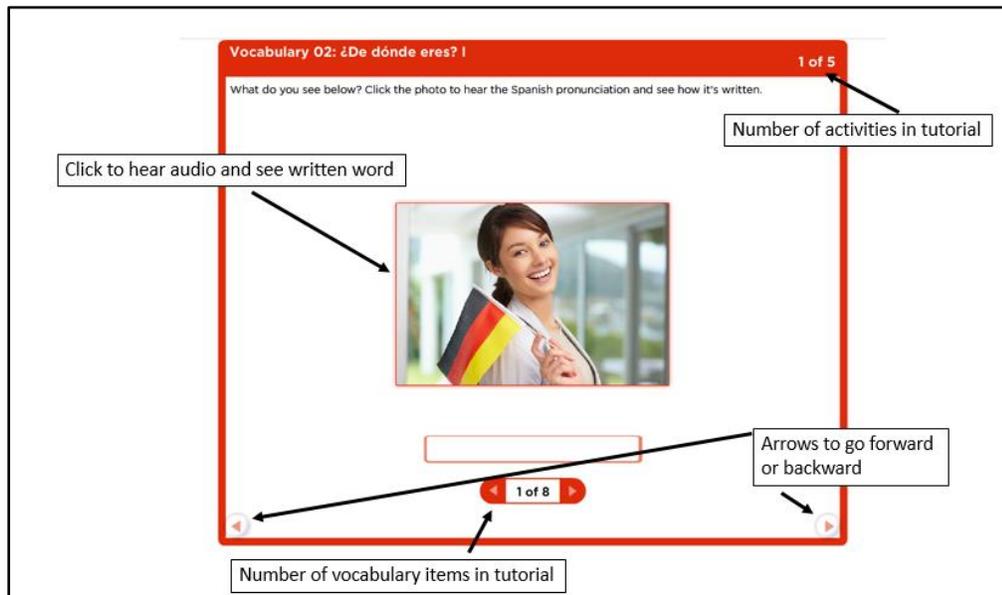


Figure 31. Features in the Vocabulary Tutorial

During ISR #1, I pointed out to John that each tutorial consisted of five activities, and I asked him to go through each activity for the first time. As he went through the

various activities, some of his comments were “So basically, it pronounces it for you,” “Oh, this is a guess game—that’s kind of nice,” “Kind of helps you correlate a little better,” “I didn’t know you could do that. This is new,” and “You can hear yourself doing it?” Upon finishing his first look at the activities in the tutorial he said, “This is horrible. I do my homework, I promise. But I didn’t know that was there. I just know we can do to the next one [tutorial].” After defending himself, he commented on how the tutorial could help him, along with what he had learned from ISR #1 and from Focus Group #1:

That’s a hell of a lot that I didn’t know. That tutorial is what you’re going to need. At least for me. I was totally blown away about the different things you could do on this thing from the girl [in the focus group]. So that’s five different ways to correlate the words with the pictures. (ISR #1)

John felt that doing the different activities would help him more than his current strategy of writing down the vocabulary words in his notes; however, despite John’s enthusiasm for discovering the new activities that could help him learn, his interaction with the VTs did not change from Week 6 to Week 12. His principal strategy to learn the vocabulary continued to be copying down the vocabulary words from the tutorials into his notes. Consistent with a linear pattern, John did not take advantage of the new information that he had learned during ISR #1. He said that he did not do the other activities because of the time commitment; he also said that once he had the words written in his notebook, he already had the answers so there was no need to do the activities. He believed that all the information he needed to know to do the Apply activities—the vocabulary word and the English translation—was written in his notes. John’s belief seemed to equate learning with writing down information from the book or the instructor and does not see the value in practice or repeated exposure to new

information. Additionally, his measure of whether he has learned something is whether he can produce it on the test, or in this case, the Apply activities.

The MSL environment is full of materials and resources for the students, but students with low metacognitive and information literacy skills are not always able to navigate these resources or effectively use them due to their inability to plan, monitor, and evaluate their own learning (Tobias, 2006). At the end of each chapter in the *Classroom Manual*, there is a list of that chapter's new vocabulary words. Many students in the study were unaware of the end-of-chapter vocabulary lists at the beginning of the semester; however, from their peers or through trial and error, they found them. John never did. During ISR #2, I asked John if he knew of any other place in the book that contained a list of the vocabulary words and his response was, "yes, usually the third tutorial has the English word and the Spanish picture [text] that's the only one that's slow where you can click [to see the word]."

His comment reflects two important points about gaps in John's understanding of the organization of the instructional materials. First, John did not know about the end-of-chapter vocabulary lists; and second, he did not understand the format of the tutorials. Each tutorial has a set of five activities, and the way in which the vocabulary words are presented in each tutorial is slightly different. In some tutorials, the first activity displays a series of pictures and the accompanying words in Spanish, whereas in other tutorials, the first activity shows pictures, words in Spanish, as well as the corresponding words in English. John was under the impression that tutorials of the second type—those that showed a picture, the word in Spanish, and the word in English—was the only list of vocabulary words available to him. While the different tutorial formats allow students to

learn material in flexible ways, John did not have metacognitive or information literacy skills to navigate or use the materials effectively.

#### His notes

As a linear learner, John relied heavily on one resource, his notes, because they were readily available to him. John's notes consisted of the vocabulary words that he wrote down from the first activity in each tutorial, and he relied on them during the Apply activities, which are discussed in the following sections. It is understandable, given John's discomfort with technology, that he preferred written notes on paper; however, John never had a complete list of vocabulary words, nor a complete list of translations. Figure 31 is a screenshot of John (with his face obscured) during the first recording showing his notes to the camera. On the left side are the Spanish words he had written and on the right side are the translations. Although, somewhat difficult to see, there are many blank spaces on the right side of the paper for the translations. In this tutorial, the English translations were not provided, so unless he was able to figure out the word on his own, he left it blank until he looked it up using a search engine.



Figure 32. Screenshot of John's notes from RTA 1

John skipped over the words in the VIP because he did not know how to use it, and he often did not have enough time to write down the words from the VTs because they moved too fast. Furthermore, he did not know that the *Classroom Manual* had a complete list of vocabulary words. During ISR #1, the research showed John how to use the highlighting tool in MSL to mark important chunks of text, which he could then print out if he wished. John's response was lukewarm: "I actually think that takes a while to click and highlight."

Due to the lack of information in his notes, John often relied on Google Search or Google Translate to "learn the vocab" and thus was ill prepared to complete the Apply activities. Similar behaviors observed during the VIPs and the VTs were also noted during the Apply activities such as leaving an activity unfinished (similar to his notes), misspellings, and the inability to reconcile new information with prior knowledge. The

next two sections focus on John's interaction with the listening and the written Apply activities.

### Listening Activities

According to Roussel (2011), high-performing learners often have the metacognitive skills needed to develop a plan on how to complete the listening comprehension activities, but low-performing learners often assume that more passes through the listening material is better which is also similar to the idea that more interactivity equals more learning (Hegelheimer & Tower, 2004; Windschitl, 2002). As shown in John's interaction with the listening activities, John's approach to the listening activity is consistent with a low-performing learner who lacks metacognitive and information literacy skills.

John expressed frustration with the listening activities, explaining that he "just hates these" and that they are challenging for him: "I'm just not around anyone who speaks Spanish. I don't really know a lot of people that speak Spanish because it's just all new, I guess." John's focus group member suggested slowing down the speed on the audio of the listening activities to make the speech more comprehensible. John tried out the new strategy, but said that it did not make a difference for him because "they speak like fast and mushed together." Based on John's comment, he was unable to parse the speech he heard, even when playing the audio at a slower speed.

John developed two strategies to complete the Apply listening activities. The first strategy entailed slowing down the speed as suggested by a classmate in his focus group, playing the audio, and listening for a familiar word. Then he stopped the audio when he heard the familiar word, made a mental note of the time on the audio bar, and then

replayed that section until he understood something, assuming that the more times he heard the input, the more likely he would eventually comprehend it. Of all the participants in the study, John was the only one with no previous exposure to spoken Spanish. Anna, with her 2 years of high school Spanish, probably was never asked to listen to anything that was not already simplified and limited to vocabulary that students already knew and Cruz was a heritage speaker. Furthermore John, like the other participants in the case studies, had not been taught explicit listening strategies as part of their flipped course and coupled together with their previous language learning experiences, probably had not received much instruction on how to learn. What they know seems to have been absorbed through their education and metacognitive skills.

John's lack of exposure to Spanish and lack of explicit strategy training may have amplified his frustrations because he did not know how to make the speech more manageable for him. After one listening activity, he commented, "I don't understand these people. They are horribly difficult. This is big zeros. I am done." Later in ISR #2 he reflected on that comment, saying "I get frustrated to the point where I just want to be like, 'yep, let's give it a rest.'"

Due to his inability to understand what the speakers in the listening activities were saying, he developed a second strategy: guess and use the feedback. The programming for the fill-in-the-blank activities does not allow students to submit an activity until every blank contains an answer; therefore, John typed one letter in each answer blank and then submitted the activity. Once submitted, the computer-generated feedback appeared and John used the feedback to find the correct answers. At times, this strategy worked well for him because the feedback was explicit and essentially supplied the answer, such as "Is

this the adjective to describe a man from Puerto Rico?” Then John needed only to return to the notes that he had taken from the VTs to find the answer: Puerto Rican or *puertorriqueño*. Other times, this strategy backfired when the feedback was too general and did not supply enough information for him to simply refer to his notes. An example of this type of feedback was “Listen again,” which did not give John enough information to find the answer. He explained his strategy of guessing and using the feedback as follows:

It won't let you submit unless you fill in everything so I just kind of put in random words to do it. I was just kind of guessing. I'm just trying to look for feedback basically, but it [the feedback] was all the same so it didn't help. (ISR #2)

When this strategy did not work, John gave up. He did not have any other resources to fall back on to seek help. After one failed attempt, he expressed his frustration by saying: “I have no idea. I'm not even going to attempt it again. I won't get it. That was rough.” He exhausted his only two strategies available to him—his notes and the feedback. Since he did not have any other metacognitive or cognitive strategies available, his only option was to submit the activity with the few answers he had. Although he assumed that listening to the audio numerous times would aid in his comprehension, he needed a strategy to help him break the questions and audio into chunks. John's approach to the listening activities as well as the written activities that are discussed next is one-dimensional. He was unable to develop new strategies as he did not have the metacognition to reconcile the new information with prior knowledge.

#### Written Activities

As discussed earlier in the case study, John did not learn a great deal from the initial discovery phase of learning since he did not understand the purpose of the

components or know how to use them effectively; consequently, he struggled to complete the Apply activities. John did not feel as frustrated with the written Apply activities as he did with the listening activities; he reported feeling more confident with reading Spanish as the semester progressed. However, due to the information he missed, unknowingly at times, from the initial discovery phase of learning, John created a strategy through trial and error that he labeled the *plug and play* strategy.

**Plug and Play.** For the multiple-choice activities, students are allowed three attempts. On the first attempt, John often made an educated guess, submitted the activity, and then consulted the feedback. When the feedback was too general, he clicked on a different answer choice and resubmitted the activity until he arrived at the correct answer. He explained that he needed the feedback to give him “a little more to go on” so that he could figure out the answer. In other words, he preferred more specific feedback so he could refer to his notes to find the translation of the vocabulary word or phrase needed. When the feedback was general, he stated, “You play the game. You got it wrong so there’s only one option left. It’s click and go.” For another multiple-choice activity in which he had to read a short paragraph in Spanish, he looked at his notes and then said, “I’m just going to guess. I have no idea.” He reflected upon that activity by saying: “Oh this one was just a train wreck. This was plug and play.” Regardless of how John labeled it—*click and go* or *plug and play*, his interaction was the same. He lacked the knowledge he should have gained from the VIP and the VTs, and therefore had to guess.

The next section presents an excerpt describing how John’s lack of interaction with the initial discovery phase of learning as well as his low levels of metacognitive,

cognitive, computer literacy, and information literacy skills affected his ability to complete an Apply activity.

#### The Case of *guatamalteca*

For this activity, students were required to supply the nationalities of famous people. To do this, the directions stated that students should use their “favorite search engine” to find the countries of origin of the individuals and then write the adjective of nationality for each one. The activity included a word bank with the countries of origins of the famous people. John’s interactions with the activity are noted; however, as this excerpt is from his first recorded think-aloud session in which he did not set up his microphone correctly, there was no sound. Although there was no sound, there was little (or perhaps no) loss of data, since the video recording shows that John did not open his mouth at all during the think-aloud session. Excerpt 7 provides a detailed description of how John answered the question regarding the nationality of Rigoberta

Menchú, a political activist from Guatemala.

#### Excerpt 7. Lack of Attention

---

1	{Looked at the spelling of Rigoberta Menchú in the MSL activity}
2	{Clicked on Google Chrome icon to switch to Google Search}
3	{Typed in “Rigorberta” [incorrect spelling of first name] in Google Search}
4	{Returned to MSL activity to look at the spelling of her last name, Menchú}
5	{Clicked on Google Chrome icon to switch to Google Search}
6	{Typed in “Meuchu” [incorrect spelling of last name] in Google Search}
7	{Viewed results of Google Search which showed that she was from Guatemala}

---

He had the activity opened in one window and Google Search minimized in another window. To switch between windows, he would go to the Google Chrome browser at the bottom of his screen and click on the window he wanted, as shown in Figure 33.



Figure 33. Screenshot of John Switching between Browsers

**Lack of Attention.** Directed attention is a metacognitive strategy in which the learner maintains attention during the task (O'Malley, 1990). The excerpt begins with John copying the name, Rigoberta Menchú, unsuccessfully, from the MSL activity into Google's search engine. Although the task of copying a name should have been relatively easy, the task may have been influenced by the fact that John had never seen the name before, or perhaps he relied on Google to do the work of spelling it correctly. The Google search engine often provides help by showing search results even without the correct spelling of the search items. John failed to correctly transfer the name from one screen to the next. His lack of directed attention could have also influenced the way in which he copied the vocabulary words from the VTs to his notes, keeping in mind that he could

only view each word for a few seconds. Copying and pasting would have possibly eliminated the spelling errors, but the copy/paste option was not available in the VTs.

Problem identification is another metacognitive strategy in which the learner identifies the central idea that needs to be resolved (O'Malley, 1990). This information would be found in the directions; however, John did not read all the directions to this activity as shown in Excerpt 8, which is why he earned a zero on the first attempt (line 6).

#### Excerpt 8. Not Reading the Directions

---

1	{Clicked on Google Chrome icon to switch to MSL activity}
2	{Typed "guatamala" in MSL activity}
3	{Scrolled up to the word bank to see the correct spelling for Guatemala}
4	{Typed "guatemala" in MSL activity}
5	{Finished activity and submitted}
6	{Saw score of zero}

---

In Excerpt 8, while lines 3–4 show that John found Rigoberta Menchú's country of origin as Guatemala and typed *Guatemala* into the answer space, the activity required production of adjectives of nationality, not countries. His inability to identify the task at the beginning of the activity resulted in a misused attempt, which could have been used to increase his score on a subsequent try. During the ISR, John reflected upon the effect that not reading the directions had on his performance:

Usually, I just blow through the instructions. It said word bank and I saw eight of them and eight words and that is how I went through it, but yep I goofed up hard. It said to write the adjective and the nationality and I didn't write the adjective.  
(ISR #1)

**Feedback.** After earning a score of zero on his first attempt, John used a variety of resources including the computer-generated feedback, his notes, Google Translate, Google Search, and [www.spanishdict.com](http://www.spanishdict.com). In line 1 of Excerpt 9, he viewed the

feedback for the first question which stated, “Is this the adjective to describe a man from Puerto Rico?”

Excerpt 9. Resource Use

---

1	{ Viewed feedback for the first question and reread the directions }
2	{ Began changing each answer to the adjective of nationality [second attempt] }
3	{ Looked at notes }
4	{ Changed “guatemala” to “guatamaltea” }
5	{ Changed other incorrect answers and submitted activity }
6	{ Saw score of 50% }

---

After reading the feedback, he scrolled to the top of the activity to reread the directions. By using the feedback, he understood his mistake; however, John did not know many of the adjectives of nationality; to find them and make changes to his original answers (line 3) required the use of additional resources.

*His notes.* In lines 3–5, John referred to his notes that he had taken from the VTs to aid in locating the correct answers. In line 3 specifically, he changed *guatemala* to *guatamaltea*, an incorrect spelling of the correct adjective *guatamalteca*, which he had copied from his notes. Although John referenced his notes, he may have either copied the word incorrectly from the VT to his notes or copied it incorrectly from his notes to the MSL activity. To recall, John commented on his frustration with the VTs because he was unable to pause them and could not copy the words down fast enough. If this was the case, it demonstrates that John’s inability to use his resources had a negative effect on his performance. With sole reliance on his notes, John submitted his answers once again and earned a score of 50% (line 6).

Excerpt 10. Google Search and Google Translate

---

1	{ Clicked on feedback for the question with Rigoberta Menchú }
2	Feedback showed: Is this the adjective to describe a <u>woman</u> from Guatemala?

---

---

3	{Clicked on Google Chrome icon to switch to Google Translate} [settings: translated FROM Spanish TO English]
4	{Typed in “guatomalo”} Saw translation as <i>vendido a los clientes</i>
5	{Typed in “guatemalteo”} which translated as <b>guatemalteo</b> [nonword]
6	{Changed Translated FROM language to English on Google Translate}
7	{Typed in “guatalmalo”} which translated as <b>guatalmalo</b> [nonword]
8	{Typed in “guatamala”} which translated as <b>guatamala</b> [nonword]
9	{Used Google Search bar to type in <i>guatemala in spanish</i> }
10	{Clicked on first search result, which was <a href="http://www.spanishdict.com">www.spanishdict.com</a> }
11	{Scrolled down in <a href="http://www.spanishdict.com">www.spanishdict.com</a> and then went back to search results}
12	{Returned to Google Search bar}
13	{Typed in “guatemala” in spanish google translation”}
14	{Returned to Google Translate}
15	{Typed in “guatemala” which translated to <b>Guatemala</b> }
16	{Changed translated TO language to English and translated FROM language automatically changed to Spanish}

---

***Google Search and Google Translate.*** Two cognitive strategies that are often used for learning vocabulary are resourcing and elaboration (O’Mally, 1990). When learners use the resourcing strategy, they use available reference sources, such as dictionaries, to identify a word. The elaboration strategy occurs when learners relate new information to prior information. In John’s case, he employed the resourcing strategy by using his notes, Google Translate, Google Search, and spanishdict.com. When he was unable to find the answer in one resource, he consulted another. In doing so, he was compensating for his lower language ability, which is typical behavior of a chaotic learner (Ercetin, 2003). In addition to low language ability, John also demonstrated low computer literacy such as not knowing how to use Google Translate nor understanding the computer-generated feedback.

John stated that when he did his Apply activities and had to use Google Translate, he was unsure of what to type into the search bar. He had to “guess everything. I’m just shooting for it.” In addition, John was not skilled at interpreting the computer-generated feedback. For example, when he viewed the feedback (lines 1–2), which stated “Is this

the adjective to describe a woman from Guatemala?” he did not appear to focus on the underlined word, or what the underline might signify. In fact, it was a clue to the rule that adjectives in Spanish are marked for gender. At that time, it did not appear that John took note of the clue provided. Lines 3–16 depict the confusion that John had in trying to find the correct translation for Guatemalan. At first, he used Google Translate, but misspelled it. Then he changed the language of Google Translate, but that also did not help. In line 9, he switched to Google Search to look up “guatemala la in spanish” which took him to spanishdict.com (line 10); however, he did not find that helpful and returned to Google Search (line 12), where he typed “guatemala in spanish google translation” into the search bar (line 13). That brought him back to where he started: Google Translate (line 14), in which he tried to find the translation for “guatemala” (line 15) and also changed the language once again (line 16). It is unclear why John changed the language of Google Translate, but it may have been that he was trying whatever he could to get the answer. This may have been one of those times that he was “shooting for it.”

A difference between a linear learner and a chaotic learner is that a linear learner will go directly from point A to point B and not even bother with point Z, whereas a chaotic learner will stop at point Z, but not know what to do once there. John stopped at point Z in an attempt to use Google Translate and Google Search, but he (a) did not know what search terms to include in the search and (b) he did not fully understand how Google Translate worked as he continued to change the “translate to” and “translate from” settings.

Another way to interpret John’s online behavior in this excerpt is that he did not understand the phrase “adjective of nationality.” He searched for the translation of

“guatemala in spanish,” but he should have searched for Guatemalan. Had he typed “Guatemalan” into Google Translate rather than “Guatemala”, he would have found his answer quickly. John confirmed this during ISR #1, stating that he did not know his “parts of a sentence very well.”

#### Excerpt 11. Prior Knowledge

---

1	{Returned to Google Search bar}
2	{Typed in “guaatamal feminsie”}
3	{Clicked on a corrected spelling of “guatemala feminise”}
4	{Looked at search results for two seconds}
5	{Clicked on Google Chrome icon to return to MSL activity}
6	{Looked at the question with Rigoberta Menchú}
7	{Clicked on the “Try Again” button} (third attempt)
8	{Looked in his notebook}
9	{Looked at the window with the Google Search results for “guatemala feminize”}
10	{Returned to MSL activity}
11	{Typed in “guatemala”}
12	{Changed other questions he missed}
13	{Submitted activity}
14	Earned 62.5%

---

Seeing the feedback in line 2 in the previous Excerpt 10 likely prompted John to recall that adjectives have gender because in line 2, John typed in “guaatamal feminsie” in the Google Search bar, most likely looking for the word *feminine*. His misspellings may also be the result of poor keyboarding skills. Google automatically corrected the phrase to *guatemala feminise* (line 3). He viewed the results for a moment and then returned to the MSL activity (lines 39–40) as the results were not helpful. In lines 41–42, John tried his third attempt at the activity and looked in his notebook (line 43) and then back at the search results for *guatemala feminise* (line 44). In lines 45–46, he changed this particular answer to *guatemala*, and then modified his other answers (line 47). His changes as well as the correct answers are listed here:

Rigoberta Menchú: changed *guatamaltea* to *guatemala* (incorrect; guatamalteca)

Carolina Herrera: changed *venezolano* to *venezolana* (correct)

Enrique Iglesias: changed *español* to *spaino* (incorrect; español)

Ricky Martin: changed *puertorriqueño* to *puertorriqueño* (incorrect; puertorriqueño)

John used his prior knowledge of adjective agreement to correctly change *venezolano* to *venezolana* for Carolina Herrera, but he was unsuccessful in his attempts to correct the other three answers. For Ricky Martin, it appeared that the error was one of spelling, but for Rigoberta Menchú, it was the wrong form and his change did not make the new entry more like an adjective. Had John had the metacognition to self-monitor his work, he may have been able to correctly solve those problems.

The case of Enrique Iglesias is also interesting. He started with *España* since that is the country of origin for Enrique Iglesias. After recalling that adjectives have gender, he changed the answer to *español* since Enrique is a male, but *español* is a non-word. On the third attempt, he used Google Translate to find the translation for *español*, but since he had both the “translate from” and the “translate to” language set at Spanish, the search engine did not provide a translation. He did not realize that the settings were the same and finally guessed with *spaino*, another nonexistent word.

#### Excerpt 12. Ran out of Attempts

---

1	{Looked at feedback for Rigoberta Menchú, which also showed the correct answer <i>guatamalteca</i> ‘Guatemalan’}
2	{Clicked on “Try Again” button, but there were no more attempts }
3	{Closed activity and ended recording }

---

After John submitted the activity for the third time, he still did not have all the answers correct (line 1). John then viewed the feedback, which also showed the correct answer, and tried to do the activity again; however, he had already used up all three allotted attempts (lines 2–3).

This activity demonstrated how John answered one question in one activity; however, his interaction on a whole was very similar to that in the other written Apply activities. He often skipped the directions, relied heavily on feedback and his notes, and then used Google Translate and Google Search. In this activity, as in others, John used a lot of resources to complete the task but, in the end, the resources he chose did not help him complete the task. John never gave up on a written activity as he did with some listening activities. In fact, for one written activity that also posed some difficulty, rather than quit, he copied and pasted entire sentences into Google Translate to help find the answer. This strategy was not available for the listening activities.

The Apply activities, both written and aural, were challenging for John because he lacked the skills and knowledge to do them. He lacked the metacognitive skills to plan and self-monitor his learning in a task, the information literacy skills to understand the task, the cognitive skills to carry out the task, and the computer literacy skills to use technology effectively for learning.

#### Suggestions

John struggled through the MSL work. Because John was not comfortable with technology, one of his biggest challenges was using the various online resources effectively. Stemming from his discomfort with technology, it is possible that he did not know how to explore the resources more thoroughly to better understand the purpose of

the VIP or how to maximize his window so he could see the full Vocabulary Tutorial. He said that he would like to have someone “there to show you and just tell you ‘you should do that’” and would prefer that this be done during face-to-face time to clarify any doubts. However, he also suggested the creation of a video tutorial, similar to what is available in his Chemistry course, that “shows you like how the whole website works. It tells us what to do.” He further explained that although some students may “hate it because you have to do it, but I kind of like it because I don’t know technology. It tells you how to look at the stuff on the pages and how to go through each one.” This is exactly the type of training that would have benefitted John in beginning to develop skills that would help him organize his learning.

#### Summary

The three research questions for this study were aimed at discovering how learners work through the online components of Spanish language program and then what influenced their development over time—trial and error, discussing tips and strategies with peers, and reflecting while working online. The research questions were answered throughout the case study through analysis of data collected from John’s RTAs, his focus groups, and ISR sessions. For the most part, John did not show much development during the semester. He did not develop a better understanding of the course or the materials and tended to rely on ineffective learning strategies. Table 32 summarizes how John overcame or tried to overcome some challenges he faced.

Table 32. John's Challenges, Discovery Methods, and Strategies

<b>Challenge</b>	<b>Discovery Method</b>	<b>Strategy</b>
Did not understand structure of flipped learning	ISR	Required explanation *
Unaware of features in VIP	ISR Focus group	Interacted with features of the VIP
Unaware of the different activities in VT	ISR	Interacted with each activity
Could not write down the vocabulary words fast enough	Trial and error	Clicked on the back button to view the word again
Listening activities	Focus Group Trial and error Trial and error Trial and error	Slowed down audio speed Listened for key words Guess and use feedback Give up
Written Activities	Trial and error Trial and error Trial and error Trial and error Trial and error Trial and error	Plug and play Used Google Search Used Google Translate Feedback Notes Prior Knowledge

Learning in a flipped course requires students to be autonomous or gained autonomy as they are learning how to learn in a flipped course (Tobias, 2006). John, however, did not seem ready for autonomous language learning. He did not have the cognitive or metacognitive skills needed to carry out the learning tasks. He was challenged with understanding the structure of the class and the purpose of the learning materials and when completing the Apply activities, he lacked knowing how to set goals and how to implement his own learning program. John was also challenged with the technology. His discomfort with the technology influenced his lack of exploration to try out new features or paths.

From the focus group, John learned how to slow down the speed of the audio. Although he said the speech was still too fast, he slowed down the speed on every

listening activity. From the ISRs, John learned about flipped learning and the purpose and features of the online components. However, his understanding of flipped learning, as well as his interactions with new features, remained limited. John, like Anna and Cruz, developed many strategies through trial and error. John found the back button on the VTs, which allowed him more time to write the vocabulary words. He also found that with a difficult activity, he could either put in an answer as a place marker to get the feedback and hope that it would be specific enough, or he could use his *plug and play* strategy. To recall, a place marker was used for the fill-in-the-blank questions to prompt feedback while the *plug and play* strategy was used with matching and multiple-choice questions. He relied heavily on Google Translate, Google Search, and his notes. When the listening activities were too challenging and he had exhausted his attempts, he gave up. Unlike Anna and Cruz's strategies; however, John's strategies were not always conducive to learning. His strategies often helped him complete the immediate tasks, but it is difficult to determine how much he actually learned from the online sessions.

This case study described a low performing learner who lacked the necessary skills for autonomous learning. Even after some brief explanation or demonstration, he was still unable to implement any changes, which highlights the need for both ongoing and explicit training.

### **Summary of Case Studies**

Chapter 5 presented three case studies representing three different types of learners in the study—an exploratory learner, a linear learner, and a chaotic learner. The purpose of these case studies was to identify the challenges that the participants faced, how they overcame those challenges, and what influenced the changes they made

throughout the semester. In addition, it showed the uniqueness and variety among learners. Each case study answered research questions two and three: *What insights about learning in an online context emerge from discussions with peers?* (RQ #2) and *What insights about learning in an online context emerge from conversations in which learners view and talk about video clips of their online activity?* (RQ #3). Additionally, the data shed light on the types of strategies that learners gain through trial and error. In some cases, the challenges were similar, whereas in other cases the challenges were unique to the specific learner. This section presents a summary of the main points of the case studies and then a summary of results for each of the two research questions.

The first case study presented Anna, a high-performing learner who entered the course with strong metacognitive skills and therefore could engage in an exploratory browsing pattern to discover new resources and strategies. Anna was well on her way to becoming an autonomous learner. Cruz, the focal learner of the second case study, performed at the midrange of the course; however, as a heritage speaker of Spanish with receptive skills only, he brought additional language skills and language awareness to the course. He did not have many metacognitive skills upon entering the course and often took a linear approach to learning. With the introduction of reflecting on his own behaviors during the ISRs, he began to develop metacognitive skills and started to explore as he said he did at the very beginning of the semester. The third case presented was John, a low-performing learner with no previous exposure to Spanish who was unable to overcome his challenges due to his lack of information and digital literacy skills. He often took a chaotic approach to learning. Anna could use her metacognitive skills when approaching new and unfamiliar material; Cruz needed guidance first; and

John, even with guidance, did not know what to do when encountered with new material. All the learners entered the study with a unique set of skills and therefore interacted with the Spanish language program in accordance to their level. The commonalities among the case studies include a poor understanding of flipped learning and the course structure and organization, how to use materials for learning, difficulty with the listening activities, and a desire for further explanation of the course and the online materials.

Table 33 presents the challenges, discoveries, and strategies for the three focal students in this study. In instances in which the discovery occurred through more than one method, the challenge was listed more than once resulting in a total of 39 challenges. Anna’s data is color-coded red. Cruz’s data is color-coded blue, and John’s data is color-coded green. In total, there were 21 instances in which the discovery method was trial and error, 11 times for the ISR and 7 times for the focus group.

Table 33. Summary of Challenges, Discovery Methods, and Strategies of Focal

Participants			
	<b>Challenge</b>	<b>Discovery</b>	<b>Strategy</b>
1	Due dates	Trial and Error	Set reminder on phone
2	Listening activity	Trial and Error	Used headphones
3	Listening activity	Trial and Error	Slowed down audio speed
4	Listening activity	Trial and Error	Predicted before listening
5	Listening activity	Trial and Error	Used vocabulary list
6	Listening activity	Trial and Error	Accessed written translation
7	Directions written in Spanish	Trial and Error	Google search for potential directions

Table 33.--continued

8	Searches for vocabulary words	Trial and Error	Translated vocabulary words first
9	Listening activity	Trial and Error	Developed new strategies
10	Inefficient use of time	Trial and Error	Used vocabulary list
11	Unaware of resources	Trial and Error	Discovered resources
12	Could not write down the vocabulary words fast enough	Trial and Error	Clicked on the back button to view the word again
13	Written Activities	Trial and Error	Prior Knowledge
14	Written Activities	Trial and Error	Plug and play
15	Written Activities	Trial and Error	Used Google Search
16	Written Activities	Trial and Error	Used Google Translate
17	Written Activities	Trial and Error	Feedback
18	Written Activities	Trial and Error	Notes
19	Listening activities	Trial and Error	Give up
20	Listening activities	Trial and Error	Place marker and use feedback
21	Listening activities	Trial and Error	Listened for key words
22	Searches for vocabulary words	ISR	Used Verb Chart and Glossary
23	The syllabus	ISR	Required explanation
24	Spelling	ISR	Slowed down
25	The course structure	ISR	Discussed course structure
26	Pronunciation	ISR	Used VIP
27	Inefficient use of time	ISR	Used VIP
28	Unaware of resource	ISR	Discovered resources
29	Purpose of VIP	ISR	Interacted with features of the VIP
30	Did not understand structure of flipped learning	ISR	Required explanation *

Table 33.--continued

31.	Unaware of the different activities in VT	ISR	Interacted with each activity *
32	Unaware of features in VIP	ISR	Interacted with features of the VIP *
33	Searches for vocabulary words	Focus group	Took pictures of vocabulary tutorials
34	Error message in MSL	Focus group	Tried different browser
35	Pronunciation	Focus Group	Used tutorials
36	Spelling	Focus Group	Slowed down
37	Unaware of resources	Focus Group	Discovered resources
38	Listening activities	Focus Group	Slowed down audio speed
39	Unaware of features in VIP	Focus group	Interacted with features of the VIP *

#### Trial and Error

John used Trial and Error ten times, Anna seven times, and Cruz three times. In the case of Ann and Cruz, their use of trial and error resulted in mainly effective strategies that aided in their learning. Anna set a reminder on her phone to complete the activities which helped her plan. Both Anna and Cruz discovered new strategies and resources on their own. John's use of trial and error was unique to that of Anna and Cruz. John tried many different strategies, but they were not as effective as those used by Anna and Cruz. Of the ten instances of trial and error, four could be considered ineffective learning strategies such as giving up, plugging and playing, inserting a place marker and using feedback, and his notes. While the use of notes may have been an effective strategy for some, for John it was ineffective because his notes were incomplete. These four strategies could be considered ways to finish the work, but not necessarily effective ways to learn the material. However, John, who lacked computer literacy skills discovered that

clicking the back button would allow him to view the vocabulary word so that he could properly copy it into his notes. He also had the right idea to listen for key words during the listening activities; however, that single strategy was not enough for him to understand the material. Anna, the exploratory learner, often discovered strategies on her own. Cruz, who preferred to stick with a routine, did not use trial and error as often. John, the chaotic learner tried several different strategies, but rarely resulting in an effective strategy.

#### Individual Session with the Researcher

The challenges that were solved during the ISR mainly focused on the course design and policies. Neither Cruz nor John understood the design of the course or the course materials and could gain a better understanding by discussing the course individually. From viewing video clips of himself working, Cruz also reflected upon his mistakes and realized that slowing down could be helpful for him. Because Anna understood flipped learning and was also able to solve many challenges through her own trial and error, the ISR may not have been as useful to her as it was for Cruz and John. For the three participants, the result of meeting with the researcher increased either their understanding of the course and prompted increased interactions with the online components.

#### Focus Groups

Anna, Cruz, and John also overcame challenges through discussion with their peers and discovered new strategies. Anna discovered taking pictures of the VTs with her phone and John learned to slow down the speed of the audio on the listening activities. Cruz discovered other resources and how the tutorials could help with his pronunciation.

As with the ISR, the focus group discussions also prompted the use of new, effective strategies.

Then next section discusses the second and third research questions. The focus groups became a place for students to share their ideas and voice their frustrations with the course, and the ISRs were more instructional in that the researcher provided the participants with information that targeted areas of need that she had identified. For Cruz, in particular, ISR #1 session served as a point of departure for self-monitoring.

### **Insights from the Focus Groups**

Research Question #2 asked *What insights about learning in an online context emerge from discussions with peers?* To recall, the participants met twice during the semester with their peers for approximately 20 minutes with the purpose of sharing tips and strategies. In Focus Group #1, the participants discussed how they had worked through the previous day's assignment. In Focus Group #2, the participants gave suggestions to a future student on how to work in a flipped environment in addition to working together through one assignment.

Each participant from the study learned information from their peers regarding a technical aspect of the program. Specifically, of the three focal learners in the study, Anna learned about trying out a new browser, whereas both Cruz and John learned about or were reminded of the different features in the online components, such as how to slow down the speed on the listening activities, how to find the second page of the VIP, and the existence of the different activities in the VTs.

Not only did each of the focal learners gain tips and strategies, but they also shared with their group members. Anna shared her tip of using Google Translate with

voice, but none of the participants in her group used it after she shared this information. Cruz's mention of the different activities in each Vocabulary Tutorial prompted one of his group members to do the activities from that day on. In Focus Group #2, John told his group members about the notes feature available in MSL that he learned during the ISR, even though he never utilized it himself. Thanks to the discussion in his focus group, Cruz also became more aware of his need to slow down as he worked. Although John did not necessarily see much improvement over the semester, he commented that by participating in the focus groups he saw "how they [group members] view each homework" and how the sessions "just give you clues and ways to improve your own learning." Cruz also found that by discussing MSL during face-to-face time, he "learned a lot from other classmates on how to navigate different resources to using MySpanishLab and just how to use it." The focus groups did what was expected—participants shared tips and strategies with one another and by "talking to each other about what we did helped a lot."

At the end of ISR #2, all ten participants in the study were asked to discuss which aspect of the study had contributed the most to their learning—thinking aloud as they worked, watching themselves as they worked, talking with their peers, or talking with the researcher. Many participants commented that one or more aspects aided in their understanding; however, talking with peers and talking with the researcher were the top two areas that participants reported as most helpful.

**Bridging the Gap.** The focus groups were a site of more than just tips and strategies, however. The participants in the study appeared to be comfortable in the focus groups and often the discussion shifted from sharing a tip to complaining about a feature

inside the online program or about the course in general. This sharing and complaining led to a sense of community outside the classroom, which is something that was missing in the course, as a participant pointed out in the second ISR:

Outside of this study, we don't get to talk about what we do online. Our TA often doesn't know what we did online. There's a disconnect between what goes on in the class and what we do in MySpanishLab. I don't know. It can be helpful to talk about experiences and things that you do in order to learn about them better and to remember them better. (Alicia, ISR #2)

Alicia's comment calls for one major area of improvement in the course: build a bridge between outside-of-class time and face-to-face time. Discussing the online component during face-to-face time bridged the gap between face-to-face time and the online component and also placed a higher value on understanding and using the online component. Alicia further supported this idea, saying that "you learn by talking, by sharing things with people. I feel like giving the online component some face-to-face time made it more accessible, more memorable, more useful to me." The participants in the study gained tips and strategies from their peers on how to work in the online component, which made it more useful and more accessible for them, in particular for learners like John and Cruz who needed more explicit instruction due to their lack of metacognitive or technical skills.

The purpose of the maximum sampling for the formation of the focus groups was so that a higher performing learner could potentially share their knowledge with a lower performing learner. The higher performing learners, like Anna, she did not learn as much from the focus groups as lower performing learners like John and Cruz. Anna stated that "I guess talking with classmates about MySpanishLab was helpful, but again, not all classmates necessarily had strategies that I would use myself." Alicia, another high-

performing learner, did not have the same experience as Anna, in that she did learn helpful information from the focus groups in regard to the organization of the online components. Low-performing learners shared strategies with high-performing learners as well, such as when John pointed out the highlighting tool in his focus group. In sum, the focus groups provided the opportunities during face-to-face time for students to share tips and strategies about their online work, and also to validate the important role of the online components in the course overall.

### **Insights from ISRs: Reflection and Explanation**

RQ #3 asked, *what insights about learning in an online context emerge from conversations in which learners view and talk about video clips of their online activity?* Six weeks after the participants recorded themselves working online, they met with the researcher to view and discuss video clips of themselves working online. This was intended to be a time for the participants to reflect on their interactions with the online components and, considering their self-assessments, perhaps make changes in their study behaviors, which would be displayed in subsequent recorded work sessions. The sessions also served as a way to member-check the data and the researcher's interpretations with the participants. Unpredictably, the ISRs also became brief training sessions for many of the participants, in which the researcher pointed out how to use a particular component like the VIPs or, on a more basic level, explained the structure and expectations of their flipped Spanish course.

The degree of reflection during the video clip viewing varied among the three cases studies. Anna's sessions can be described more as member-checking, in which the researcher asked Anna to explain what she was doing at a specific point to determine if

she had interpreted it correctly. For John, watching himself work online did not prompt much reflection or change, as he did not have the metacognitive skills to self-assess or monitor his learning even with the help of the researcher. Cruz, however, became a more conscientious learner based on watching himself work. He required explanations and demonstrations, but he took what he learned and applied it not only to his subsequent online work sessions, but also to his other courses.

During the ISRs, both macro- and micro-level aspects of the course were explained. At the macro level, the syllabus, the course, the components, and their purpose were explained. For another participant, Cassius, the ISRs were helpful because they “gave a rationale as to why the class is set up the way it is and why it made me successful.” At the micro level, technical issues were discussed, such as how to find and use specific features of the online components. Through the researcher’s explanations of both the macro- and micro-level aspects of the course, the focal students developed a better understanding of their role in the course. Even John understood the benefits of using the VTs and put together the idea of learning outside of class and then applying it, albeit to the incorrect component.

### **Trial and Error**

The three focal students shared tips and strategies from their focus groups and learned more about their Spanish course and their learning styles. The participants also developed an array of strategies to overcome certain challenges they faced. Anna tried many different strategies to aid in her comprehension of the listening activities, such as using headphones, slowing down the speed of the audio, using the vocabulary list to identify the words she heard, and predicting the content based on the questions. Anna’s

strong metacognitive skills, which she already had upon entering the course, aided in her development of additional strategies to overcome her challenges. Cruz and John did not have the same metacognition upon entering, but their outcomes were unique. To overcome some of his challenges with the listening activities, Cruz developed similar strategies as Anna, such as referring to the end-of-chapter vocabulary list and predicting the content of the listening activity. For both Anna and Cruz, the strategies they developed on their own were effective; however, for John, the strategies that he developed and the resources he used were not effective, due in part from his lack of metacognitive skills. While higher performing participants such as Anna and Cruz could figure out how to best learn in a flipped environment with help, lower performing learners, like John, were unable to overcome their challenges. For Cruz, gaining an understanding of the course seemed to have had a positive effect on how he interacted with the course components. Had Cruz not participated in the study, it is likely that he would not have discovered certain features or developed an understanding on his own. This suggests that participants of all skill levels could benefit from explicit training, both pedagogical and technical.

### **Summary**

This chapter presented the challenges that three learners faced throughout the course of the semester and how they overcame those challenges. The analysis was informed by data drawn from their comments and excerpts from the RTAs, the focus groups, and the ISR sessions. The next and final chapter of this study discusses the learning-how-to-learn training model, which is the practical application of this dissertation project. The model is grounded in the empirical evidence presented in

Chapters 4 and 5 and is informed by previous literature.

## CHAPTER 6

### Pedagogical Implications

The focus of Chapter 6 is the interpretation and theoretical renderings of findings from the previous two chapters. Chapters 4 and 5 broke down and organized the data by presenting students' interactions with the online vocabulary components and what influenced their interactions. This final chapter reassembles the data and presents them in the form of a learning-how-to-learn model for flipped learning that is based on analysis and interpretation of the participants' experiences. Specifically, this chapter answers RQ #4: *What types of support do students need to understand and participate in flipped learning?* After the learning-how-to-learn model is presented and discussed, the key findings as well as limitations and concluding comments for the study are presented.

A specific aim of grounded theory methodology is to create a substantive theory regarding the studied phenomenon. Grounded theory methodology includes the use of theoretical sampling and the constant comparative method, which allowed me to more broadly understand the students' interactions in the online components of a Spanish language program. Theoretical sampling started with first set of data collected and then examined ideas through further empirical enquiry (Charmaz, 2006, p. 102). I observed and interviewed participants twice and the participants met with their peers twice. Data from the Recorded Think-Alouds (RTAs) and the focus groups were analyzed immediately and constantly compared to modify questions for the subsequent Individual Session with the Researcher (ISR) in order to answer questions, clarify uncertainties, and fill gaps. Furthermore, the constant comparison between the first set of data and the second set of data allowed me to be in close contact with my data as I constantly returned

to the data and the interactions and words of the participants, which influenced future data collection and analysis. This work revealed the students' interactions, reasons for their interactions, and how they developed those interactions. The substantive theory is comprised of a core construct that emerged from the data analysis as well as concepts that support the core construct. After the data is broken down, the core construct and the theoretical concepts put the story back to together. The core construct responds to the research question by explaining the phenomena under study and the theoretical concepts connect the emerging categories to the core construct. The core construct and the theoretical concepts are presented in this chapter in the form of the *learning-how-to-learn model* for flipped learning.

The core construct and the theoretical concepts emerged from the triangulation of three data sources: RTAs, focus groups, and ISRs. In the current study, ten students enrolled in a beginner Spanish course recorded their online interactions twice during the semester as they worked through multiple vocabulary activities, including Vocabulary Interactive Presentations (VIPs), Vocabulary Tutorials (VTs), and Apply activities. In addition, they met twice in focus groups held during class time to discuss their online interactions. They also met individually with me twice to watch video clips of themselves working online and to reflect upon those interactions.

### **Core Construct**

The core construct that emerged from the data was the lack of communication within the program. The lack of communication in the program was evident from the director level down to the student level. There was a lack of communication between the director and the TAs and between the TAs and the students. To discover a lack of

communication firmly embedded in the data of the current study was not completely surprising as it directly relates to training, which was discussed in detail in the literature review (see Chapter 2). Many of the models discussed in the literature begin with a planning stage in which learners set goals and are aware of expectations. In this study, the majority of the participants did not set goals or even a specific time to do their online work and this may have stemmed from a lack of expectations communicated to them at the beginning of the semester by the language program and the TA.

#### Communication at the Leadership Level.

The disconnect between the description of the course and the actual delivery of the course stemmed from a lack of communication at the leadership level regarding the informational course material and TA training.

**Course Materials.** The materials created by the department for the TAs to give to their students were contained inaccurate information. First, the course overview, presented to students at the beginning of the semester, along with the class-by-class syllabus with assignments, course policies, and related information, described the course as a hybrid course would require that the students work outside of class on a computer as well as meet in a face-to-face class. However, the delivery of the course required students to use the out-of-class time to prepare for the face-to-face time by using the available resources, which many participants in the study did not understand, or do.

Second, the First Day PowerPoint, a 36-slide presentation outlining the information covered in the course overview contained insufficient information. This presentation is to be delivered by the TAs to the students on the first day of the semester as an introduction to the course. TAs typically read the information verbatim from the

presentation provided and there is no additional information in the notes section of the presentation on how to present the information. Each slide in the presentation contains a lot of information that is read to the students. Of the 36-slides, there was only one slide on flipped learning. To recall, this particular slide contained one image that did not correctly explain the delivery of flipped learning in this specific program nor were there any notes on how to present and discuss the image. The graphic showed students checking their understanding of the concepts practiced during class time, but in the delivery of the program, this was not the order of the activities: Students were to use their out-of-class time to work on new material that would subsequently be further practiced and used in the face-to-face class session. An additional reinforcement activity either during face-to-face time or online was not assigned.

*Changes.* To set the scene, I collected data in Spring 2016. As a result of my review of the literature of flipped learning and the initial findings of this dissertation, in the Fall 2016 semester, I met with the director of the General Education Program (GEP) and we discussed the First Day PowerPoint. Our discussion led to modifications in the First Day PowerPoint which was done by the assistant to the director of the GEP. For the Fall 2016 semester, the First Day PowerPoint for the program was updated to include nine slides on flipped learning and four slides on the reason for implementing a flipped delivery model.

*Continuing Issues.* However, issues with communication and the delivery of this material were still present. First, it appeared that the individuals who created the PowerPoint for the program were still not clear on what it means to be flipped versus hybrid. In the presentation, the terms flipped and hybrid were synonymous with one

another, stating that “This Spanish class is “flipped” or “blended.” A flipped class means that the students do work outside of class in preparation for the next day, while a blended class means that the students do work online. Flipped *and* blended describe the course in this study. The course overview documents continue to label the course as blended and not flipped.

Second, the TAs and instructors had the ability to download and modify the First Day PowerPoint, often to add their office hours, contact information, pictures or to change the overall design (fonts and colors). However, veteran TAs often make more significant modifications. For example, a veteran TA with six years of experience teaching in the program reduced the nine slides on the flipped model to four, eliminated the word “flipped,” and labeled the course blended. This reduction reduces the course from one that should foster autonomy and develop metacognitive skills to a course in which students complete homework online.

***Suggestions.*** In discussing the findings of my dissertation, the director of the program agreed that changes in the First Day PowerPoint needed to be made; however, it appeared that the reasons for the changes may not have then been communicated to the creator of the presentation. In the future, it is imperative that the philosophy of the program be communicated to everyone. Additionally, to provide sufficient, accurate, and clear information to the students, (a) it should be made clear that the presentation should not be modified; (b) information should be provided in the notes section of the presentation to guide the TAs on how to present information to their students; and (c) all TAs should have training every year, not just those new to the program.

### Communication between Director and TAs

The lack of communication between the leadership of the program and the TAs is essentially a lack of adequate training within the program. The TAs did not receive sufficient training in flipped learning during the pre-semester orientation. Their three-day training focused on the responsibilities of being a TA, hybrid learning (rather than flipped), and how to create and a plan using the Communicative Language Teaching. This type of information is, of course, very important especially for new TAs who will be experiencing teaching for the first time. The TAs were well-prepared to carry out a 50-minute class, but lacked instruction on the underpinnings of flipped learning. As evidenced by the data, when the TAs do not understand the meaning of flipped learning, the philosophy underlying flipped learning, and the actual order of events in the course, the result is poor communication with their students. Due to poor communication from the leadership in the program, the TAs were unable to communicate sufficient, accurate, and clear information to their students.

**Changes, an Issue, and a Suggestion.** In the discussion with the director of the program in the Fall 2016, we also discussed including flipped learning in the TA orientation. During the three-day TA orientation in Fall 2016, the director gave a presentation on philosophy of flipped learning and I gave a presentation about nine ways to help the students in our program understand flipped learning and specifically navigate MySpanishLab based upon my initial findings at that time. An issue with this session was that it was only for the new TAs; the veteran TAs were not required to be in attendance. As already mentioned, the veteran TAs should also be included in all aspects of training

(a) to be reminded of what they learned in previous trainings as well as gain new information and (b) to form a support system for new TAs.

#### Communication between TAs and Students.

The participants in the study were expected to understand that they were in a flipped course and to know how to learn in a flipped course, but without sufficient, accurate, and clear instruction. This caused confusion and frustration among many participants.

Ralph expressed his frustration about the workload once again but this time he did not understand the reason behind having constant Spanish work.

It's just annoying. You do the exam, usually at least it's like, "Okay, give me a day off." But the constant work is just like, "Oh I'm so sick of Spanish." I just spent four days straight studying Spanish. I don't even want to learn any more Spanish right now. (Ralph, ISR #2)

Ralph's comment provides many insights. First, it highlights the work load inconsistency in this course. Second, it shows that he did not understand the underpinnings of learning language and lastly, it demonstrated that he was unable to plan effectively for the course. Rather than study for four days straight, he should have been studying from the VIP, the VTs, and the Apply activities all along, viewing them as study materials rather than homework.

All the participants in the current study suggested training that consisted of an explanation for flipped learning, how to read the syllabus, an explanation of the design of the online components, how to navigate the online components, and strategies for completing the online activities. Evidently, once participants had a better understanding of flipped learning, some were then able to make the connection between the outside-of-class work and face-to-face time. The focus groups provided the participants with

practical tips on navigation, but from the ISRs, they received a more basic, global understanding of flipped learning. Therefore, it is important that the TAs understand the flipped learning philosophy so that they can explain it to their students.

The lack of training within this language program in this study is not surprising, given the repeated calls for more training in both technical and pedagogical training in articles that report on research on CALL (Castellano, Mynard & Rubesch, 2011; Hubbard, 2006, Hwu, 2003; 2013; Jeffrey, 2011; Kennedy & Miceli, 2010; Lazaro & Reinders, 2007; Lee (2010) Liang, 2010; Oxford, 1995; Vinagre & Muñoz, 2011). Increased communication might have led to a better understanding of flipped at both the director level and the TA level and that would have carried over to the student level.

A language program is a system with a lot of people with specific functions and needs that need to be attended to and coordinated. Without communication and without training, most likely the system will not function well and rather than anticipating and solving potential problems, the technicians (coordinators, instructors, and students) often have to solve problems as they happen, which can be time consuming and frustrating for all members of the program. The level of frustration was high among the participants in the study as they were working with the various online components.

This section has described the core construct as communication or a lack of training within the program. The next section describes the core concepts that make up the *learning-how-to-learn* model for flipped learning.

### **Concepts**

Autonomy, guidance, and reflection are the three concepts that support the core construct by addressing ways to increase communication. In brief, a goal of flipped

learning is autonomy. As teachers and coordinators, we want our students to become autonomous language learners so that they can take advantage of their learning environment, specifically in an online setting. Autonomy begins to develop with guidance from the instructor at the classroom level, from the coordinator at the program level, from opportunities for instructors and students to reflect and think critically about their teaching and learning, respectively. Guidance, in the form of pedagogical and technical training, at both the instructor level and the student level allows the coordinator and the instructor to determine the type and extent of support instructors need to guide students, and that students need to take full advantage of that guidance to develop as autonomous learners. Reflecting on each stage of the model is key to make changes and improvements in the program. Each concept is discussed as it relates to the literature as well as to the findings from this study.

#### Autonomy

More than a decade ago, Beasley and Smyth (2004) argued that students were not prepared for autonomous learning in an online environment because they did not know how to take advantage of their learning opportunities in that environment. The results of this study show that this is still a problem. Moreover, the data showed that when the participants in the study did not know how to take advantage of their learning opportunities, they often skipped the opportunities completely. In particular, with the VIPs, the participants essentially did not know how to approach them and therefore typically clicked on a few words and then closed. They did not understand the purpose of them. When faced with a challenging listening activity, they did not have sufficient information literacy skills to approach it; many of them had the single response of just

exiting the program. Another reason that participants skimmed or skipped through activities was the possibility that the sheer abundance of available information was overwhelming for some (Tobias, 2006). A principal concern regarding the VIPs was that they contained a lot of information without a clear explanation of how to navigate through the VIPs and what they could learn from them. As for the listening activities, they often required the use of more than one learning modality to complete. Many of the participants lacked the metacognitive skills to plan, monitor, and evaluate their learning on these more challenging activities. Along similar lines of the abundance of information, when faced with an abundance of assignments, the participants often did not work through the material as carefully.

Although the VIPs and the listening activities were problematic for the participants, the VTs were not. It was with the VTs that the participants showed development of autonomous learning as some began to self-monitor and evaluate their learning; they waited until they felt comfortable with the material before moving on.

An important point to mention regarding autonomy is that even when strategies are taught and skills are introduced to help students become more autonomous learners, the students have to be willing to take responsibility for their learning. In the study, one participant did not like the idea of flipped learning and teaching herself. As the class become more challenging, she admitted in ISR #2 that she put in less effort and made it known that she would not be taking another flipped language course because she believed that teachers should teach. Since she had not had a good introduction to or training in learning Spanish in a flipped environment, her opinion was uninformed. She may hold the same opinion even if she had understood flipped learning better.

### Guidance

Autonomy is often said to be both a prerequisite for and an outcome of flipped learning. As educators, we want our students to succeed in an online environment, but oftentimes, we assume that their attachment to and facility with their electronic devices signal knowledge about how to learn in an online environment. Holec (1981), Little (1996), Sinclair (2000), and Benson (2001) have defined and modified what it means to be an autonomous learner; at the forefront, there is always a teacher who serves as a guide to learn how to set goals, how to evaluate their learning, how to use and access resources. Autonomy is not synonymous with self-instruction, nor should educators expect students to excel at learning in an online environment without guidance.

The participants in this study lacked a guide in the online environment as they remarked that the TA often did not know what they were doing online since what they were learning in class time was followed up on, rather than repeated what they had done online before going to class. It could be that the TA did not study the syllabus in depth nor consult MSL to see what students were doing for each class. This issue relates to a lack of guidance from the director to the TA and also from the TA to the students. As part of the TAs orientation to teaching in a flipped course, the TAs should have been shown the relationship between students' online and in-class work. Additionally, they should have been informed that part of their class preparation includes going over the online assignments prior to class to know what to expect the student to know, or at least have studied when coming to class.

The lack of guidance from the TA to the student stems from the TA not understanding the underpinnings of flipped learning. The TA in this study accepted work

late, therefore, not holding the students accountable for their learning, which is an important aspect of the success behind flipped learning (Meskill, 2013). However, it appeared that the TA did not understand why the online work had to be done before students went to class. It could also be that the TA did understand, but was not following the department policy. Both issues essentially relate to a lack of guidance from the director to the TA. In the study, the participants received guidance from their peers during the focus group and from me during the ISRs. This is another reason as to why the *learning-how-to-learn* model incorporates not only the learner, but the director and the TAs as well.

#### Reflection

The last concept that emerged from the data is reflection. A main assumption of constructivist learning is that learners can reflect on their past experiences, and when they encounter something new, they reconcile it with what they already know. Throughout the study, the participants were asked to reflect on their learning, as well as on any changes they had made or changes they might make later. In particular, during the ISR, watching themselves work in an online environment gave them a new perspective on how they were working as they began to develop metalinguistic skills. Furthermore, I also pointed out certain features or asked the participants to focus on a particular item as they were watching themselves work. Similar to results found by Mills, Herron, and Cole (2013), the combination of both guided exploration and scaffolding from me during the ISR had a positive effect on students' self-efficacy. For some, the ISR served as a reflection tool in which they realized that slowing down while they worked, exploring the online components, and engaging in the initial discovery phase of learning might benefit their

learning. Furthermore, from viewing their video clips, some also saw, for the first time, a new way to approach the activity or saw an error they had made in an Apply activity. For others, the ISR was a time to discuss and reflect upon the delivery method of the course and what it meant to be in a flipped course that carried five semester hours of credit when they met in face-to-face mode only three times a week. For all the participants, reflecting on their interactions required conscious awareness of their learning process and led to future decision-making, which promotes independent learning.

The focus groups were another site of reflection, both during and after the focus group meetings. During the focus groups, the participants shared ideas and strategies on how they worked online. Some participants immediately stated during the same focus group that they would try a new strategy such as using the glossary, but others quietly gathered the information they learned during the focus group and then incorporated it into their repertoire of strategies and ideas. Because very few participants voiced their discoveries during the focus group, it was a welcome surprise to either see in the subsequent recording or hear during the subsequent ISR what the participants had gained from their focus groups and how they had incorporated (or not) certain strategies. This group of participants taught each other strategies and were also willing to incorporate those that worked for them into their study practices.

Together, autonomy, guidance, and reflection are at the heart of the training model. The next section presents the learning-how-to-learn model and discusses these three concepts as they relate to the pedagogical implications.

## **Learning-How-to-Learn Model**

The current study emerged from the discovery that college students did not know how to shift their study practices from reliance on the instructor to self-regulated learning. The purpose of the study was to therefore view what students do online, identify the types of support they need, and based on those needs, develop a learning-how-to-learn training model. The data showed that the majority of the participants were not prepared for autonomous learning due to not knowing how to take advantage of their learning opportunities and being overwhelmed with the amount of resources and/or assignments, and not being shown how this flipped class would be different than a traditional class. However, the data also showed that some participants were beginning to understand what it means to learn in a flipped environment and not viewing the online work as a set of homework problems, but more so a place for them to develop and build their skills once they understood the ideas behind flipped learning.

The model was developed based upon the findings from the current study as well as from the relevant literature, including parts of the learner training models presented in Chapter 2. At the beginning of this dissertation, I said that this model would not be like other models, many of which tell teachers how to manage flipped learning in their classrooms. This current learning-how-to-learn model keeps the teacher at the forefront, as it is not possible nor a best practice to remove the teacher when one goal of flipped learning is autonomous learning. Furthermore, the model also considers the learners, as well as the TAs and the director, as together they make up the language program. The model is presented in Figure 34.

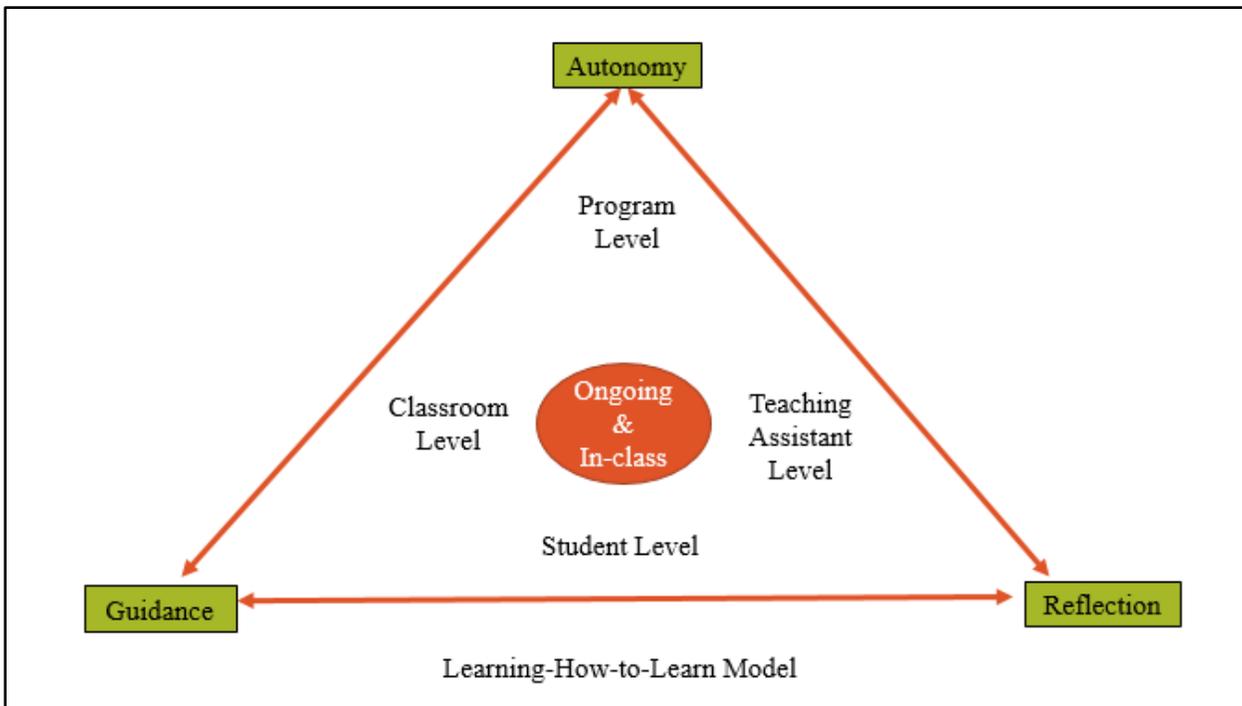


Figure 34. Learning-How-to-Learn Model

On the outer layer of the model, there are three concepts that emerged from the study and support the *learning-how-to-learn* model: autonomy, guidance, and reflection. The next layer of the model presents the pedagogical implications that are based on the three concepts. The pedagogical implications at the program, TA, student, and classroom level are presented, including instructor training, teacher training for students, and group discussions. The innermost layer presents two underpinnings of the model: in-class and ongoing training.

The next section discusses these three concepts as they relate to the pedagogical implications and the support that the students need, thus answering RQ #4: *What types of support do students need to understand and participate in flipped learning?*

## **Pedagogical Implications**

Little-to-no support was initially offered to the participants in this study to learn how to effectively engage with the instructional materials that are designed to help them build a repertoire of language skills. Through the focus groups and the individual sessions with the researcher, many participants noted that they felt more prepared to learn in an online environment. Learner training in flipped learning was also suggested as desirable by the participants in the study. Training students how to work in an online environment can be operationalized in several ways. Based on the findings from this study and the participants' suggestions, as well as the research literature, the following section presents an in-class *learning-how-to-learn* training model for students in a flipped course.

### In-Class Training Sessions

Due to the diverse behaviors across participants, the ideal approach would be individual sessions with the TA and each student. In those sessions, students could meet with the instructor to clarify any doubts or learn technical or pedagogical tips from the instructor in a similar way that was done in this study. Logistically, this may be too time consuming. Unfortunately, however, limiting training sessions for the online environment to the out-of-class context only reinforces the idea that out-of-class time is not connected to face-to-face classroom time. Therefore, rather than continue to host the out-of-class training portion outside the classroom, I argue that the training should be done during class time in a hands-on session for the following four reasons.

First, as just mentioned, there is a perceived disconnect between face-to-face time and out-of-class time, in which out-of-class time is perceived as ancillary or, in the

extreme, optional. Participants in the study welcomed the idea of giving the out-of-class time attention during face-to-face class time.

The second reason for doing in-class training is to show the students how to do the work they do outside of class is just as valuable as the face-to-face time. Doing so will increase the perceived value of the out-of-class work. Based on the findings of the current study, it appears that when students understood the purpose of an activity, they attributed more value to it and therefore often worked with it more or tried to improve their score, potentially attributing more value to it.

The third reason for in-class training is that all the participants in the study needed guidance in some area of the program at some time, whether it was technical, pedagogical, or related to information literacy. Anna and Alicia did not require as much help with the content, but still struggled with the organization of the online space. Luke needed guidance on how to break down challenging material, whereas Cassius and Ralph needed help finding additional resources and John needed technical, pedagogical and information literacy help. Rather than meet with students individually one time only during the course, a better idea might be to set aside a few minutes each week to discuss a particular topic in the online environment, such as the organization of the online space, how to seek out and evaluate online resources for language learning, and how to work with the content. Based on findings from the study, the participants often did not know that they needed extra help or that they were unintentionally missing invaluable instructional materials. For example, in Cruz's Focus Group #1, he mentioned to one of his group members that the tutorials have five activities to which the group member responded that she had no idea she had been doing it wrong all that time. Even John, who

struggled with the material, insisted in ISR #1 that he did the homework regularly, but had no idea about the additional activities in the tutorials. Similarly, another participant in the study commented that he was not intentionally skipping over things he just did not know they were there. The same is true for Anna not realizing that the error message was unique to her and others were able to access the VIPs. Therefore, providing in-class training to all students first may lessen their frustration and increase their learning earlier on in the semester.

The final reason for in-class rather than out-of-class training is based on suggestions from the participants. Face-to-face training was suggested more often than training via an online video. One participant commented that since the students typically do not watch the assigned videos, they probably will not watch a training video on how to use the tutorials productively. Anecdotally, in training the participants for this study, I posted links to online videos on how to do a think-aloud session, but very few, if any, of the participants watched the videos. Others commented that the opportunity for hands-on learning, asking questions, and getting immediate feedback and were appealing aspects of in-class training sessions.

A mixture of planned training session on predetermined topics plus on-demand explanations with questions and answers may be a good model for training. Based on the findings, some participants did not know they needed help until it was pointed out. Therefore, this model advocates for in-class training for all students in the class as the initial step, which would consist of giving the students brief, yet informative explanations and demonstrations throughout the semester of specific topics. Also in the study, the participants gained a lot of information during the ISRs either from talking with me or

from watching themselves work and being given the opportunity to reflect on their interactions. The proposed in-class training sessions may then prompt students to seek out further clarification during office hours just as they could when a language concept posed a challenge for them. Extended discussion of the in-class training topics during office hours, therefore, may result in a more structured and productive use of time.

For one participant, the individual sessions with me were most helpful to her because, as she explained, “it being one-on-one and kind of helps you realize what you’re doing” by digging deeper into the area of concern. This participant also enjoyed the focus group because she saw how other students took “the same information and studied it in different ways,” but she “got more out of recording for two hours and having a two-hour conversation about what you are doing.” I recommend the addition of the individual training sessions, but would suggest not to limit training to only outside-of-class training. Furthermore, the findings from the study show that the take-away from the information discovered during both the focus groups and the individual sessions was beneficial to the participants as they often implemented a new strategy or used a new tool suggested.

A potential concern of doing in-class training is the amount of time taken away from instruction (Barette, 2001). It is understood that one of a language teacher’s priority is teaching the language; however, in today’s technology-enhanced instruction, we also have an obligation to teach our students how to use the vehicle that is providing them with the information we expect them to know by the time they get to our class. The benefits of in-class training and discussions such as lessening student frustration and anxiety and increasing the value of the activities far outweigh the very minimal instructional time lost (Romeo & Hubbard, 2012).

### Ongoing and Repetitive In-class Training

Learning in a constructivist environment is an ongoing process in which the learner constructs knowledge at different times and from varying sources. A learner in a constructivist environment learns both socially and individually, constructing, and reconciling information from the instructor, classmates, and the online space. The learning process is not linear, and oftentimes as learners construct new knowledge, they reflect upon previous knowledge and then reconcile it with new knowledge. Based on the constructivist learning theory, learning is not something that happens with a 10–15-minute lecture, but rather that develops over time. For this reason, in-class training should be ongoing, repetitive, and also incorporated into face-to-face time providing students with the opportunity to construct meaning from what is provided in face-to-face time. In-class training should be done at all levels of the language program because (a) as students at all levels need reminders of what flipped learning is, tips on navigating, and using strategies for language learning; (b) the material may be more challenging, including more reading and writing so new strategies need to be introduced; and (c) the software may have been updated.

Typically, students are bombarded with information during the first day or week of the semester, leaving little room for the reflection that is fundamental to reconciling new information with existing knowledge. Hubbard (2004) developed a “train-use-train-use” learner training model in which training was offered throughout the time the students were using the technology, rather than a brief introduction at the beginning. The results from the implementation of the cyclical training model had an overall positive impact on the students.

In the Spanish program in the study, for example, the First Day PowerPoint presentation was the only information that the students in the class received in regard to the course. To call this information a training session would be incorrect, because students learned about the course via a 50-minute lecture-style presentation. As mentioned earlier, the fact that it was a flipped course and what that actually meant was limited to just one slide in the 36-slide First Day PowerPoint presentation. The suggested training sessions should present one new strategy or resource each week as well as frequent reminders of the expectations for a flipped course and the roles of the student and instructor. These sessions should offer direct hands-on experience and guidance. I emphasize the need for hands-on sessions because once the participants in my study actually tried out a feature, the experience appeared to have prompted them to try it out again. In addition, the students in the class can ask clarification questions immediately, and a “learning by doing” approach promotes independent student learning in the building of understanding (Mills, Herron, & Cole, 2013). Because participants in the study did not receive any initial training on the purpose or procedures for their flipped course, they often did not take full advantage of the available learning opportunities.

#### Program Level of the Course

The focus of the current study is to develop a learning-how-to-learn model for learners in a flipped course; however, the model begins at the program level, which includes program director and/or coordinators and the instructors and/or teaching assistants (TAs). The course in which I carried out my study is one section of a multi-section course, and there are four such courses in the Spanish General Education Program, all of which are taught using the flipped system. For this section, I will use the

terms *director* and *TAs*. The development of autonomous learners requires guidance from the TA. Therefore, the way in which the program is directed and the way the TAs receive instruction on how to guide learners in a flipped environment is important.

**Understanding and Delivery of Instructional Philosophy.** At the director level, it is important both to understand the vision of the goals and instructional philosophy of the program and to clearly communicate them across the administrative and teaching personnel so that everyone understands the underlying purpose of what they are being asked to do. The decision to use a flipped delivery method that integrates technology should not be made without considering the training involved in learning to use that technology and how to use it to learn from it. Barrette (2001) and Han (2015) found that the combination of technical and pedagogical training helped their language learners.

Directors should plan how to train the TAs and how to best have the TAs train students on learning and using the technology as this is a need for the students and has also been discussed with positive benefits in the literature (O'Bryan, 2008; Lai & Gu, 2011; Lee, 2013). Previously, I mentioned that the TAs did not fully understand the purpose and procedures of a flipped course, and therefore the students understood even less. Ideally, the training of the TAs, just like the training of the students would be ongoing so that they figure out at as deep a level as possible what flipped learning is all about and how to help their students understand it. From the findings, the participants gained information from their peers as well as from me. One model of TA training is to have the director present information specifically regarding flipped learning or other key issues throughout the semester. Then the TAs meet in small groups throughout the semester to discuss and address issues related to their implementation of the issues

presented by the director. Teaching is in a constant cycle of change and improvement, and therefore it is important that the director also reflect on his or her teaching and research and encourage the TAs to think critically about their teaching as well.

Communication with TAs as well as the entire department is vital to ensure that the department is aware of activities in the lower-division language program.

Two principal reasons for incorporating a flipped model are to increase student engagement and to help students gain a deeper understanding of the material. Working against these goals is a lack of student preparation (Bristol, 2014). Based on the findings from the current study, it appears that it was unreasonable to expect that the participants would know how to prepare for a course in which the course expectations, roles of students and teachers, and the delivery method were not clearly or consistently expressed. One participant, who did not like the flipped approach because she wanted an instructor who taught the material to her and the other students directly, decided to switch her study of language to Latin because the “teacher teaches” in those courses.

**Course Design.** Planning, prioritizing, and setting goals are metacognitive strategies that aid students in regulating their learning. Few participants in the current study articulated specific goals or made comments that reflected planning for their out-of-class learning. At the same time, they expressed concern about the lack of consistency regarding the amount and type of work they were assigned to complete outside of class. On some days, the participants found that they had only a few assignments, whereas on other days, they had double the amount of work in addition to an exam in the morning and a quiz in the evening.

Ralph expressed his frustration about the workload once again but this time he did not understand the reason behind having constant Spanish work.

It's just annoying. You do the exam, usually at least it's like, "Okay, give me a day off." But the constant work is just like, "Oh I'm so sick of Spanish." I just spent four days straight studying Spanish. I don't even want to learn any more Spanish right now. (Ralph, ISR #2)

Ralph's comment provides many insights. First, it highlights the work load inconsistency in this course. Second, it shows that he did not understand the underpinnings of learning language and lastly, it demonstrated that he was unable to plan effectively for the course. Rather than studying for four days straight, he should have been studying from the VIP, the VTs, and the Apply activities all along, viewing them as study materials rather than homework.

The work load for a course might never be consistent; however, the director, TA, and student can each do their part to lessen the concern. In developing the syllabus, the director should consider the amount of work that is assigned which will allow students to develop a better plan to completing their online work knowing that it typically takes about 30 minutes a day, for example, to complete their online Spanish work. In the current syllabus, the students were not assigned work on the weekends; however, this may be an option to consider. This consistency may allow students to make a plan and stick to it (Reinders, 2007). Furthermore, when the TAs explain the syllabus to the students, they should point out that the daily work load varies and encourage students to study the syllabus and plan ahead of time. Essentially, it is the student's responsibility to develop a plan and prioritize, but the brief discussion of the varied workload might be welcome and could be incorporated into one of the in-class training topics. The design of the online component portion of the course also interacts with the need for training.

Currently, the work is assigned Monday through Friday. Assigning work to be turned in on Sunday night might help with the distribution of the work load throughout the week.

The other aspect of consistency that caused concern for the students was the content of the assignments. In Week 12 of the study, the Apply activities minimally assessed the material that the participants had learned in the initial discovery phase of learning. Furthermore, in a challenging activity in Week 12, the participants were stumped by having to fill in blanks with Hispanic names that they had never heard before. In particular, they were challenged with coming up with the names Ester and Adolfo on their own. Had the director put a note on the syllabus for the TA or had the TA previewed the assignment ahead of time, both could have seen the difficulty of this activity and would have planned accordingly. During class time, they could have brainstormed Hispanic names as a class or even brainstormed resources on where to look for Hispanic names. Some advance information can also be very helpful to make the online self-instruction more efficient and effective. Careful integration of online and in-class content is critical to success. Although the publisher provides the assignments, the director and the TA need to work together to ensure that the work assigned is appropriate for the students and scaffolds are provided when needed.

An additional area that needs to be addressed is the number of attempts permitted for each activity. When assigning the number of attempts for each activity, the type of activity was supposed to be taken into account and, indeed, it had been taken into account in previous semesters. For example, a true–false activity was allotted one attempt and a fill-in-the-blank activity was allotted three attempts. However, in the semester of the data collection, there were changes within the GEP administration, and the number of attempts

was set at three for each activity, regardless of the type. This allowed the participants to “play the game,” as they described it, where they used the number of attempts in combination with the number of choices to get the correct answers. Decreasing the number of attempts could limit the amount of guessing on the multiple-choice type questions.

Lastly, Universal Design and accessibility to information by students of all abilities and with all learning styles should be taken into account. This means that the director, in collaboration with the TAs and even the students, could think of and create alternate ways of presenting the information they need. For example, for Alicia, a higher-level learner who had difficulty navigating the site, a lesson site map might help her understand the organization and illustrate the structure of the online components. This could have also been useful for John and a handful of other participants who did not know about the additional activities in the VTs. A visual of this type could let students know what is there and, for those students with low metacognitive abilities, it could help them know how they can or should work through the available materials to maximum benefit. From a sociocultural perspective, the learners could be considered to be regulated by objects. As they gained a better understanding of the environment, they would make the transition to becoming more self-regulated. Also, for John in particular, paper tutorial handouts with step-by-step directions might have also been useful. For those students who might watch a video tutorial, video tutorials could also be provided and possible created by other students as a class project.

**Exit Survey.** Originally, 11 participants volunteered and met the requirements for this study; however, one participant dropped the course, and therefore was unable to

participate for the duration of the study. During the first ISR, however, she stated that she was going to drop the course because she did not like the flipped format and instead had decided to take her Spanish General Education courses at a local community college (a practice permitted by the university), where they employ a traditional teacher-fronted instructional approach. The other participant stated in ISR #2 that she did not like the flipped format and decided to take Latin the following semester rather than Spanish. In this language program, exit data are not gathered as to why students drop a course or switch to another language. This uncertainty of not knowing why students leave a course or the study of Spanish entirely prompts the need to investigate further and incorporate a brief exit survey when students drop the course. In this study, the participant who dropped in Week 7 and the participant who switched languages did not like the flipped format. An exit survey would provide details as to why others drop the course and when, which could then be taken into consideration when making changes in the program. This survey could be as simple as one multiple choice question asking students to choose the reason they are dropping the course. It could be linked with the institution's registration system in which upon dropping the course, a pop-up box appears with the question. If a drop form needs to be manually filled out, the TA or the director can provide the student with the survey at that moment.

In sum, there is a need for increased and consistent communication between levels in the program. In a large multi-section language program, maintaining uniformity throughout the level and consistency between levels is vital and promotes program continuity. Ongoing TA training which reinforces the TAs' understanding of flipped

learning and how to implement it is one way in which to increase communication and maintain uniformity and consistency in the program.

#### Teaching Assistant Level

Language programs are continually trying to find ways to increase student enrollment in minor and major level courses. The basic language courses should therefore establish the foundation for the other courses in the General Education Program so that students are encouraged to take upper-division language courses. The program should appear to be highly functional and well organized for the students in an Elementary Spanish course, and as the TAs are typically the face of the program, a strong TA training program is needed.

To create a strong TA training program, TAs need to understand their role as instructors, which stems from their understanding of theory and practice as it relates to flipped learning and their conscious reflection on their teaching, participating in professional development opportunities within the department, and receiving hands-on technology training as it pertains to the learning management system so that they experience the technology from the perspective of a student with an eye toward what is available to them as instructors within MSL, such as tracking student's work. This type of training can be delivered during the teaching methods course, but it should also be reinforced during TA orientation and weekly or biweekly meetings. Beginning TAs will most likely take a teaching methods course, but veteran TAs also need pedagogical and technical training throughout the semester as well. Furthermore, a strong TA training program strengthens the program as a whole and adds to the TAs' job portfolios when

they enter the job market as evidence of their understanding of theory, practice, and reflection.

One of the TAs' responsibilities should be to track their students' online activity to determine what tutorials and exercises their students do not access or attempt, and then to follow up with them about why did not attempt them. While it may not be feasible to speak with individual students, these data can help TAs determine the amount and extend of in-class time that needs to be spent on reinforcing expectations and demonstrating the MSL structure and resources to communicate their importance to a successful flipped class. Also, by tracking their students' online activity, they can see which activities were challenging and can include a review during class time. The review could also include strategies on how to approach the activity and resources to use for support. This idea ties into information literacy skills for language learning.

**Theory, Practice, and Reflection.** Many participants in the study did not understand flipped learning or why they were earning five credit hours for a course that met three hours per week. This information is what the TAs could have provided to the students early in the semester by effectively conveying the expectation of the course to their students. This again goes back to the director making the TAs aware of the theoretical underpinnings of flipped learning. Regarding theory, flipped learning should be discussed in detail during TA orientation and throughout the semester so that the TAs can effectively explain, plan, and teach a flipped class to students who most likely are for the first time taking a course that uses a flipped model. It should also be emphasized to the TAs that the time the students are working online is considered a class hour in which they are teaching themselves the material. Furthermore, the explanation needs to be

consistent within levels and across levels so that students in Elementary Spanish 1 with one TA are receiving the same information as students in Intermediate Spanish 2 with a different TA. Both consistency in teaching and explanation in the course and consistency in policies and procedures for the program are imperative.

Regarding the intersection of theory and practice, the TA in this study accepted late work, did not always follow the syllabus, and often included information in his lesson plans that the students had not yet studied online. By doing so, the TA altered the expectations of a flipped course by not putting theory into practice. This may have then sent a mixed message to the students or portrayed a disorganized program. In a flipped model, the TAs not only should know what students are learning, but should also regularly review students' performance on the out-of-class work and adjust their lesson plans for the face-to-face classes.

Flipped learning encourages students to think critically about their learning process. Along the same lines, it is suggested that TAs also think critically about their teaching by reflecting on their instructional practices and engaging in discussions within their program, across programs, and at professional conferences. The importance of professional development for TAs is discussed in the next section.

**Professional Development.** There is no question that TAs are in a constant balancing act with their coursework and their teaching responsibilities. However, TA orientation and semester meetings should be devoted to professional development opportunities rather than logistics and administrative matters that can be addressed electronically. For some TAs, teaching a language course may be their first experience in teaching, or perhaps their first experience in a classroom in the United States. TAs who

are graduate students in Hispanic literature may not have any academic preparation in second language acquisition, applied linguistics, or foreign language education. TAs across the spectrum need ongoing professional development to learn about the latest methods in language instruction, such as flipped learning so that they not only understand what it is and how to teach it, but can also explain it to their students. This type of professional development can already be included as part of their TA responsibilities and offers them the opportunity to gain professional development experience with no extra financial burden as well as present best practices from their own experience in teaching.

A key component to professional development is who leads the sessions and what topics are covered. From the findings of this study, it appeared that participants gained a lot of information from their peers during the focus groups and from me during the ISRs. The same learning format might be fruitfully extended to TAs: After initial professional development provided by the director, subsequent sessions could be provided from veteran TAs in which they share ideas and best practices with each other. The topics of the training should be based on the needs of the TAs, ongoing, and encourage reflection.

**Experience Technology as a Student.** The decision to incorporate technology into a program is one that involves many steps, including training the TAs on how to use the technology. It is important to understand the teacher perspective of the technology, such as entering grades or assigning work in a learning management system. Of equal importance is understanding the technology from the perspective of the learner, yet often this perspective is left out of the training provided to instructors.

Students in a technology-enhanced environment are faced with high cognitive demands as they are having to learn to navigate the technology along with learning new

content (Rott & Weber, 2013). To lessen the cognitive demand on the student, it is suggested that instructors experience the technology as a student first by working through a typical day's assignment and noting how the technology works in the online program and how the online space is organized, as well as any quirks it may have. Additionally, it is advised that TAs take notes about what they learned or about an area that was challenging to navigate and how they solved the problem. As language learners and technology users, instructors can share this first-hand knowledge and strategies with their students and also understand students' frustrations with some part of the program.

This understanding of the online environment will allow TAs to be better positioned for two main aspects of online learning. First, TAs can become the first line of contact for the students in regard to troubleshooting minor problems dealing with the online space, such as orienting students to the vocabulary list or the different activities in the tutorials. Second, TAs will be experts in understanding the design of the online space and can help students compensate for design flaws before students reach a point of frustration. For example, a TA who realized that the design of the VIPs appeared overwhelming to the students due to the amount of information on one page could discuss with students how to break down the material into easier chunks to make it more manageable. With this guidance, students would be more likely to spend some time working with it rather than giving up on the assignment because of its non-optimal design. Once the TAs understand and can navigate the online space, they need to show the students as well. As students are typically overwhelmed with information on the first day of class, demonstrations of technology use should take place throughout the semester.

TA training is a vital component of the language program, given that TAs are typically students' first and major connection the language program. TAs who are knowledgeable in theory, practice, and technology use and who reflect on their teaching practices are in a better position to guide their students in a flipped environment.

**Design Issues.** The design issues with MSL, such as its complex structure and navigation, the interface flaws, and the feedback deficits, need to be addressed early on so that students are aware of problems and frustrations they may face as they work in the MSL online space. This is true of any complex learning platform, but some specific design issues with MSL that emerged from the study are discussed in this section. The design of MSL interacts with the need for training. Although the director and the TAs cannot change the design of MSL, if MSL were designed differently, there might have been less confusion among the participants. This section discusses some design flaws that need to be addressed within each online component.

MSL offers many features for the learner to explore and some options for learner controls. For example, MSL presents the vocabulary both in written form (VIPs) and aural form (VTs). Students can decide the order in which they want to view the assignments and for the listening activities in the Apply sections, the participants had the option to slow down the speed of the audio files. Additional learner controls include the number of attempts given, the ability to save their work, and access to resources within the Apply activities.

**General Navigational Path.** In regard to the navigational path the students can take within the program, students are forced to return to the assignment calendar after finishing the VIPs and the VTs. A leaner path would link the day's activities to each

other. For example, in the VIP, there is a yellow arrow indicating that the lesson is over, yet the students cannot click on it. That arrow could be hyperlinked to the Vocabulary Tutorials so that the students would not need to return to the calendar to find their next activity.

**Vocabulary Interactive Presentations.** The display of the information in the VIPs was not malleable nor customizable and therefore decreasing the clarity and salience of the information presented. The intended design of the VIPs is that they are interactive so that students can click on the highlighted words to hear them pronounced and can listen to audio files. Written transcripts of the audio clips might have been helpful for students who struggled with the listening component. Although the directions are clear at the beginning of the VIP, many participants in the study did not read the directions as to how to approach the VIPs. I suggest more prompting by adding clear hints, guides, and arrows to help students learn how to work through the VIPs. Additionally, some were overwhelmed with the amount of information on one page. Additional interactional features, such as learning checks, should be included in the VIPs. For example, after listening to an audio file, a comprehension question could appear in a pop-up box to check for comprehension.

**Vocabulary Tutorials.** A number of design issues were discovered as the participants worked with the VTs. MSL is available to use on either a Mac or PC operating system; however, the user experience is different depending on the system used. On a Mac operating system, the tutorial window does not fully maximize, and the participants have to understand this. On a PC operating system, in contrast, the tutorial

window automatically maximizes upon opening. Because some Mac users did not maximize their windows, they did not know about the multiple activities.

MSL does provide choice in how to access the online components, but does not adapt to the user's pace. Many participants returned to the tutorials in search of vocabulary items, but this took a lot of time, not only because they had to search each tutorial, but also due to the design of each activity. The participants could not advance past a vocabulary item until it had been pronounced, which is a great control for viewing the tutorial the first time. However, upon viewing the tutorial for the second or third time, this control is still in place, leading to participant complaints that it is "so slow." Upon viewing or completing the tutorial for the first time, a control could be put in place that allows the student to move more quickly through the tutorials. As a user of the tutorials for this dissertation, I also felt frustrated having to wait for each word to be pronounced before I could advance, especially after having viewed the tutorials multiple times.

The overall design of the tutorial interface also caused confusion. The participants were unsure how to determine the number of items in each tutorial versus the number of activities in each tutorial. This resulted in some participants not knowing about the multiple activities.

Looking more closely at the individual activities, the inconsistency among activities was frustrating for the participants. They preferred that each tutorial have the same format, beginning with a Spanish-to-English activity, so that they have a clear understanding of the vocabulary when they open the Apply activities. This was particularly true for the more abstract items, in which an English equivalent might have reduced the confusion among the participants.

**Apply Activities.** In regard to the Apply activities, for the most part the participants in the study understood what they needed to do, but they had some difficulty knowing where to look for help when they encountered a challenging activity. MSL does include a help button on each Apply activity, but it is not very visible. Additionally, the help provided consists only of links to previous VIPs and VTs. Students might benefit from a more guided approach to some activities especially the listening activities. This could also be done with more specific feedback for the more difficult activities.

The audio control bar for the listening activities was also mentioned numerous times by the participants. The small size made it difficult for the participants to move the cursor to an exact location in the file and so often the participants would spend more time trying to move the cursor to find an exact location than trying to decode the message.

Being aware of these design flaws and addressing these design issues might provide a better user experience for the participants and affect the type and extent of technical training needed in the classroom.

#### Student Level

The type of skills that teachers think about before, during, and after a lesson are the skills that students in flipped learning need to develop. These skills can be developed with the guidance of their TA. A constructivist environment encourages the use and development of metacognitive skills; however, few participants in the current study demonstrated metacognitive skills such as setting goals, determining the learning objective, reading the directions, planning, and monitoring their learning, deciding how much time and what resources were available, and self-assessing their learning.

One approach to help students to develop metacognitive skills is to provide them with teacher training. This idea, borrowed from Hubbard's (2004) five-step model for learner training, consists of learners receiving teacher training on how to identify a learning goal and how to choose appropriate tools and strategies. The ultimate goal is to teach themselves how to learn. In the current model, teacher training expands upon Hubbard's model and includes parts of Reinders's (2010) Learner Autonomy Model, Zimmerman's (1994) three-phase metacognitive process model, and Cohen's (n.d.) Styles and Strategies-based Instruction Model. The combination of key aspects from each model intersect with the flipped delivery model and places emphasis on training students how to be their own teachers, considering a global perspective of the program, and how the assignments fit into the overall program.

In a flipped course, the students' role is not that of a passive learner who is fed information from a teacher. Rather students in a flipped environment are actively constructing meaning from the resources provided and, in essence, becoming their own teachers. Therefore, students need to be taught to think like teachers do when they are planning a lesson. In developing a lesson, a teacher determines the objective of the lesson first, then presents information on the topic, provides guided practice exercises followed by more open-ended exercises, and monitors and assesses the students during and after the activities. In a flipped course, the job of a teacher is placed upon the students in the online portion of the course. The next sections discuss four areas that can be addressed in regard to teacher training for students that are based upon the findings from the current study: metacognitive skills, organization and purpose of the material, pedagogical training, and self-monitoring and assessment.

**Metacognitive Skills.** Metacognitive strategies for online learning include planning, prioritizing, setting goals, and self-management (Rubin, 1987). Few participants demonstrated strong metacognitive skills in their approach to working with the online components. One participant set an alarm to remind her to do her work, but as a whole, they did not view the online component as a class hour in which they would be earning course credit. During the introduction to the course, flipped learning as well as an emphasis in how the out-of-class portion of the course is designed to function and ways to approach the time need to be introduced. One option to help students give the outside-of-class work the same importance as the in-class work is to adopt the practice of regularly scheduled online work times, similar to attending face-to-face classes on a regular basis. They should also expect to work on and learn one topic per session. This, of course, needs to be aligned with the course syllabus as well. Furthermore, as they begin their work, they should identify the objective and consider the resources they may need to complete the work. This kind of planning might have reduced the time crunch and frustration that some participants encountered.

A wrapper may be an additional option to help students to build metacognitive skills. A wrapper is an activity that surrounds a pre-existing learning or assessment task that fosters students' metacognition. They have been built around exams (Lovett, 2013) as well as homework (Thompson, 2014), and have resulted in students' increased monitoring of their understanding of the course material as well as their study strategies. It is suggested that wrappers be given throughout the semester, possible after a homework assignment, a quiz, and/or an exam. From the pilot study findings, the key is to not overwhelm the students with wrappers because their responses will be similar, but rather

once or twice per semester, link the wrapper to an activity. This does not necessarily have to interfere with class time, but could be included as a weekly topic of discussion. The wrappers may encourage students to think about their own learning and study strategies and strengthen their metacognitive skills.

**Technical Training.** Technical training, which incorporates pointing out the design and organization of the online space as well as the purpose of the activities, is fundamental. Some frustration arose among the participants when they could not locate specific information because they did not understand the organization of the online components and were unable to locate useful resources. Many were not sure where to find a complete list of all the vocabulary words in a chapter, for example. Many participants believed that they needed to look outside MSL for translations, such as consulting Google Translate and spanishdict.com, when in fact, they could have used the glossary inside MSL. Many participants, therefore, expressed frustration that MySpanishLab “does not teach anything” and labeled their online assignments “small, busy work” rather than view them as a set of learning resources. If students had been shown what could be found in the classroom manual and what could be found in the online component during the in-class hands-on sessions, they would have been able to work more efficiently. Rott and Weber’s (2013) learner preparation framework for using wiki software began their training model by guiding their students to the various pages in the wiki, discussing the relationships among the pages, and reflecting upon those relationships.

Instructors should lead students through the organization of the material and what constitutes the lesson, ideally during a hands-on session. For MSL, that begins by

explaining to students that the VIP, the VTs, and the Apply activities constitute one lesson as together they present the material (VIP), and provide guided practice activities along with opportunities to monitor their learning (VTs and Apply activities).

Specifically, in regard to the VIPs, which students often skimmed over, it should be made clear that this page presents a roadmap for the day's lesson by introducing the objective as well as recycling past vocabulary and grammar and providing a preview of what they will learn throughout the lesson. However, participants did not know when the lesson started and when the lesson ended. This added to their inability to determine the objective of the lesson and also their frustration of not knowing what to study, often missing information, or study irrelevant information at the time. In addition to explaining the organization of the lesson, it is important to point out the beginning and end of the lesson so they do not miss additional information on a subsequent page. After determining the objective, the students are then presented with information and they need to decide how to approach that information, which entails understanding the organization of the presentation.

At the same time, refer to the organization of the online materials as well as the *Classroom Manual* so students know where to find the material they need. On numerous occasions, the participants searched aimlessly through the materials in search of the answer to a question. In the current study, for example, the participants did not know how the material was organized, nor did they know how to identify the objective of a lesson. As a result, the participants did not understand the purpose of the lesson, paid little to no attention to learning and focused on finishing. Therefore, it is important to show students how the material is organized and explain the purpose of the online components.

In relation to Cognitive Load Theory, the cognitive cost of the extraneous load of searching in the VTs for the answer to an Apply question or trying to locate a resource was high. As a result, the frustration levels of the students were also high during the Apply activities. They expended considerable cognitive energy in navigating the online environment, which may have reduced the attention they could devote to the content of the lessons.

Many participants in the study took a linear approach to the online work: They clicked on the assignment calendar, did the assigned activity, and exited the program. Only a few explored the resources available to them in MSL even when those resources were pointed out to them. This finding is similar to those of previous studies (Cobb & Stevens, 1996; Pujolà, 2002). The participants' linear approach also caused confusion with the materials as they did not take the time to explore the organization on their own and therefore missed valuable information. To quote one participant, "MSL is pretty self-explanatory, but it's easy to miss stuff." When asked to expand on that comment, he explained that it was clear that he was supposed to click on the calendar and then do the activity, but there was more in MSL that he did not know about until it was pointed out to him. It never occurred to him to take the initiative to explore the MSL site on his own.

Along the same lines, students did not understand the role of the *Classroom Manual* in the course or the connection between the *Classroom Manual* and the online materials. It appeared that participants assumed that the *Classroom Manual* was similar to a traditional textbook and that the online version was an eText that would contain the same information. In fact, however, the *Classroom Manual* contains communicative activities to be used in the classroom, typically for pair and group work. It does not

contain the traditional textbook sections with vocabulary and grammar presentations. Pointing out the organization of the online materials should also include an explanation of the *Classroom Manual*.

Previous research showed that a linear browsing pattern and confusion regarding the online organization was typically demonstrated by lower performing learners (Hegelheimer & Tower, 2004). However, in the current study, both low-performing and high-performing learners missed valuable information by not understanding the organization of the materials. The high performing learners in the study compensated their lack of missing some material by spending considerable time with other materials that they did find while the low-performing learners typically spent minimal time with most materials.

**Pedagogical Training.** In addition to helping students identify the objective and understand the organization of the material, TAs should also provide students with pedagogical training to aid in their understanding of the purpose of the activities. From this study's findings, when the participants understood the purpose of an assignment, they tended to work more with that component. Although only a slight increase, more participants worked with more features of the VIP once the purpose and organization were pointed out. Specifically, as it relates to the VIP, it is important to explain that the vocabulary is presented in context so students will actively engage with the materials at higher levels of Bloom's Taxonomy, such as analysis and synthesis. The VIPs also organize the content for the topic and include examples of the vocabulary students will learn in the lesson.

From the beginning of the study, the participants seemed to understand that the purpose of the VTs was to practice the vocabulary words through repetition. The participants worked with the VTs considerably more than the VIPs, even before knowing about the additional activities. All the participants opened the VT and went through the first activity. Once the participants discovered the other five activities, some worked with them, but others did not. For those that did not, it may not have been an issue of not understanding the purpose, but more so that they had already developed a study routine that worked for them and did not include the additional activities in the VT. However, this brings up an important question. Had all the participants known about all five activities in the VT from the beginning, would they have incorporated them into their study routine? Together, the VIPs and the VTs constitute the initial discovery phase of learning, where the expectation is that students discover information as active participants who interact with, question, and reconcile new information with previous information.

As language teachers, we also know specific language learning strategies and often in a traditional class can teach these strategies as the need for them arises. In contrast, in an online environment the students are left to devise strategies on their own. Osman and Hannafin (1992) suggested that younger and more novice college students are less likely to have developed metacognitive skills and can benefit from targeted strategy training. In the current study, the participants struggled most with the listening activities because they did not know how to approach them. Few participants were strategic listeners like Alicia and Cruz, who read the questions first and then listened to the oral texts. In addition, Anna used an app on her phone to translate the oral texts when she could not understand them after playing them several times. But the majority of

participants lacked these or other strategies to help them understand the audio. As explained in Chapter 5, most of them tried to answer the comprehension questions without having understood the oral texts; when the feedback on their incorrect answers was too general to guide them to the correct responses, they abandoned the activity and closed the program.

As part of teaching students to adopt a teacher perspective on their learning, we should also teach them language learning strategies as we cannot assume that all our students arrive with a repertoire of such strategies. For example, during RTA #1, the participants rarely consulted the computer-generated feedback hints, but in RTA #2, this was the most used strategy. The increase in accessing the feedback hints could be attributed to the discussions about them during the focus groups, the ISRs, or the participant's own trial and error approach. Therefore, adequate preparation and strategy training for the online environment during face-to-face time is necessary. This preparation and strategy training is done in a traditional class, but with the reduced face-to-face classroom time in a flipped course, it may be inevitable to eliminate it. For example, in a traditional language class, the instructor might teach students to use strategies that are built into the listening activities. Strategies might include top-down strategies that activate background knowledge on the topic such as predicting, listening for the main idea, and summarizing (these are usually activated in prelistening activities); or bottom-up strategies in which the student relies on the language in the message that create meaning, such as listening for cognates, specific details, and word-order patterns. As strategies are introduced, learners build them into their repertoire of skills and ideally will become more strategic listeners by using metacognitive skills to plan for, monitor,

and evaluate their learning. Their increased metacognition allows them to decide which listening strategies will work best for their style of learning on a specific activity. Other strategies that were also used by participants in the study are the following: look at context clues, take notes, draw organization charts, slow down the speed, pause the recording to summarize aloud what was said, and preview the questions and then listen for the details.

While participants in the study did not have as much difficulty with the written Apply activities, it was difficult to know if the participants' goal was to learn the material or finish the activity by clicking at random on answers to multiple-choice questions until they got the right answer or exhausted their allowed number of attempts. For this reason, strategies with the written activities should also be explained to encourage students how to learn the material rather than finish the activity. One approach is to show students how to use material that they have already learned to better understand the new material, as well as how to break down difficult material and make easier material more challenging. For example, multiple-choice activities were often easy for the participants in the study. To increase the learning challenge by moving from recognition of correct forms to production of the forms, students could cover the answer choices with their hand or a piece of paper and try to produce the correct answer, and then uncover the answer choices and proceed with entering the correct response. To make the material more accessible, a useful strategy is to break up the presentation into small chunks, summarizing the information aloud to themselves as they read it (Swain, M., Lapkin, S., Knouzi, I., Suzuki, W., & Brooks, L. (2009). Both strategies were used by participants in the study, and then I shared them with other participants during the ISRs.

In regard to this sharing of strategies, one participant commented that learning what other students did online was helpful because “you might not even think to do it that way.” The same participant wished that after the first week of the semester someone had offered suggestions such as “maybe you should try to do this instead. And not being like, ‘You’re studying wrong,’ but explain to us how—when you study—how you could add to your experience if you tried to add this into it.” Incorporating language learning strategies into class time would enrich and expand the students’ experience online.

The way in which strategies are incorporated can be done in several varying ways, but will depend upon the needs of the learners. It is recommended and encouraged; however, that these topics be included as seamlessly as possible into the curriculum. For example, checking on student performance in the learning management system was a TA responsibility mentioned earlier. When a TA finds an activity that challenges students, that activity can be done during class time as a way to recycle the material the students learned and also discuss strategies on how to approach a similar activity in the future. This integration of online content into face-to-face classroom time is not a common feature of flipped teaching approaches, but it allows students to learn both language and information literacy skills at the same time.

**Self-monitoring and Assessing Learning.** Once students have established a learning objective, understand the organization of the material and the purpose of the assignment, and have started the activities, then they need to self-monitor and assess their learning as they work. As students work through an activity in the classroom, the instructor provides both formative feedback throughout the lesson and summative feedback at the end. The online components in MSL offer similar ways for students to

monitor their learning by accessing the computer-generated feedback hints. For the first part of the semester, the participants in the study rarely accessed the feedback hints, but in the second part more than half of them accessed the feedback. By then they had learned to rely on the feedback for help, just as they would in a traditional class by raising their hands and asking the instructor a question. Whereas some participants found the feedback to be helpful, others found it to be too specific (when it basically provided the answer) or too general (when the feedback was the same for all questions). Specific clues such as “Is Jorge smart?” prompts the students to look for the word *smart*, which essentially converts the activity to an exercise in translation. General feedback which was similar for each question such as “Who is Jorge? What is he like?” or “Who is Carolina? What is she like?” did not offer enough support to help the student to know how to find the answer.

In addition to the feedback, another resource to point out is the “other help” option available within each activity. These help options, like the links to return to the VIPs or the VTs, were never directly accessed by the participants. Instead, they returned to the assignment calendar resulting in a high extraneous load, meaning that there was an indirect and circuitous path through the materials. It is also possible that the participants were not sure of the consequences of clicking on a link and may have feared that would close the activity and result in a loss of their work (Dworman & Rosenbaum, 2004).

When the participants accessed the feedback hints and found them too general to be helpful, they often quit the activity, especially with the more challenging activities. Previous studies (Fischer, 2012; Ma, 2007) reported that low-performing students were those who typically quit the challenging exercises, but the findings from the current study

show that almost all the students quit the challenging activity in Week 12 before finishing. Fouh (2014) suggested that giving up on an activity or an assignment could occur when students do not know how to use the tools and feedback available to them. Although this was confirmed by the findings of the current study, the issue went beyond knowing how to access tools and feedback to include learning how to take a global, rather than a linear approach to the material. In a traditional classroom, the teacher might reteach the material in a different way or have the students work in pairs to help each other. In an online environment, the resources have unlimited availability for that such purpose—to return to the material and learn it again while building their repertoire of skills. This should be pointed out to the students.

A final point to mention regarding self-assessment that directly relates to the findings from this study is that many participants made orthographical errors rather than content errors due to rushing through the activities. In the study, Cruz, for example realized that taking his time as he worked and verifying his answers before submitting could have increased his scores and lessened his frustration. This same idea of slowing down and checking their work can become part of the training.

#### Classroom Level

The participants welcomed the opportunity to talk about MSL during the focus groups that were held during class time throughout the study. Students heard tips shared and discussed strategies with each other that otherwise they would have never known about. From the several opportunities of discovery made during the study, the participants took the resources and strategies that worked for them and put them into practice. Most important, the focus groups made a vital connection between the outside-of-class time

and the face-to-face time. Also, giving the online component some attention during the face-to-face class sessions demonstrated to the students that the out-of-class work was just as important as the time they spent in the classroom.

Although dedicating 20 minutes of class on a regular basis to discussion of the online components of the course is not feasible, dedicating five minutes once or twice a week as a warm-up or cool-down to the class may well be. This time should be structured like any other part of the lesson plan, and the content of the short segments should be based upon what the TA or students found challenging in the online space. Specifically, in regard to the findings in the study, weekly topics could include organization of the VIP, organization of the VTs, the reason for five activities in each tutorial, the benefits of including a picture and a word in the VTs, amount of work assigned each night, the type of feedback hints, and learning material vs finishing and activity. It may be helpful to allow students to voice their frustrations during a discussion on the difficulty of the listening activities or the ambiguous nature of some of the pictures in the VTs. By doing these short discussions, the TA gives a voice to the students, gives online work a place in the classroom, and provides time for reflection on the part of the instructor and the student. Likewise, structured discussions in which the students work together on a specific activity from their online work during class time could be rewarding. For example, students could review the VIP in small groups and then as a class discuss and share ideas about what they learned, the language skills they practiced, and the concepts that they learned, either for the first time or recycled from an earlier chapter.

In addition to a brief explanation or demonstration of a training topic, the strategies, tools, resources, and tips should be integrated into face-to-face activities.

Appendix M contains a list of general insights for TAs on flipped learning; specific tips for their students for the VIPs, VTs, and Apply activities inside MSL; a list of potential topics for in-class discussion; and reflective questions for students. To my knowledge, language-specific information literacy skills that focus on learning content through engaging with information practice is lacking in flipped language instruction. For example, Barrette (2001), combined technical training and pedagogical training to help her language students learn Netscape Navigator. She designed an online treasure hunt for language learning and cultural information. This activity guided the students through basic navigation and searching in order to find the necessary information. In a flipped course, a similar activity could guide students through learning what online resources are available, which ones are trustworthy, as well as how to use them. In the study, the participants used Google Translate and spanishdict.com frequently, but sometimes not effectively as they only looked at the first entry or had the language settings reversed. Just as learning to read a bilingual paper dictionary was once taught, learning how to use online resources should become part of the training for students in a flipped course. Based on the findings from the current study and the previous literature, a flipped course would be a prime environment for introducing such skills in which students develop metacognitive and technical skills as a means to develop information literacy skills in language learning.

**Online Support.** The pedagogical implications mentioned previously are for in-class support and guidance. Students also need out-of-class guidance when they are working online. Based on the participant comments, it appeared that many participants felt alone outside of class; when faced with adversity in the form of a difficult activity,

lengthy explanations, or a time-consuming assignment, they gave up rather than look for help. Because autonomy is not self-instruction, the students can also seek help from their classmates or their instructor. A suggestion for the program could be that TAs in each level offer online office hours at various times throughout the day, thus providing opportunities for students to take advantage of the anytime, anyplace learning that is associated with online or hybrid course designs. Typically, the institution's learning management system or the publisher's learning management system offers tools such as Blackboard IM or Collaborate as a way to communicate with students online. Other tools that could also be used are Skype, Google Hangouts, AnyMeeting.com, Zoom, or join.me. Furthermore, at the beginning of the semester, instructors could ask students to exchange contact information with one another to use if they come upon a difficult concept and need assistance outside of class or to email their instructor.

#### Summary of Pedagogical Implications.

The pedagogical implications presented in this section describe ways to guide learners in building their autonomous learning skills and practices, along with the practice of reflection, both of which are fundamental to learning in a flipped course. The pedagogical implications consider the entire language program from the program level to the classroom level. Beginning at the program level, consistency with the delivery of the instructional philosophy and the amount of work assigned needs to be taken into consideration, along with gathering information as to why students leave a flipped course. TAs teaching flipped courses need to understand the intersection of theory and practice and continually reflect upon their teaching practices. Additionally, they need to experience the technology as a student and be provided with in-house professional

development opportunities. The students need to be guided to develop their metacognitive skills as well as be provided with technical and pedagogical training and offered opportunities to discuss the online components during face-to-face class time. The next section summarizes the key findings addressed by each of the four research questions, followed by the study's limitations and ideas for future research.

### **Summary of the Model**

The ideas presented in the learning-how-to-learn model are not meant for the instructor to tell the student that this is the one and only way to do their online work. Rather these are ways to begin the discussion of how to guide learners through the academic culture shock they are experiencing so they can become more autonomous learners. By discussing how to learn Spanish on their own by offering students a wide array of strategies from which to choose, the instructor is therefore helping students build a repertoire of skills, strategies, and resources to pull from when they encounter a challenging activity. Based on the interactions and comments of the participants in the current study, the participants were not, for the most part, intentionally skipping or rushing through the online components. Rather, they did not know how to approach them.

When presented with new strategies or discovering new ideas, participants often tried to incorporate what they could into their own study practices. For example, Ralph did not know about the activities in the tutorial, but once he learned about them in a focus group, he incorporated them into his own study routine. For Ralph, that meant doing a certain number of the activities until he felt confident with the vocabulary. Jake, who at the beginning of the semester stated that he used to go through all five activities, but on his own, realized that the purpose of the activities was to reinforce the vocabulary. He

then decided that rather than going through each activity, writing them down in his notebook was a better study practice for him. After viewing himself work online, Cruz realized the advantages of slowing down as he worked and developed more effective listening strategy by reading the questions first. Anna seemed to have increased her confidence with the listening activities by using the Google Translate app as a resource. Other participants either did not want or know how to incorporate new strategies or ideas. For John, his enthusiasm for learning about the activities did not carry over into his work as he did not change his approach. Kelsey did less at the end of the semester because she “put this class on the back burner” and knew she would not continue to study Spanish. Alicia was grateful to her focus group members for pointing out the additional activities in the tutorials, but she did not work with them any differently because she had already established a study routine in which she learned the vocabulary from the VIP. The data showed that the participants made some, but not much, progress in treating the online work as necessary and valuable between Week 6 and Week 12.

Shifting to flipped learning was quite challenging for the participants in this study because they were expected to study new material on their own without any training on how to do so. In the ISR, the participants reported that they would have liked a better explanation of flipped learning—its philosophy, purpose, and procedures—as well as training on how to use MSL. Many of them suggested ways in which such training might be offered. A key component to the success of flipped learning is the learners’ understanding of it as model of how course material is organized and how it is distributed across online and in-class time. When flipping a class, it is vital that communication among the coordinator, the TAs, and the students be at the forefront. This will provide a

strong foundation for the students as the underpinnings of the delivery model and strategies to help the students adjust to the academic culture shock that they are facing are clearly communicated

The model developed from this study addresses communication as the core construct or the main concern of the participants in this study. The model is anchored by the three concepts that emerged from the findings in the study—autonomy, guidance, and reflection. These categories aid in addressing how to increase the communication. Directors and TAs guide the students and encourage them to reflect critically on their learning as they prepare students to become autonomous learners in a flipped environment. The pedagogical implications for flipped language learning presented in the model address the core construct and offer ways to help coordinators and instructors prepare students for flipped learning.

Identifying communication as the core construct brings to the forefront the need for training programs that support TAs and students and encourage reflection. If one area of the program lacks communication, all parts of the program are affected. By identifying the core construct and its supporting concepts, all parts of the program-- directors, TAs, and students, will potentially have a better experience in a flipped course.

### **Summary of Key Findings**

The research findings and theorizing of this work were presented in the previous two chapters as well as the beginning of the current chapter. The findings for the four research questions are summarized in this section.

*Research Question 1: How do students who are enrolled in their first flipped Spanish course construct meaning while working with the online vocabulary components*

*of a Spanish language program?* To answer this first research question, I observed the online behaviors of participants in an Elementary Spanish I course twice throughout the semester via screen-capture software. Each participant's recorded think-aloud session was transcribed. For coding, the participants' interactions with each online component were coded separately. For example, all interactions with the VIPs in Week 6 were compared with the VIPs from Week 12 and then triangulated with the comments from the focus groups and the ISRs. Then I analyzed interactions with the VTs and the Apply activities in the same manner. This allowed me to understand the different approaches across participants and within the same online learning management system. After carefully analyzing the participants' interactions among the three online components, five categories emerged from the data: (a) value of the activity; (b) discoveries made; (c) feeling overwhelmed; (d) making changes; and (e) design issues.

*Research Question 2: What insights about learning in an online context emerge from discussions with peers?* To answer the second research question, the students met in a focus group twice during the semester to discuss how they worked through the previous day's work. They were also asked for suggestions to a future student on how to work in a flipped environment. Each focus group discussion was recorded and transcribed for subsequent analysis. The constant comparative methods for coding were used in the analysis of the focus group transcripts. For each participant, I made a chart of their principal interactions during the recorded think-aloud session. Then, I added any idea or strategy that was mentioned in that participant's focus group. Later, upon viewing their second recorded think-aloud, I checked for any changes that could be traced back to information learned from the focus group. The two main categories that emerged from

the focus group data were: (a) sharing of technical tips with one another; and (b) bridging the gap between the out-of-class time and the face-to-face time.

Research Question 3: *What insights about learning in an online context emerge from conversations in which learners view and talk about video clips of their online activity?* To answer the third research question, the students met with me on two different occasions during the semester to watch and discuss video clips of themselves working online. The participants were encouraged to reflect upon their interactions. Similar to the coding for the focus groups, I constantly compared the data from the interviews against the data from the recorded think-alouds and the focus groups. The main categories that emerged from these conversations were: (a) the importance of discussing the policies of the course; (b) the pedagogical culture of flipped learning; and (c) more pedagogical training such as how to work with the VIPs or with the listening activities.

Research Question 4: *What types of support do students need to understand and participate in flipped learning?* To answer the final research question and develop the learning-how-to-learn model, I reviewed the previous literature in combination with the current findings. Taking a close look at not only the students' interactions, but also listening to their voices provided an in-depth view of why they may have been working the way they did. The constant comparative method was again implemented as I compared the findings with previous research and previous training models to develop a model that guides students in their journey to becoming effective learners in a flipped language course. The model was developed based on the core construct, communication, which shed light on the lack of communication within the language program regarding flipped learning. Other support needed included guidance from the instructor, strategies

to develop autonomous learning, and reflecting on their behaviors. Additionally, the pedagogical implications include specific support at the program, TA, student, and classroom levels.

### **Connection to Theoretical Frameworks**

The ways in which students construct their meaning can be viewed through a constructivist lens, a sociocultural lens, and an information literacy lens. From a sociocultural perspective, students are engaged in higher-order thinking skills and are assisting or are being assisted by peers during face-to-face time. Outside of class, students are using the computer as a mediational tool as they study Spanish. Lastly, while a constructivist environment is intended for students to be the manufacturers of their learning, students need to have information literacy skills specific to language learning to identify, select, and use the variety of resources available to them while they are studying Spanish online.

Constructivism set the scene for the online component in which the participants in the study were provided with ample information, activities, and resources from which to choose. However, as noted in Chapters 4 and 5, the participants were not sure how to navigate the resources available to them, a finding that underlines the importance of the role of the instructor in a constructivist environment that is intended to promote autonomy. In the ISRs with the participants, I took an approach that helped guide the participants through the online components, which was similar to what Mills, Herron, and Cole (2013) did in their examination of teacher-assisted versus independent viewing of foreign language video. The findings from my study support their findings that the teacher plays an essential role in encouraging autonomous behaviors, developing metacognitive skills, and reflecting on their progress. The ISRs were an integral component to discover the importance of the instructor in helping students develop autonomous learning skills, as well to shed light on the needs of our students. Participants wanted more explanation on how to learn, but the online portion of the course was set up as self-

instruction and “naïve constructivism” (Windschitl, 2002), in which the GEP placed complete faith in the students’ abilities to structure their own learning without guidance.

Autonomy is not developed through complete self-instruction (Benson, 2001; Dam, 1995; Holec, 1981; Little, 1995, 1996; Sinclair, 2000, Zimmerman, 2002), and the findings from the current study further demonstrate the need to include the instructor in the online component as much as in the face-to-face component. The findings also show that regardless of the ability level, the higher-level learners as well as the lower-level learners discovered new resources, skills, and navigational paths by talking with the researcher. Notably, Cruz benefited from explicit instruction and was able to make effective changes in his behaviors. John still struggled even after explicit instruction, because most likely he needed to develop more control over his learning management process (Benson, 2001) before he could really understand the content.

As mentioned previously, the design of the environment also plays a key role in guiding students. Issues within the design of MSL were discussed in this chapter, and one of the key issues was the lack of guidance and prompts throughout to help users navigate the site and how to approach the material. These prompts have the potential to provide opportunities for students to begin to organize and monitor their own learning and exercise learning independence (Sinclair, 2000). In the GEP, the online component did not have prompts to guide the participants and the TA was not present in the online space to guide, resulting in a naïve constructivist environment that may fail to encourage the development of autonomous learning skills.

Within the constructivist environment, considerable research has been done on tracking user behaviors (Chun, 2014; Collentine, 2014; Garrett, 1995; Hwu, 2013, Ma, 2014) via script-based or screen-based tracking. However, rarely are the tracking technologies accompanied by interviews or focus groups to gather an in-depth understanding of language learners’ interactions. This is in line with Swain, who in the conclusion of her study of SLA research in general in 1998 and later echoed by Chapelle in 2005 regarding CALL specifically, called for a need to see what

students actually do and not what they say they do. The findings from this study emphasize the need for more studies that incorporate tracking with qualitative data collection to identify why students do what they do. The analyses revealed that although it appeared at first that students were rushing through the material, there were more profound reasons behind their interactions, which led in turn to a closer examination of the structure of the language program. These results add to previous research that focused solely on screen-based or script-based tracking.

Additionally the results verify previous studies on browsing patterns (Cobb & Stevens, 1996; Collentine, 2000; Desmarais et al., 1997; Dworman & Rosenbaum, 2004; Ercetin, 2003; Fischer, 2012; Hegelheimer & Tower, 2004; Hsu et al., 1993; Narciss, 2006; Ma, 2007; Pujolà, 2002).

From a sociocultural perspective, the findings from this study demonstrate that the students' efforts to construct knowledge are being mediated by their online resources, their peers, and through their representations of themselves. Ideally, a software program would provide scaffolds outside of class for the students, and while MSL did provide feedback for every answer, the feedback was either too specific, giving away the answers, or too general, causing frustration. ICALL technology (Cotos, 2011), which provides more individualized feedback, could be a welcome addition to any software program. When students found that a particular tool within MSL did not function the way they expected or desired, they found a new tool to use. This was particularly true of using [spanishdict.com](http://spanishdict.com) rather than the glossary within MSL.

The participants in the study were primarily object-regulated at the start of the study. They used the calendar in MSL to guide them through the day's assignment; however, by the end of the study, they utilized the feedback hints provided by the computer to guide them through the learning process (Heift, 2002; McLeod, 2014). While all participants were asked to think-aloud during the RTAs, two participants, Alicia and

Anna, used this private speech as an attempt to self-regulate as they worked through the materials. They often asked questions of themselves and thought through which resource might be more effective for a particular activity. The findings also showed that statistically those who used private speech more during the activities tended to have a higher score on the activities.

The focus groups and the ISRs led to the development of higher-order thinking skills. In the focus groups, the participants started to rely on one another rather than solely on the ideas of their instructor, which supports the findings of Cacciamani et al. (2012). Further support of Cacciamani et al.'s (2012) study was demonstrated by the ISRs. Once the participants experienced a new feature and then implemented it during a subsequent ISR, that they learned how to do it, again reinforcing the importance of hands-on training rather than simply showing the students the online component.

The findings also support studies (Donato, 1995; Lee, 2010; Ohta, 2000) acknowledging that peers can provide scaffolding to one another. Often in the focus groups, a peer would point out a new resource, such as the glossary, or suggest a strategy such as using the vocabulary list, or discuss the structure of the online component pointing out the multiple activities in the tutorials.

The final theoretical frame that was used to interpret the findings was information literacy, which deals with the ability to search for, select, critically evaluate, and use information for solving problems in various contexts. The findings from the study highlighted the need for information literacy skills to be taught, not only in a general sense, but specifically for language learning as informed learning (Maybee et al., 2013). From a sociocultural perspective on information literacy, an outcome of both the focus

groups and the ISRs was that a wealth of new ideas, strategies, and resources were pointed out and this may have led to the participants developing a repertoire of supports to access when they encounter a challenging activity. However, the results from the study also showed that even though new resources were pointed out, the participants did not always know how best to use them. Information literacy skills for language learning should be incorporated into the curriculum.

### **Limitations of this Study**

The findings from this research were drawn from ten college-aged participants who were enrolled in an elementary level flipped Spanish course at a large midwestern university. The findings cannot be representative of all college-aged students enrolled in elementary flipped courses as the analysis was contextually situated in time, place, culture, and situation (Charmaz, 2006, pp. 130–131). Generalizing the results is not the main concern in qualitative research, however, as no single study can grasp all the subtle variations in people’s experiences. More important, the small number of participants allowed me to give voice to each of the participants in the study. Furthermore, the ultimate quality and credibility of the work lies with the richness, depth, and sufficiency of the data (Charmaz, 2006, p. 18).

Although the data were sufficient to saturate the categories, the data provided only a snapshot of student interactions that occurred twice in the semester. Additionally, these snapshots included the participants interacting with the vocabulary of two chapters in the textbook program and did not consider their interactions with grammar or culture. Recording students’ interactions multiple times throughout the semester and examining

their interactions with the grammar and cultural activities would have provided a wider scope for the study.

The design of the study did not include gathering data on the views of the TAs or the program director. Instead, the goal was to focus on the first-time experience with flipped language learning of a group of elementary-level language learners by viewing their interactions and listening to their perspective. The value of seeking the perspectives of the TAs and the program director is acknowledged, and it would have added depth and breadth to the understanding of the program. However, widening the scope of analysis was beyond the purpose of this study.

The pedagogical implications drawn from the data analysis form the basis for a conceptual *learning-how-to-learn* model, which has not been operationalized in a flipped classroom. Doing so will be a logical next step in future research. Another limitation of the study, but also recommendation for future research, is that the model is based upon the interactions while learning vocabulary and did not consider interactions with the online grammar components.

A final limitation of the study was that the focus was on beginning language students. While some participants had studied some language in high school, not all had. In addition to some being beginning language learners, they were all beginning learners with the language management system, MySpanishLab, thus having to learn both the language and how to navigate a complex learning management system. Although this presents an authentic context for many language programs, Hubbard (2006) has called for studies that analyze non-novice language learners as they navigate language learning technology as they may have developed additional strategies on their own.

## **Recommendations for Future Research**

Increasing communication in the form of training from the coordination level to the student level will impact learners in a flipped course. However, further studies are necessary to validate the findings of this grounded theory study to determine the outcome of implementing such a model in a language program.

Future research should therefore include the operationalization of this model as it pertains to vocabulary learning and follow a group of students as the researcher tracks their online behaviors during an Elementary Spanish I course. However, considering the limitations presented for the study, recommendations for future research could include looking at the participants' interactions in grammar as well as vocabulary. Another area of further research could include expanding the population to include students in an upper-level language course who have had some additional time to navigate the system on their own and are no longer novice learners using new technology. Additionally, considering the perspectives of the program director and the TAs could also provide a global understanding as to the lack of communication within the program. How TAs understand flipped learning could also be examined more closely. The data from this study also allow for closer look at the mediation and scaffolding during the ISRs, possibly analyzing the cases or a small number of students or one student across the two sessions. Another area of further research to explore is how the students used the feedback hints in the self-correcting activities.

The findings in this study brought to light the importance of information literacy skills for language learning. Future studies could also examine ways to create a seamless intersection between language learning and information literacy skills.

Lastly, this study made numerous efforts to focus on and give a voice to the learner in flipped learning rather than focus on design principles or how to flip a classroom. More studies that incorporate tracking technologies along with qualitative measures should be completed in flipped learning setting, possibly focusing on learning to learn grammar, culture, and reading and writing skills.

### **Conclusion**

The goal of this grounded theory research was to understand what support students needed to become more effective language learners in a flipped instructional environment. To gain an understanding of the support needed, data collection focused on RTAs as the participants completed their online work, focus groups, and individual sessions with the researcher in which video clips from the RTAs were watched and discussed.

Results from the analysis of the online components demonstrate that participants often worked more with the components in which they understood the value and purpose. Participants also felt overwhelmed at times due to the work load. Additionally, they did not have enough support to successfully complete the more challenging activities and therefore, gave up. Participants learned tips and strategies from their peers and some made changes in their study practices to incorporate the new strategies. Lastly, the participants commented and offered suggestions regarding organization and design issues within the online platform.

From meeting with their peers during the semester, the participants shared mainly technical tips with one another such as how to navigate or pointing out specific interactive features. More important, the in-class discussion of the out-of-class work

increased the connection between face-to-face and online time. While the participants shared technical tips during the focus group, the individual sessions with the researcher focused on more pedagogical training such as how to work with the specific online components or strategies for the listening activities. Furthermore, these individual sessions allowed for more global discussion of the course policies as well as discussing the pedagogical culture of flipped learning.

The core construct, communication, emerged from the data. Communication, starting from the program level of the course had a direct impact on the participants as they attempted to learn language and navigate the course. From the data, three concepts as well as pedagogical implications emerged that supported ways in which to address communication. The three concepts included autonomy, reflection, and guidance and are essentially the three pillars supporting the *learning-how-to-learn* model for flipped learning. The pedagogical implications begin at the program and TA levels by providing consistency within the program and move to the student level by offering basic teacher training and language learning strategies to the students. Group discussions that bridge the gap between the out-of-class time and the face-to-face time round out the pedagogical implications.

The current study has contributed to a better understanding of how students interact in an online environment and what support was needed. Some of the successful strategies that were found in the study included trying out new strategies that were shared by peers, reflecting on their interactions, planning a specific time to do their online work, and understanding the purpose of the online components. A major contribution of this

study is to explore the culture of flipped learning from the students' perspective, since previous research on flipped learning is weighted toward the instructor side.

The findings of this study will be applicable not only to the foreign language context, but also to other educators in disciplines that employ flipped learning, such as economics and the sciences, as they may provide insights to understand the challenges to students' outside-of-class learning process, as well as suggest avenues of support to overcome those challenges. Future studies, including the implementation of the pedagogical implications presented here, should be carried out and reported on.

## APPENDIX A

### Sinclair's (2000) 13 aspects of learner autonomy

1. Autonomy is a construct of capacity.
2. Autonomy involves a willingness on the part of the learner to take responsibility for their own learning.
3. The capacity and willingness of learners to take such responsibility is not necessarily innate.
4. Complete autonomy is an idealistic goal.
5. There are degrees of autonomy.
6. The degrees of autonomy are unstable and variable.
7. Autonomy is not simply a matter of placing learners in situations where they have to be independent.
8. Developing autonomy requires conscious awareness of the learning process—i.e., conscious reflection and decision-making.
9. Promoting autonomy is not simply a matter of teaching strategies.
10. Autonomy can take place both inside and outside the classroom.
11. Autonomy has a social as well as an individual dimension.
12. The promotion of autonomy has a political as well as psychological dimension.
13. Autonomy is interpreted differently by different cultures.

## APPENDIX B

### TA Project

Elementary Spanish I

Spring 2016

**Purpose:** This project is designed to help you understand more about your learning process in Spanish. Throughout the project, you will record your online activity outside of class a total of 4 times\*\*. In addition, you will participate in a small group discussion in class three times during the semester and then will write a brief reflection (also in class) after the discussion. You may also be asked to participate in up to four interviews throughout the semester, each one lasting about 30 minutes.

\*\*The initial research design planned for four sessions, two focusing on vocabulary and two focusing on grammar. The participants in the study and the students in the class completed four sessions; however, for the purposes of this study, only the two which focused on vocabulary were used and analyzed.

#### **Process:**

*Training.* We will have one training sessions during class time on February 1. The training session will address how to use Panopto, the screen capture software that you will use for the recordings as well as how to think aloud as you complete the six online study sessions in MSL that you will record. If you miss the training session, you will need to meet with me outside of class to learn how to use the software.

*Recorded Think-Aloud Sessions.* For Chapters 2 and 4, you will record your online activity 4 times I am interested in what you think about as you complete each task in MSL. In order to find out, I would like you to THINK ALOUD as you complete your homework, from the time you log in until you finish the last assignment. By *think aloud*, I mean that you should talk to yourself as you are working, saying as much as you can all the time. Don't plan ahead what you are going to say, and don't explain anything to me. You are both the speaker and the listener, so just talk yourself through the assignment. The most important thing is to keep talking. Make sure that you talk clearly and loudly into your microphone. You can think aloud in either Spanish or English, or in a mixture of the two.

*Group Discussions:* The group discussions will be held on February 24 and April 15. They will take place during the last 15–20 minutes of class. You will be placed into a

group of 2–3 students and will discuss with your group what you did in the recorded online study sessions, one for vocab and the other for grammar. At the end of the group discussion, you will write a short reflection.

*Individual Reflections/Interviews:* You may be invited to participate in up to 2 interviews throughout the semester. The interviews will last approximately 30 minutes and will be held on the following days: April 11 and May 2 or 4. During each interview, we will view clips of your recorded online study sessions and discuss how you use MSL. If you are not participating in the interviews, you may write 2 -2-page papers reflecting on your MSL use.

## Timeline and Procedure

*VIP*: Vocabulary Interactive Presentation *VT*: Vocabulary Tutorial

*GIP*: Grammar Interactive Presentation *GT*: Grammar Tutorial

Elementary I	
Date	Assignment
Before Feb 1	1. Watch tutorial and practice using Panopto. Watch good and bad examples of think-alouds.
Feb 1	Training for Panopto/Think Alouds. Bring laptop with Panopto downloaded onto your laptop. (If you are absent, you will need to make up the training)
Feb 19 #3	Record and think aloud as you complete the following:  VIP: Las descripciones and el origen;  VT: Las descripciones, el origen  APPLY: 2-10, 2-12.
Feb 23 #4	Record and think aloud as you complete the following:  GIP: 2-4 Describing people, places, and things: Adjectives  GT: noun-adjective agreement, position of adjectives, adjectives of nationality  APPLY: 2-16, 2-17, 2-18
Feb 24	In-class group discussion and interview sign up. Your attendance is necessary.
April 11	30-minute interview in LMC
April 12 #5	Record and think aloud as you complete the following:  VIP: 4-2 Los parientes VT: ¿Cuánto hace? Un día con los parientes, los novios ocupados APPLY: 4-9, 4-10, 4-11

April 14 #6	Record and think aloud as you complete the following:  GIP: 4-4 expressing opinions, plans, preferences and feelings, present tense of stem-changing verbs GT: Conjugation of stem-changing verbs, querer, pedir, volver APPLY: 4-16, 4-17, 4-18, 4-19, 4-20, 4-21
April 15	In-class group discussion and interview sign up. Your attendance is necessary.
By April 25	Email me a grammar or vocabulary topic that you would like extra practice with and we will work on it during the final interview.
May 2-4	Final interview and review session (no more than 30 min).

### Rubric

<b>Assignment</b>	<b>Description</b>	<b>Score</b>	<b>Out of</b>
<b>Training</b>	Submit work session to Panopto for GIP, GT & 2 apply activities training		9
<b>Chapter 2 Module</b>	Record and upload 2 online work sessions		4
	Participate in group discussion		4
	Participate in Interview/Reflection		4
			4
<b>Chapter 4 Module</b>	Record and upload 2 online work sessions		4
	Participate in group discussion		4
	Participate in Interview/Reflection		4
			4
	<b>Total</b>		<b>41</b>

## APPENDIX C

### Informed Consent

IRB was submitted on 1/6/2016.

#### INFORMED CONSENT DOCUMENT

**Project Title:** Learner Training Model for Flipped Language Learning

**Principal Investigator:** Jennifer Vojtko Rubi

**Research Team Contact:** Jennifer Vojtko Rubi / 919-827-6933

We invite you to participate in a research study. The purpose of the study is to determine the types of strategies that you use to learn Spanish online.

We are inviting you to be in this study because you are a student that is at least 18 years old and enrolled in Elementary 1 or Elementary 2 Spanish. Approximately 18 people will take part in this study at the University of Iowa.

If you agree to participate, you will be asked to install Panopto (a screen capture program) onto your personal computer and record all of your online interactions as you prepare for your face-to-face Spanish course. You may also choose to complete your homework at the Language Media Center. If you choose to complete your homework there, Panopto will already be installed on the computer and you will not have to install it on your personal computer. If you choose to complete your work in the Language Media Center, you may reserve a study room. You will be asked to capture your screen and think-aloud for 6 sessions while you complete the work required prior to the next face to face class. The six dates for screen capture and the topics to be covered will be given to you by the researcher. You are free to stop recording your screen captures at any time during the study.

Additionally, you will be asked to fill out a brief questionnaire, three reflective surveys called wrappers, participate in 3 interviews and 3 focus group with the other participants. The questionnaire, wrappers and focus groups will be done during your regularly scheduled Spanish class. The interviews will last no longer than 30 minutes and will take place in the Language Media Center. You will receive the interview dates from the researcher. The questionnaire will include questions about your name, age, gender, major/minor in school. During the interview, you will be asked to talk about how you completed specific tasks and what your thought process was in doing so. During the focus group, you along with two or three other volunteers in the study will talk about how you completed the different grammar, vocabulary and listening activities. You will be asked to comment on the strategies that you used and respond to the strategies that the other volunteers describe. Immediately after the focus group you will be asked to reflect

upon the strategies you discussed and answer questions related to whether or not you would use those strategies. Your time commitment for the study should take approximately 1.5 hours outside of regularly scheduled class time.

We will keep the information you provide confidential, however federal regulatory agencies and the University of Iowa Institutional Review Board (a committee that reviews and approves research studies) may inspect and copy records pertaining to this research. To help protect your confidentiality, we will assign a pseudonym to your data. The list linking your name and your pseudonym will be stored in a separate location that is accessible only to the researchers. This link will be destroyed once the study has been completed. All records will be maintained in locked offices and in password protected files on a secure computer system. If we write a report about this study we will do so in such a way that you cannot be identified.

You may be concerned that your decision whether or not to participate in this study will affect the grade you receive in the course. The course instructor will not be informed of your decision and will not have access to the information collected for this study.

You will not benefit personally from being in this study. However we hope that others may benefit in the future from what we learn as a result of this study.

You will not have any costs for being in this research study.

You will not be paid for being in this research study.

Taking part in this research study is completely voluntary. If you decide not to be in this study, or if you stop participating at any time, you won't be penalized or lose any benefits for which you otherwise qualify.

If you have any questions about the research study itself, please contact **Jennifer Vojtko Rubi at 919-827-6933 or Judith Liskin-Gasparro at 319-335-2248**. If you have questions about the rights of research subjects, please contact the Human Subjects Office, 105 Hardin Library for the Health Sciences, 600 Newton Rd, The University of Iowa, Iowa City, IA 52242-1098, (319) 335-6564, or e-mail [irb@uiowa.edu](mailto:irb@uiowa.edu). To offer input about your experiences as a research subject or to speak to someone other than the research staff, call the Human Subjects Office at the number above.

This Informed Consent Document is not a contract. It is a written explanation of what will happen during the study if you decide to participate. You are not waiving any legal rights by signing this Informed Consent Document. Your signature indicates that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study. You will receive a copy of this form.

Subject's Name (printed):

---

**Do not sign this form if today's date is on or after.**

---

(Signature of Subject)

(Date)

Statement of Person Who Obtained Consent

I have discussed the above points with the subject or, where appropriate, with the subject's legally authorized representative. It is my opinion that the subject understands the risks, benefits, and procedures involved with participation in this research study.

---

(Signature of Person who Obtained Consent)

(Date)

**APPENDIX D**

**Demographics Questionnaire**

1. Name: \_\_\_\_\_
2. Gender: \_\_\_\_\_
3. Age: \_\_\_\_\_
4. Year in college (freshman, sophomore etc): \_\_\_\_\_
5. What is your major? \_\_\_\_\_
6. What is your minor? \_\_\_\_\_
7. Is your first language English?      Yes              No
8. What language(s) do you speak and/or hear at home? \_\_\_\_\_  
  
Yes              No
9. Have you even been to a Spanish-speaking country with the purpose of studying Spanish? If so, please answer the following:
  - a. Where? \_\_\_\_\_
  - b. When? \_\_\_\_\_
  - c. For how long? \_\_\_\_\_
10. List your previous study of Spanish, including the number of years before college that you studied as well as the number of semesters you have taken in college.
  - a. Years in high school: \_\_\_\_\_
  - b. Semesters in college: \_\_\_\_\_  
Where? \_\_\_\_\_
11. Have you studied college-level Spanish anywhere other than at the University of Iowa? If so, where? \_\_\_\_\_
12. List any online courses you have taken in any subject area. If you are unsure, write them down anyway.  
\_\_\_\_\_  
\_\_\_\_\_

## APPENDIX E

### Data Collection Timeline for Elementary Spanish I

*VIP*: Vocabulary Interactive Presentation    *VT*: Vocabulary Tutorial

\*Recordings refer to Recorded Think-Aloud Sessions

Date	Data Collection	Materials Needed
Before start of Spring Semester	IRB application; get IRB approval	IRB
Before start of Spring Semester	Modify ES1 syllabus to include the recording dates and focus groups. Add recordings* to the calendar in MSL.	Get access to TAs' MSL and ICON sites and the GEP Word copy of the syllabus; which I will upload to the TA section on ICON
<b>Recruitment</b>		
Wed Jan 27	Visit ES1 class to recruit participants. I will recruit from 1 class. Tell the students to wait to complete MSL work for Feb. 1 and not work ahead so that they do not have to do the assignments for Feb 1 twice and I can see how they do them the first time.	IRB-approved script for student recruitment Times and Room #s for TAs Email TAs Make copies of consent doc (x2). Printed instructions on how to download Panopto. Post instructions on ICON as well.
Wed Jan 27	Email any absent students to arrange a meeting to explain the TA project/research.	Access to students' emails
	Email demographics questionnaire to students who give their consent	Demographics questionnaire using Qualtrics
Fri Jan 29	Email students to remind them to bring their computers to class on Feb 1 with Panopto downloaded.	Access to students' emails via ICON
<b>Training</b>		
By Feb 1	Students download Panopto onto their laptops (or can borrow one from the LMC).	Training document to work through MSL assignments

	Students need to watch tutorial and practice using Panopto. They also need to watch two sample excerpts of a good think-aloud and a bad think-aloud.	Training document example of good and bad think-alouds
	Visit one ES1 class to train students on Panopto and how to do a think-aloud. Apx 20 min	

<b>Data Collection</b>		
<b>Week 6</b>		
Fri Feb 19	ES1 Recording 1: VIP: Las descripciones and el origen; APPLY: 2-10, 2-12.	Move student recordings from Dropbox folder on Panopto to individual folder on computer. Look over as many recordings as possible to look for technical errors such as volume, web camera not working, poor think alouds and email students to let them know and provide suggestions on how to improve it. Also email those who are doing a good job to know they are doing so and to keep it up.
Wed. Feb 24	Visit ES1 class for focus group 2 on description, origin and adjectives.	Print out of activities for focus group and Sign up sheet for Interviews. Audio recorder for each group or laptops
Fri Feb 24- April 12	Analyze/Code ES1 Recordings 1. Transcribe focus group 1 data.	Put recordings and transcripts into individual student folders. Transcribe each video/focus group.. Code them. Begin comparison of focus group, interviews to recordings.
		Vocabulary recordings: Compare focus group 1, and interview 1 to recording 1
April 7–10	Send text to ES1 students to remind them of their upcoming interview. Send two days before their interview.	
April 11	ES1 interviews 1. Apx 30 min/student.	Online recordings and focus group transcript for each student. List of time frames to view and questions to ask for each student. Panopto to record

Sun April 10	Send email to ES1 students to remind them of their upcoming recordings on April 12 and 14.	
<b>Week 12</b>		
Tues April 12	ES1 Recording 2: VIP: 4-2 Los parientes; VT: ¿Cuánto hace? Un día con los parientes, los novios ocupados; APPLY: 4-9, 4-10, 4-11	Move student recordings from Dropbox folder on Panopto to individual folder on computer. Look over as many recordings as possible to look for technical errors such as volume, web camera not working, poor think alouds and email students to let them know and provide suggestions on how to improve it. Also email those who are doing a good job to know they are doing so and to keep it up.
Fri April 15	Visit ES1 students for focus group 2 on family vocab. Have students sign up for interview.	Print out of activities for focus group. Audio recorder for each group or laptops Sign-up sheet for interview 4. Students should also write down a topic they had difficulty with in this chapter. During the interviews on May 2–4, they will show and tell me how they worked through the difficult topic online. In turn, I will help them clarify any confusion they have regarding the topic before their final exam.
April 15- May 2	Analyze/Code ES1 Recording 2. Transcribe Focus Group data.	Put recordings and transcripts into individual student folders. Transcribe each video & focus group. Code them. Continue comparison of focus group and interviews to recordings.  Vocabulary recordings: Compare recording 2 to recording 1 to see what strategies they are continuing to implement, what new ones they start to implement and any that they are no longer doing. Compare focus group 2 and interview 1 to recording 2 to see where the new behavior originated (if there is new behavior) in regard to vocabulary.  To prepare for final interview:

		Compare previous focus groups and interview to gather questions to ask student about what they learned through the process, how their thinking toward studying has changed, what did they learn from classmates, from me.
May 2–4	Second interview with ES1 students. They will meet with me immediately after their final oral exam time near where their oral exam is being held. We will discuss the topic they had difficulty with in the last chapter. They will show and tell me how they learned and practiced with the topic. I will clarify and answer any questions they have regarding the topic.	<p>Online recordings and focus group transcript for each student. List of time frames to view and questions to ask for each student. Review the difficult topic for each student beforehand. Interview protocol for each student. The interview protocol will have some of the same questions, but will also be tailored to each student.</p> <p>Beforehand, compare previous focus groups, and interviews to gather questions to ask student about what they learned through the process, how their thinking toward studying has changed, what did they learn from classmates, from me.</p>
May 4- August	Analysis of ES1 data	Compare focus group 2 and interview 2 to interview 1 (including the screen capture from the interview showing me what they do) to see strategies they are continuing to implement, what new ones they start to implement and any that they are no longer doing.

## APPENDIX F

### Vocabulary Interactive Presentation

# Vocabulario en contexto

**LEARN** Follow along as you listen to a description of different housing as well as to a conversation about an apartment for rent. **What is your home like?** Click on the highlighted words to hear audio or to see images that will help you learn the vocabulary.

## ¿Dónde vives?



En las ciudades de Nicaragua, El Salvador y Honduras hay **viviendas** de diferentes **estilos**. La ciudad de Granada, en Nicaragua, tiene **calles** y plazas como esta, con casas coloniales de colores vivos. En Tegucigalpa, la capital de Honduras, hay **edificios de apartamentos**. Algunas personas prefieren vivir **cerca del centro**. **Creen** que los **barrios** de las **afueras** están muy **lejos del trabajo** y de los centros de diversión.



### ALQUILERES

**Categoría:** Alquiler apartamentos  
**Ciudad:** Tegucigalpa  
**Ubicación:** Palmera  
**Descripción:** PALMERA ALQUILER DE APARTAMENTO  
 MOY AMPLIO, CENTRICO Y  
 ACCESIBLE, 2 HABITACIONES,  
 SALA-COMEDOR, COCINA, 1 BAÑO,  
 AREA DE LAVANDERIA,  
 ESTACIONAMIENTO, TELEFONO.  
**Precio:** \$ 750.00

### EN OTRAS PALABRAS

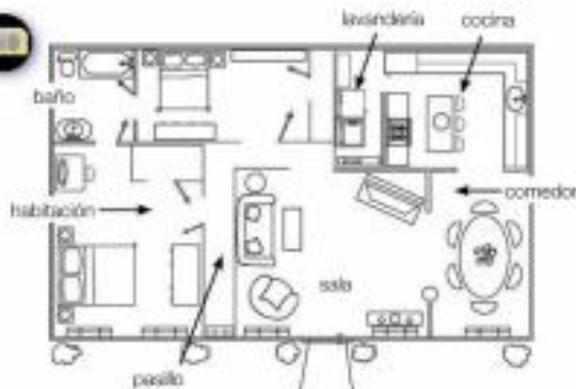
Some words for the parts of a house vary from one region to another in the Spanish-speaking world. Here are some examples:

habitación, dormitorio, cuarto,  
alcoba, recámara

sala, salón, living

planta, piso

placina, pileta, alberca



## APPENDIX G

### Think-aloud Protocol

I am interested in what you think about as you complete each task in MSL. In order to find out, I would like you to THINK ALOUD as you complete your homework, from the time you log in until you finish the last assignment. By *think aloud*, I mean that you should talk to yourself as you are working, saying as much as you can all the time. Don't plan ahead what you are going to say, and don't explain anything to me. You are both the speaker and the listener, so just talk yourself through the assignment. The most important thing is to keep talking. Make sure that you talk clearly and loudly into your microphone. You can think aloud in either Spanish or English, or in a mixture of the two.

## APPENDIX H

### Focus Group Prompt #1

**Step 1:** On one laptop, log into Panopto. Save the session as each of your first names plus FG1. For example, JillKarenMarkFG1. Begin recording with webcam and voice.

### Vocabulary (10 minutes)

**We are going to start discussion your work for the Vocabulary activities that you completed last Friday.**

**Step 2: Please state your first and last names. Each student should answer the following question:** When you begin your MSL work on vocabulary, what materials do you have with you? What is your goal as you complete the activities?

**Step 3:** Go to the Calendar in MSL. Click on February 19<sup>th</sup>. Go to the Vocabulary Interactive Presentation (VIP) 2-03 El Origen. First, each of you needs to explain and show your group how you worked with interactive presentation. Take about 30 seconds each to do this.

*Then answer these questions:*

- \* What is the purpose of this activity?
- \*If you were the designer, how would you change this activity to help you learn vocabulary?

**Step 4:** Go back to February 19<sup>th</sup> on the calendar and click on the Vocabulary Tutorial 02: ¿De Dónde Eres? II. First, each of you needs to explain and show your group how you worked with interactive presentation. Take about 30 seconds each to do this.

*Then answer these questions and show each other what you do on the computer:*

- \* What is the purpose of this activity?
- \*Depending upon your goal, how much time would you suggest spending on this activity?
- \*Why do you think there are different types of activities in each tutorial? For example, sometimes you saw a picture of a flag with the word in Spanish and sometimes you only saw the word and other times you hear the word and had to match with the picture.
- \*What advice would you give to a student who is using the vocabulary tutorials for the first time?
- \*What advice would you give to the designers?

**Step 5:** Think about the Interactive Presentation and the Tutorials. Together, these two activities introduce a specific set of vocabulary for this chapter in a variety of ways through pictures, words and audio recordings.

*Then answer these questions:*

\*What do you think you should have learned from these two activities?

\*Besides these two activities, what else did you do to learn the vocabulary either before this work or after?

**Step 6:** Go back to February 19<sup>th</sup> on the calendar and open Apply activity 2-13 Nacionalidades (el origen). First, each of you needs to explain and show your group how you worked with interactive presentation. Take about 30 seconds each to do this.

*Then answer these questions:*

\*What is the purpose of this activity?

\*What was challenging about this activity? How did you solve it?

\*After completing this activity and other Apply activities, what would you wish you had done differently during the interactive presentation and the tutorials?

**Step 7:** Based on what you do online, the discussions you have had today, and your confidence during a normal face-to-face Spanish class, do you think you will do anything differently now as you are working online for your Spanish class?

**Step 8:** Stop the recording and upload the session. If you do not have time to upload now, be sure to do it sometime today by logging into Panopto and clicking on the Recording Session tab and click Upload.

### **Focus Group Prompt #2**

Start Panopto. Save your session as First Name, First Name, First Name FG2. At any time, feel free to show on the computer what to do.

Read the following scenario.

Next week, Mary Sue Lovely, a senior in HS, will be visiting the University of Iowa and will be joining your Spanish class on Monday, April 18. Mary Sue wants to be prepared for Spanish class so that she can participate in class. She has taken Spanish in high school, but she has never been in a flipped Spanish class before so she is unsure what to do. She has access to MSL and knows that the MSL work prepares her for class, but she is overwhelmed. She wants to learn the material well for two reasons 1) she wants to make a good impression and 2) she wants to see if a flipped class is best for her.

You are going to help Mary Sue get ready for next week's class, but before you do, she has two questions for you.

1. She isn't sure what a flipped class is exactly. Can you explain it to her?
2. What type of skills (academic, behavior, study) does she need to be successful in this class?

\*\*\*\*\*GO TO NEXT PAGE\*\*\*\*\*

## **Learn.**

Go to April 14 on your Calendar and click on the Interactive Presentation 4-05. As you recall, the IP teaches a lesson on a specific point by presenting it in context. Be thoughtful and thorough in your responses.

1. Study this page with your group. Think aloud as you do this.
2. Tell her what she should learn by the end of this lesson and how she can figure it out.
3. Describe the organization of the Interactive Presentation. Talk about what is in this lesson.
4. Explain how she can test herself over the paragraph on the first page.
5. Tell her how she can determine when the lesson is over.
6. What could she do if she wanted to review a previous Interactive Presentation.
7. Give her at least 5 strategies or tips on how to learn from the Interactive Presentation.
8. She also wants to know how the pushpin tool works at the top of the page.
9. Do you think she can print this out and bring it to class?

\*\*\*\*\*GO TO NEXT PAGE\*\*\*\*\*

## **Try it out.**

Now, go to Apply activity 4-22.

1. *With your group*, actually do this activity. Talk through how you figured it out as it will show Mary Sue how to go about completing an activity. Talk!! Work together!!
2. Tell her what you she should learn by the end of this activity.
3. Tell her what grammar and vocabulary she will need to complete this activity. How can she review those forms?
4. What resources could you use to complete this activity?
5. Give her at least 5 strategies or tips on completing either this activity or any of the apply activities in general. Think about resources you can use, hints they give after you submit the activity, number of attempts offered.

In the previous two activities, you worked through learning and practicing a new grammar form.

\*\*\*\*\*GO TO NEXT PAGE\*\*\*\*\*

## **Training**

The day has come! Mary Sue has arrived and you are now responsible for training her to learn in a flipped Spanish class. You will only have 10 minutes to do the training. How do you train her? In-class? Have her watch a video? What do you train her in? Tools?

Structure/format of the course? How to use the resources available? What else? While this question is merely a hypothetical, please think about how and what you would've liked to know at the start of this course.

\*\*\*\*\*GO TO NEXT PAGE\*\*\*\*\*

### **Skills**

What skills have you gained from taking part in a flipped class? How can any of these skills be applied to other courses? By skills, I am not referring to learning Spanish, but rather more general study and behavior skills such as becoming an independent learner, critical thinking skills, learning to learn new technology skills, learning to seek out resources, developing skills that help you think about your learning (metacognitive skills), taking responsibility for your learning, etc.

\*\*\*\*\*You may stop the recording! Thank you!\*\*\*\*\*

## APPENDIX I

### Interview Questions for ISR #1 for Cruz

#### VIP

1. When you are working online you are assigned a specific lesson to do in the IP. How do you know what you are expected to learn by the end of that lesson? How do you know when that lesson is finished and the next one starts?
2. How does the VIP help you learn vocabulary?
3. Watch :31-:50. You say that you really don't know what to look at. Can you take a few minutes to look through it and talk to me about what's there? Is there anything on this page that can help you learn vocabulary?
4. In the group discussion, your group members said that they listen to the audio, click on the words to hear the pronunciation. Have you done any of that. What do you think?

#### Tutorials

1. Why does MSL have tutorials?
2. How can these tutorials help you learn vocabulary?
3. Why do you think MSL has other parts to the tutorials?
4. Would you make any changes to how you are working now?
5. In your group discussion, it was brought up that there were more sections in the tutorials. You mentioned that you didn't know it was there. Have you been using it since? Tell me a little bit about that.

#### Apply

1. Watch 7:56-9:15. Here are you going to be filling in the blank with a word and go to the tutorials for help. Tell me a little about this and about the tutorials and going back to them. Is there another way to do this?
2. Watch 16:11-18:35. Here you are working on writing down the nationalities and looking up the artists/sports figures. You were using GS to look up the people and then switch to the textbook. Why did you do that? Where were you looking?
3. Watch 19:30-19:55. What could you do to not make those types of mistakes?
4. You mentioned that you would like to see a list of words. Where could you find that?
5. Would you make any changes or use any other resources? Why or why not?

#### General Questions:

1. Do you consider the work that you do online as preparation for class or reinforcing what you learned in class?

2. Your group mentioned the importance of doing the work right the first time and taking your time in working through it because if you don't you're going to have to come back to it anyway so it's not a good use of time. Talk to me about this.
3. Have you done anything differently since the beginning of the semester? Do you intend to do anything differently?
4. What would you have liked to know about MSL at the beginning of the semester?
5. What kind of support would you have liked?
6. What is a flipped class?

## APPENDIX J

### Interview Questions for ISR #2 for Cruz

#### VIP

1. You have the vocab out in front of you. What else has changed with the way you work with the VIP. Have the changes been helpful?

#### Tutorials

2. You repeat some of the words, but tend to skip through. My question is if you have never seen these words before, how do you learn them or do you already know them? Saves times, pause and answers,

#### Apply

3. Let's watch 4:58–6:54. Tell me what you are doing and how that is helping you learn the vocab.
4. You state in one of the activities that you should go a little slower and think more about your answers. Talk to me about that.
5. Watch 26:40–29:29. How did you know that Andrés has an accent. What else could you do to look up the name for Ester?
6. Why didn't you take your quiz?

#### General Questions

In your group, it was mentioned that

-it is important to know how to use your resources (tell me more)

-you mention that the title of the activities helps you.

-in the training to teach her how to do it (what does that entail)

-Go over each type of activity

-tell me about the importance of doing the work ahead of time

“If she knows everything about MSL from the beginning, she's going to know how to use it way better than if she didn't know and then finding out about it in the middle of the semester like “oh this is this” like I did.

1. What is your reason for taking Spanish?
2. Now that the work is getting harder in the course, have you been doing anything differently since the beginning of the semester? Do you intend to do anything differently next semester?
3. What type of feedback hints help you learn the most? The ones that give you grammar pointers—like “did you remember that is an e to ie stem changer” or where

- it basically tells you the answer by translating it like “did you know that Miguel is the grandson?”
4. Do you ever look at the right answers after your attempts have run out? Do you do anything with those answers?
  6. What are your strengths and weaknesses? Oral exam better
  7. Do you plan to continue taking Spanish at the UI?
  8. How will you study for the exam? Vocab, games, fun, games, refresh, chapters activities in book, vocab list, notes, tener que verbs, super, refresh vocab, adverbs,

### **Class**

1. Tell me why you earn 5 credits for this course instead of 3. You only meet 3 times a week, but you earn 5 credits. A lot of work. Helping me instead of work, prepare in class, emphasized, multiple activities., repetitive, activity, clear, builds, stepping stones.
  - a. Do you have any classes that are similar? Can you describe how the classes are both similar and different to Spanish.
2. How is grammar explained in the classroom? Through application exercises or through explicit instruction (this is a verb and this is how you conjugated it...)
  - a. Do you take notes in class? How do they help you? Reflexive verbs. Charts help any place else? Use book, to help, altogether., tutorials, no notes,
3. In a traditional class, you would probably go over the homework the next day in class? The teacher might explain why you got something wrong or give you ideas on how to work through it. Now, this is your job. How do you go about doing that? Textbook, tutorials, TA, MSL, resources available, Do you tend to seek out answers or give up? Where do you find answers? Why do you give up? Reinforcement, one more, clarification, different,
4. When you do your work, do you set aside a specific time to do it?
  - a. How much time do you allot to learning outside of class each day?
  - b. How do you know what the objective is of each lesson?
  - c. How do you present the new material to yourself?
  - d. How do you practice it?

### **Group**

1. How did you like working with someone to figure out *tener que* plus infinitive?
2. Have you ever considered working with someone while completing MSL?
3. Set aside time to do the work.
4. Need to be motivated and curious. Curious is good because you need to be able to say what is there. Look up new words, how do you say avion airplane, fruits, food, curious.
9. You say that MSL is self-explanatory, but easy to miss—explain this for me. 100%. Wow this is a lot to do, to navigate, navigate pretty easily, stick to it, don't want, learner

10. A said that she often makes practice sentences for herself to test out the material as she is doing the GIP. What do you think about it?
11. Another group mentioned that the first time through the apply activities, you can just go through it fast and then use the hints to get the right answers. What do you think?
12. Another group mentioned that they would have liked a better introduction to the expectations and the format/structure of the class from the beginning. What do you think
13. Do you think you are able to use multiple resources to help you learn now?
14. Do you have any ideas for training students for a flipped class or the MSL work?

## APPENDIX K

### Samples of Documents Created for Data Management

#### Document #1 Summary of each online component for each participant

John	
Vocab IP	1:21

Opens, clicks on a word to see the pic. Goes to next page, which is the next lesson

John	
Vocab VT	3:03

Writes down the vocab words and says them as well. He mentions that he is going to be late for work \*how can he plan ahead better?

John	
Apply2	11:12

*Activity #1: Bautizo, Listening, MC, 4:21, 100%, 3 attempts*

Plays audio and answers as he listens. Rewinds, slows down the speed. \*when you do these activities quickly the first time, do you often rush? Why? Looks at feedback, listens again and chooses different responses. Not really listening after the first one. \*Asked Said he used process of elimination.

*Activity #2: Read paragraph and choose the relationship, 3:08, 100%, 2 attempts*

Reads directions and reads through paragraph in Spanish. Finds book/notebook with the family in it since this activity is about the family. He reads some of it, but it's more to state what the vocab words are that he sees. Looks at feedback where it gives him the English translation and then gets 100%. 9% the first try.

#### Document #2 Interactions and comments for each participant for each online component

*Luke: Challenging Apply Activity*

*Activity #4: Identify countries of origin, 5:02, 75%, 2 attempts*

Reads directions. Uses GS to look them up and then clicks on a link to Wikipedia to find the information. Then continues using Wiki search for the rest. Goes to SD to find out how to spell Colombian (but misspells it colUmbian). Changes the keyboard to Spanish and doesn't use the accent bar! Gets 75%. Attempts to change colombiana, but doesn't spell it right. Goes back to the tutorials to look for the words

Focus Group: I mean I don't think this activity really had much to do with the I mean it had something to do with where they're from but it didn't have the actual people, didn't have anything to do with the presentations before.

Interview: after viewing the video of himself, “maybe I should have written them down.” “Well, I was trying to find it through the tutorials, but it was taking too long, so I went to the Spanish dictionary.” When I asked him about using the list of vocab or having gone through all of the tutorials first, he said, “Maybe I would have remembered it better, but I think, like I knew the words though like when I was doing it, I was saying it, I just need to spell it. “It was faster to switch from the tutorials to SD”

Doesn't use the vocab list often, but writes down the English word next to most of them

### **Document #3 Comments for each online component from each data source**

#### Vocabulary Interactive Presentation:

*John:*

VIP1: writes down something, reads something

FG: they don't really help because they are all in Spanish. Kelsey told him and Luke about page 2 of the

... “it walks you through all the grammar on the previous page” H: I didn't even know you could do that. Asked, How do you know there's more than one page to it? Not just that first one? I don't know.

Interview: Before we did the group ones, I didn't know that you could click on the side and go to the next one. I just looked at the first page every time. I didn't know that you have like a whole list of these. I missed out every time on those, until that one girl showed me. We had no idea. I didn't know that there are more pages than just that one page that showed up. I never noticed that (anything is clickable) either. I showed him how to tell the lesson was over.

VIP2: clicks on one picture, then goes to the next lesson and clicks on two pictures—still not sure when the lesson ends

Interview: He says “sometimes I click on the highlighted words since we talked about that. Click on those, listen to them, check then answers once in a while, but I don't spend too much time on those.

*Luke:*

VIP1: :22 seconds “never really know what they want us to read on this, especially since it's in the book anyway, so I don't.” and closes

FG: “Oh yeah, I just skip those sections, cuz aren't they in the book anyway” K: confirms they are in the book. Kelsey shows him how to flip to the next page and “usually there is something to remember” He asks “how do you (do that)? I just open it so it says viewed and then I close it. Well, that is good to know. I would make it more obvious that there is more stuff to do on each page.

Interview: I don't, to be honest (know how a lesson ends). The purpose is "I mean, it seems like it just gives you more of a way to understand how to use the terms. I guess it gets you more used to listening to people speaking in Spanish which is something that is kind of difficult when you're beginning to really understand what people who are—it's like when you listen to teachers speak in Spanish, they speak slower. I showed him how to tell when the lesson ends. He said that the audio can help with pronunciation

VIP2: 1:59, opens, read the dialogue, looks at the pics, listens to audio and tries to follow along.

Interview: I don't know what it is about these. I just don't like them (laughs). Something about the interface and how it's set up. Just, the way it looks turns me away from it. It seems too wordy. I feel like it doesn't help me that much. It doesn't seem to help me that much. IN my mind, that's just how it seems, I guess. Because it seems like—I can see how it would help the pronunciation and understanding. How to listen to it because you're playing the what it's saying and reading along with it but it's still—I feel there could be a better way for it to be implemented.

\*During the focus group, he suggested Prefers" I think there should first be an English to Spanish translation and then a Spanish picture, Spanish text, word like that.

## APPENDIX L

### Coding Key for Excerpts

{...}	Action taken by participant	{opened activity}
<i>Italics</i>	<i>Words in Spanish</i>	<i>hola</i>
Comic Sans Font	Directions read by participant	Read the statement.
'.....'	Translation of words in Spanish	<i>hola</i> 'hello'
Times New Roman font	Words spoken by participant	This will be...baptism
<b>Bold</b>	<b>Non-Words</b>	<b>portugueso</b>
"..."	<b>Words typed</b>	<b>"Guatemalan"</b>

## APPENDIX M.

### Training Students to become Effective Users in MSL<sup>1</sup>

#### General Insights

1. Change the culture of learning in a flipped course
2. Explain the organization of the Classroom Manual and MSL
3. Encourage students to take a global approach to learning
4. Provide in-class training
5. Brief in-class discussion groups
6. Introduce resources in MSL homepage and Interactive Presentation

#### Vocabulary Interactive Presentation Tips

1. Read the dialogue. Summarize it. Ask yourself questions.
2. Listen and pronounce new vocab.
3. Write them down in a notebook.
4. Make flashcards by hand.
5. Fill out the vocab list at the end of the chapter as they review these new words.  
Show them where to find vocab list.
6. Print out flashcards from the flashcard feature on MSL.
7. Keep open while completing activities as a resource.
8. Test yourself.

#### *Guiding Questions*

1. What is the topic of this lesson?
2. How many pages are included in this lesson?
3. What old vocabulary or grammar do I notice?
4. After I review this page, how will I study the new vocabulary words?
5. What are three words that might be difficult for me to learn?
6. Write down two questions that you have about the vocabulary.

#### Vocabulary Tutorial Tips

1. Maximize the window.
2. Point out number of activities.
3. Point out the number of items in each activity.
4. Continue filling out the vocabulary list.
5. Write down unfamiliar words.

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<sup>1</sup>This appendix is specific to the particular program (*Unidos*) used in the course that was the site for this dissertation study. The components of the model might need some revision to reflect the organization of other textbook programs (printed material + online material).

6. Double check the meaning of the words.

### *Guiding Questions*

1. What is the topic of this lesson?
2. After completing the activities in the tutorial, what questions do I still have about the vocabulary?

### **Apply Activities Tips**

1. Maximize the window.
2. Read the directions carefully.
3. Use the available resources.
4. Check the answers you missed.
5. Bring specific questions to class or TA office hours for clarification.

### **Listening Activities Tips**

1. Work through a listening activity with your students during class time.
2. Preview the assignment.
3. Read directions and know what you are listening for.
4. Look at context clues.
5. Draw organizational charts.
6. Take notes.
7. Slow down the recording.
8. Pause the recording and summarize what was said.

### **List of Possible Topics**

Flipped Learning	Home Page of MSL and resources
Learning Management System	Vocabulary Interactive Presentation
Vocabulary Tutorial	Grammar Interactive Presentation
Grammar Tutorial	Revisit Flipped Learning
Listening Activities	Preparing for the oral exam using MSL
Outside resources	Teacher training for students

## Outside-of-Class Guide

### Planning

1. How much time do you have to do your work today?
2. How many activities are assigned for today?

### Vocabulary Interactive Presentation

1. What is the topic of this lesson?
2. How many pages are included in this lesson?
3. What vocabulary and grammar on this page are you already familiar with?
4. Why are some words clickable? Why do some clickable words pull up a picture? Why is there audio for some words?
5. After you review this page, how will you study the new vocabulary words?
6. What are three words that might be difficult for you to learn?
7. What can you do to help you remember those words?

### Tutorial

1. Why do you think there are five activities in this tutorial?
2. How many activities did you complete in the tutorial? Explain.
3. Do you think you need more practice with the vocabulary? Explain.
4. Write down two questions you have regarding the vocabulary.
5. Is there a way that you can find the answers to these questions before your quiz?

### Apply Activity

1. What was challenging about this activity?
2. How did you solve a specific problem?
3. What resources inside MSL did you use? Why?
4. What resources outside of MSL did you use? Why?
5. Do you think you prepared well enough to take your quiz?

### Quiz

1. Did you do anything in between the last apply activity and the quiz?
2. What was your score on the quiz?
3. Are you happy with your score? Explain.
4. List three things that you will do differently for the next quiz.

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