Online language teaching:
The convergence of learning management systems and teaching practices

by

Maria Isabel Mayo-Harp

M.A., Universidad Antonio de Nebrija, 2006
M.A., Simon Fraser University, 2001
B.A., Instituto Tecnológico Autónomo de México, 1994

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Name:	**Maria Isabel Mayo-Harp**
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Examining Committee:	**Chair:** Robert Williamson Assistant Professor
	Kevin O'Neill Senior Supervisor Associate Professor
	Cheryl Amundsen Supervisor Professor
	Trude Heift Internal Examiner Professor Department of Linguistics
	Debra Hoven External Examiner Associate Professor Centre for Distance Education Athabasca University
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Abstract

How do different Learning Management System (LMS) components facilitate and/or constrain the activities and pedagogical approaches in fully online language courses? To what extent online language instructors exercise their pedagogical preferences when teaching in LMS environments? These questions were examined from an Educational Technology perspective, considering foreign language learning as a question of learning design. The study employed a survey design with scaled and open-ended questions. Quantitative data were analyzed using non-parametric tests, and qualitative data were analyzed using an open coding procedure. The participants were 97 university and college second-language instructors located in Canada and the United States, who were currently teaching or had taught credit-bearing online courses. Results showed that online language instructors do not make frequent use of synchronous or communicative LMS tools (chat rooms, whiteboards, multimedia rooms; peer review, whiteboards or Wikis); and there is not a clear relation between tools and the type of learning activities they are used for. The study also explored where the type of LMS, the language taught and the years of teaching experience of the instructor were factors that influence the use of LMSs. Although some associations were found, no general conclusions could be drawn. In relation to instructors´ ability to implement their pedagogical preferences when teaching online courses, analysis indicated that the great majority of the participants felt limited by the LMS to some degree, and that limitation was felt more strongly by instructors who had a higher preference for the Constructivist approach. Qualitative analysis suggested that the main advantages of teaching through a LMS were the flexibility and convenience that the online medium provides to students, and that it is a good medium to promote a student-centered type of learning. The major limitations centered on the lack of physical contact, the difficulty to organize synchronous communications or group-based activities, and the time instructors require to prepare and deliver activities as well as to provide personalized feedback to students.

Keywords: Online second language teaching, Learning Management Systems, pedagogical preferences, teaching activities, SLA, CALL.

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Table of Contents

List of Tables

List of Figures

List of Charts

List of Acronyms

ADLF	Association of Departments of Foreign Languages
AECT	Association for Educational Communication and Technology
ALMS	Asynchronous Learning Management System
CALICO	Computer Assisted Language Instruction Consortium
CALL	Computer Assisted Language Learning
CEFRL	Common European Framework of Reference for Languages
CMC	Computer Mediated Communication
CNAI	National Immigrant Support Centres
CTGV	Cognition and Technology Group at Vanderbilt
CVU	Canadian Virtual University
DE	Distance Education
ELSAC	English Language Self Access Centre
F2F	Face to Face
FL	Foreign Language
FLA	Foreign Language Acquisition
ICT	Information and Communications Technology
IT	Information Technologies
LL&T	Language Learning and Technology
LMS	Learning Management System
MLA	Modern Language Association
ReCALL	The Journal of the European Association for Computer Assisted Language Learning
SFU	Simon Fraser University
SLA	Second Language Acquisition
SLMS	Synchronous Learning Management System

Chapter 1.

Introduction

During the last two decades, the number of online courses offered by higher education institutions has been increasing and Learning Management Systems (LMS) have played an important role in helping an increasing number of online instructors to organize their courses. The purpose of this dissertation is to examine how LMSs accommodate the specific requirements of second language instruction, which has been my long-term professional interest. This introductory Chapter begins with a brief description of the current situation of online education in North America, and the relationship among technology, learning theories and second language learning. Then, it describes the problem statement, the purpose and significance of the study, as well as the research questions that guided the study. The last section outlines the organization of the thesis.

1.1. Distance and online post-secondary courses

Today, the growth and adoption of new educational technologies, supported by rapidly evolving software and greater Internet access, has brought online learning into the mainstream of Canada's higher education system. Canadian and American institutions of higher education are seeing a growing trend of on-campus students going online for at least a portion of their education.

Across North America, the number of credit-based courses offered totally online has rapidly increased over the last fifteen years. According to Babson Survey Research Group (Allen and Seaman, 2011), from 2002 to 2010 online course enrollments grew substantially faster than higher education enrollments overall, and around 29 percent of students in higher education institutions were taking at least one online course. Between 2013 and 2015 (Elaine & Seaman, 2017), distance education enrollment continued rising, with an average rate of 3.9%. By 2015, more than 6 million students (30% of all students in higher education) were taking at least one distance course.

In Canada, some reports indicate the same growing trends in online enrolments as in the U.S. (Contact North, 2012; Carpenter and Laurier, 2010; and CVU, 2012). From 2002 to 2010, some universities that self-identify as strategically focused on online education reported an increase from 40 percent (Télé-Université du Québec) up to 194 percent (University of New Brunswick) in their online course enrollments (CVU, 2012, p. 44). In 2008, it was estimated that 11 percent of postsecondary students were registered in at least one online course, but in institutions strategically focused on online education the percentages of total students taking online courses were higher: for example, 19% at University of Manitoba and 22% at Carleton (CVU, 2012, pp. 15-16). At the beginning of this decade, the increase in online course enrolments continued to grow, but more moderately; nevertheless, the growth rate was still larger than the growth rate of the overall higher education student body (Whalen, 2017). By 2015, according to a Global Affairs Canada report (Martel, C., 2015), 360,000 students (29% of all Canadian university students) were registered in at least one online course. In terms of how online learning was developed and delivered, the report also indicated that 91% of all surveyed institutions were using a Learning Management System. In the two years from 2015 to 2017, Canadian online enrolments have expanded at a rate of 10%-15% per annum, and online learning now constitutes between 12% and 16% of all post-secondary teaching for credit (Bates, 2017).

With respect to the offering of foreign languages online courses, there are no published data that indicate the level of enrolment during the last decade in Canada, nor in the U.S. In general terms, however, it would be logical to believe that online language courses have also experienced growth in their enrollments, not only because of the general growth trend in online course offerings, but also because face-to-face language course enrolment has increased. Different agencies and language associations in the US (Modern Language Association –MLA-; Association of Departments of Foreign Languages –ADFL-; National Center for Educational Statistics –NECES- and US Census Bureau) have reported increased enrollments in language courses other than English from 2002 to 2009. In the United States, foreign language course enrollments grew by 12.9% between 2002 and 2006, and 6.6% between 2006 and 2009 (Furman, et al., 2010, p. 2). In Canada, unfortunately, there is no single statistical source specifically for university online enrollments, nor do the provinces typically publish easily comparable information.

1.2. Media and online learning

The rapid increase in online courses presented above was possible in great part due to the introduction and diffusion of Learning Management Systems (LMSs), which are different from other educational media because they offer an infrastructural solution for educational institutions. Some academics, however, have claimed that most LMSs tend to maintain predefined pedagogical concepts (Coates, James and Baldwin, 2005; Dron, 2007), and Westera (2015, p. 9) states that pedagogical bias within a given LMS is unavoidable. In a more categorical way, Friensen (2004) even remarked that a system cannot be simultaneously pedagogically neutral and pedagogically beneficial. On the other hand, other scholars consider an LMS like any other educational technology, as an instrument to meet pedagogical demands (Westera, p.10).

The controversy about about the relationship between information technologies and pedagogy started to arise since the 1980s, and the best example of it is the debate between Richard Clark (1983, 1994) and Robert Kozma (1994) on the role of media in learning. Clark (1983, 1994) defended the position that the medium is only a vehicle to deliver instruction (analogous to a delivery truck), and that no media attribute has cognitive effects on learning – only pedagogy does. Kozma, however, defended "the capabilities of media, and the methods that employ them, [saying that they…] interact with the cognitive and social processes by which knowledge is constructed" (Kozma, 1994, p.7.). Even though Kozma´s response to Clark was published at the beginning of the 1990s, their debate was evidence of what was occurring within the Educational Technology field during this time in regard to the role of media.

The debate about the role of media in learning was not exclusive to the Educational Technology field; it also took place in the Second Language Learning (SLA) field, and more distinctly in the subfield of the Computer Assisted Language Learning (CALL). Some CALL researchers (Penderson, 1986; Dunkel, 1987) focused their attention on analyzing whether or not the different ways of presenting information through a variety of media and various computational tools affected students' language learning (effective input).

This debate has largely been set aside, rather than resolved. Some authors state that "there is nothing inherently necessary or sufficient psycholinguistically about any use of technology, as evidenced by successful foreign language learning without it"

(Doughty and Long, 2003, p. 53). It is pointed out by some authors that only a few empirical studies support the efficacy of technology for improving language learning processes or outcomes (Golonka et al., 2012), while others maintain that technology has proven to be very helpful for improving second language learning (Chapelle, 2001; Egbert, Chao & Hanson-Smith, 1999; Pennington, 1996; Salaberry, 2001; Zhao, 2003).

1.3. Learning theories: SLA and CALL

Regardless the position of SLA in relation to the use of technology, CALL studies and practices have emerged within the framework of the main learning theories in the course of time (Levy, 1997). Nowadays, even though Constructivist approaches dominate the theoretical debate regarding adequate platforms for language learning (Rüschoff and Ritter, 2001), and the recent advances of computational tools (software and information technologies) have opened new possibilities for language learning in a constructivist manner, the fact is that all three major theories, Behaviorism, Cognitivism and Constructivism, continue to be reflected in the daily practice of SLA instruction and CALL. It can even be said that on several occasions the theoretical boundaries between these 3 theories seem to have been relaxed when they are studied and applied in classroom settings, and even more so in online media. Below, the basic assumptions of these three major learning theories are briefly presented as well as their major implications for CALL.

In behaviorist/empiricist theory, SLA teaching methods are characterized by the extensive practice of patterns and repetitious drills, so computer-based activities are designed to provide students with positive (or negative) reinforcement to elicit voluntary behaviours in a certain context. From the cognitive perspective, SLA should involve "conscious learning" rather than repetition and reinforcement as a central feature; in order to acquire language proficiency, students should incorporate and organize new language forms and skills into their own prior mental representations of language (Roblyer et al., 1997). Cognitively-oriented CALL supports activities that focus on the use of forms to communicate meaning, and the emphasis is not so much on what students do with the computer, but rather what they do with each other while working at the computer (Gündüz, 2005). CALL activities that are framed in the cognitive paradigm opt to promote open and flexible learning, where students take control of the learning process. Computer programs designed from this perspective function as tutors with the

intention of reducing cognitive load, that is, they assist learners providing feedback and/or localizing the nature of errors in order for students to identify and correct them, but do not provide explicit explanations of language rules or correct responses. (Luke, 2006, p. 25). The use of computers to facilitate language learning from the cognitive perspective centres on promoting inductive-based activities because these force learners to be active participants in the learning process (Shaffer, 1989).

From the Constructivist (sociocultural) perspective, language learning should be *action-oriented,* where language is learned through collaboration, free creation is rewarded, and learning is attained through actively doing projects and self-regulating learning (Reinfried, 2000). Constructivist language learning should be *learner-centered* and should support the individualization of learning and learner autonomy (Tuncer, 2009). Learners should develop *awareness* not only for learning the language itself but also to understand the intercultural aspects of the specific language. From the Constructivist perspective, computer applications assist social knowledge construction by representing the different perspectives from which public statements emerge and/or by comparing them (e.g., discussion forums and argumentation drafts) (Stahl, 2000).

1.4. Problem statement: Foreign language courses and learning management systems

Since the beginning of the 2000´s, the SLA field has been giving way to constructivist learning theories and more extensively to communicative language teaching methodologies. As stated above, the premise of these methodologies is that language should be learned not only in a contextualized environment, but also in a social context in which learners can share their perspectives with others. In the online education environment, however, constructivist and communicative course design faces some practical difficulties.

Learning Management Systems (LMS) have become more common in post-secondary institutions, aiding instructors in the task of organizing online courses. Regarding online language courses, Ortega and Sánchez-Villalón (2006) hold that an “e-Learning environment” should be able to respond to different learning theories “with shifting focus”, that is, it should allow the implementation of different learning designs “depending on the learning model applicable to each specific assignment” (p. 106);

consequently, they state that LMSs are not the best medium for effective language teaching since they are “too much centered on content” (p. 107). In the same way, Byrne (2007) explains that the great majority of LMSs are not specifically designed for language learning, and hence are not entirely appropriate for language courses. For this author, ideally, the selection of a specific LMS for a language course should be dependent on the requirements of language instruction, and the “appropriateness” of an LMS would depend on its ability to support concrete instructional language teaching and learning needs. These two similar views which question the effectiveness of LMSs for online language instruction beg the question of just how current language instructors are using different LMSs and different aspects of each LMS in their courses. In other words, empirical evidence of actual practice would inform scholarly discourse in the field. There are many studies that target or recommend instructional language skills for online teaching (Nielson and González-Lloret, 2010; Compton, 2009; S. Y. H. Sun, 2011), but very little research on the intersection of actual teaching practices and LMSs. Knowing that general-purpose LMSs may not be optimal for online language teaching, there is a need to explore the actual practices of online language teaching with LMSs.

Assuming that enrolment figures in foreign language courses run parallel to the general positive trend of face-to-face language courses, it would be logical to assume an ongoing increase in online language courses registrations and, consequently, in the number of online language courses offered. This, however, seems not to be the case. In British Columbia alone, after searching the course offerings of 17 higher learning institutions, this researcher found that only three universities are currently offering language courses online: Simon Fraser University, Thompson Rivers University and Selkirk College. Furthermore, the number of online language courses is much lower than the number of courses offered F2F. SFU offers Spanish and Japanese for beginners and advanced Spanish for Heritage students; TRU offers Spanish and Japanese as well, but some of these courses are offered through SFU (Spanish is offered in this way); and Selkirk College only offers Spanish for beginners. SFU and Selkirk also offer a few French courses online.

1.5. Purpose of the study

The goals of this research are 1) to analyze how different LMS components may facilitate and/or constrain activities and pedagogical approaches in fully online language

teaching; and, at the same time, and 2) to examine the extent to which language instructors' pedagogical preferences align with their practices when teaching in LMS environments. The assumption of the research is that a well-designed LMS for language learning, and a well-planned use of the tools and capabilities of existing LMSs could flexibly support varying theory-based conditions for learning and teaching languages.

1.6. Significance of the study

The advancement of Information Technologies is now allowing instructional designers and educators to create new learning activities that promote collaborative learning, as well as to design learning environments that promote learning processes associated with constructivist epistemologies. However, even though the field of Educational Technology has addressed the development of scholarly knowledge about the social processes of learning in mathematics, science and other fields, it has paid little attention to foreign language education in post-secondary education. Thus, this research seeks to promote and provide a foundation for further study of online second language learning in post-secondary education.

Technology-aided second language learning has been broadly studied under the umbrella of Computer Assisted Language Learning (CALL); however, as its very name may imply, CALL scholars have been focusing on the instructional media with which content is presented to learners. Technology in CALL has been widely used to "promote learning, assess learners' language, and collect data for all kinds of investigations" (Thouësny & Bradley, 2011). In contrast, the field of Educational Technology tends to take a design perspective and this thesis suggests that the use of technology for language learning would be better regarded as a question of learning design. Paraphrasing the definition of Educational Technology formulated by AECT (AECT, 2008, p. 1 in Reiser, 2011), one may frame an Educational Technology approach to the online teaching of languages as addressing *how language learning can be facilitated and improved by creating, using, and managing appropriate technological processes and resources*.

A learning design perspective considers LMSs in terms of how the technology allows different approaches to teaching and supports different types learning. For example, properly designed, an LMS can enable learners to come together and form

learning communities in which they can share diverse experiences, perspectives and cultures at the same time as, and attached to, promoting learners' language and communicative skills and fostering their autonomy. Thus, this research aims to promote the well-designed use of LMSs for foreign language courses by analyzing the practices employed and the difficulties encountered by online second language instructors. Paraphrasing Warschauer (2000), a well-designed use of LMS tools can enable language students to conceive, use and modify the world in their foreign language classes as never before; but only if instructors comprehend and appreciate the full capabilities of these online learning environments.

1.7. Research questions

To investigate how different LMS components may facilitate and/or constrain learning activities and pedagogical approaches in fully online language teaching, three factors were taken into consideration: the LMS used, the language taught, and the degree of instructors' expertise with online instruction. The analysis of different LMSs assumes that each LMS design has its own particularities that may influence how and how often language instructors use them. For example, in relation to "course content modules", one of the differences among LMSs lies in how content modules are presented. Canvas and Moodle display the modules in a linear fashion on a single page; to see the next module, users use the slide bar to scroll down the page. In contrast, in Blackboard, learning modules are created inside a content area, if users want to view the next module, they should go back a page and then click on the next module. The language being taught is introduced as a second factor influencing the selection and use of tools, not only because clear language differences, such as the use of different characters, syntaxes and phonetics, but also because of teaching methodology preferences –direct teaching vs student-centered learning, for example. Finally, the inclusion of the third factor, the level of online teaching expertise, will also explore whether novice, intermediate and more advance online instructors select and use LMS components in a different manner and frequency. Thus, the following three research questions and sub-questions guide the study:

1. What are the LMS components most used by online language instructors?

    - Is there a significant difference across LMSs?
    - Is there a significant difference across languages taught?
    - Is there a significant difference between novice and experienced online instructors?

2. What is the relationship between the use of different LMS components and the learning activities provided for students?

    - Is there a significant difference across LMSs?
    - Is there a significant difference across languages taught?
    - Is there a significant difference between novice and experienced online instructors?

3. What is the relationship between the use of different LMS components and pedagogical approaches?

    - Is there a significant difference across languages taught?
    - Is there a significant difference between novice and experienced online instructors?

To examine the extent to which instructors can exercise their pedagogical preferences when teaching in LMS environments, the following fourth research question and sub-questions guide the study:

4. How is teaching online through a LMS related to language instructors' teaching practices and perceived ability to enact their pedagogical preferences?

    - To what extent do online teaching practices accord with instructors' pedagogical preferences?
    - What do online language instructors perceive to be the major sacrifices they make pedagogically when teaching online?
    - What do online language instructors perceive to be the major pedagogical gains when teaching online?

1.8. Outline of the thesis

This Chapter began with an introduction to this study. It started by presenting the current situation of an increasing number of online courses offered across Canada and the United States; the debate about the role of media in learning; and the relationship among learning theories, SLA and CALL. It also introduced the problem statement, the purpose and significance of the study, and the research questions.

Chapter 2 will more closely define the subject of study, the use of LMSs in online language courses, and provide a review of relevant literature regarding the challenges of online language learning and the adequacy of LMSs for online language learning. It also will discuss some important issues in the use of LMSs for language learning, such as the use of specific LMS tools, and student participation and interaction. Chapter 3 outlines the research methodology undertaken in this study for the recruitment of participants and the collection of data; it also describes the procedures and the methods of analysis employed. Chapters 4 and 5 will report the quantitative and qualitative results. Chapter 4 focuses on the use of LMSs and their component tools, presenting the statistical findings relevant to research questions 1 and 2. Chapter 5 focuses on instructors' pedagogical preferences and the pedagogical approaches they report using in their online courses, presenting the statistical findings relevant to question 3 and analysis of qualitative data relevant to research question 4. Finally, Chapter 6 provides a detailed discussion of the results, as well as the implications of the findings for online language teaching and some recommendations for the online language teaching practice as well as for future research.

Chapter 2.

Literature Review

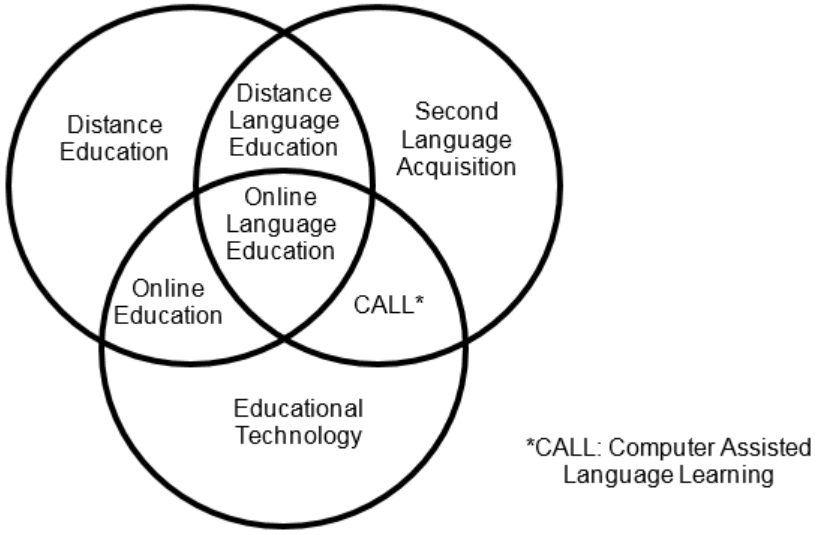
In this chapter, a broad literature review is presented in order to frame the research associated with the use of LMSs in online language courses.

2.1. Defining the Subject of the Study

Descriptions of the use of LMSs in institutions of higher education for delivering language courses online is imperative in this research because most LMSs are not designed for language learning *per se*. Hence, when facing the range of technological tools these systems offer, it is necessary to analyze their pedagogical capacity for second language acquisition (Zhao, 2003a).

The study of the use of LMSs in online language courses is located at the intersection of three different fields of study: Second Language Acquisition (SLA), Educational Technology and Distance Education (see Figure 2.1). Each one of these three fields has, however, theoretical and pedagogical particularities that are not completely shared, and which need to be described and explained in order to set the boundaries for this study.

Figure 2-1 Location of the Study of LMSs for Online Language Courses



2.1.1. **Distance Education**

Distance Education (DE) is a distinct field of educational research and practice that suggests there are characteristics of distance education that are different from those of face-to-face education or hybrid education. What traditionally has defined this field is the "distance" concept – the absence of physical contact between students and instructors, as well as between students, which in turn implies a lack of real-time interactions most of the time. More recently however, the idea of "distance" has changed.

Many definitions of DE have been proposed. Definitions are important to review because they explicitly reveal differing perspectives and assumptions, and also identify specific practices and principles at a certain point in time (R. Garrison, 2000; Keegan, 1991). During the 1980´s and 1990´s many definitions of DE were put forward (e.g., Garrison & Shale, 1987; Holmberg, 1986,1995; Moore, 1993; Portway & Lane, 1994; Peters, 1994); but in general, and following Keegan´s synthesis (1980, 1991, 1996), six major elements of DE were described:

1. The separation of teachers and learners through the length of the learning process.
2. The provision of two-way communication, generally occurring asynchronously.
3. The treatment of learners as individuals and the absence of a learning group.
4. The use of media (print, audio, video, computer) to link teachers and learners and to deliver the learning content.
5. The role and influence of the educational institution in the planning and preparation of learning materials as well as in the delivery of student support services.
6. The introduction of a new form of industrialized education which entails organizational strategies for mass production and delivery of learning packages to realize economies of scale.

These elements, however, were only fully applicable to the thinking and practice of the 1990's, before the dimensions of space and time were strongly altered by more sophisticated technologies (Spector, 2009). An important turning point in the evolution of DE practices occurred at the end of the 20th century, when Information Technologies

(IT's) started to advance rapidly. A milestone was the introduction of FirstClass (identified as the first modern LMS), which was used by the United Kingdom's Open University in the 1990's and 2000's to deliver online learning across Europe (Khedr, 2016). The concept of distance as a separation in place and time of learners and teachers was not perceived in the same way. With current IT, people from different places can meet in a virtual space and synchronously share ideas and artifacts, as well as work on group projects (Spector, 2009). Computer Mediated Communications (CMC) tools such as chats, video and audio conferences and virtual spaces have changed the idea of "distance learning" and enabled synchronous multi-way interactions (Wang & Chen, 2009).

Current technologies have propelled the discussion of new approaches to learning and instruction, approaches based on the socio-constructive paradigm have gained greater acceptance (Jonassen, 1999). DE is no longer limited to individual study, but also may promote collaborative learning (Holberg, 2008). Currently, DE is increasingly perceived more as a form of facilitation of education than a form of delivery of instruction (Wang & Chen, 2009).

Online education

"Online education" is a broader term that requires some clarification. Some institutions define their courses as *distance*, *web-based*, *blended* or *hybrid*, *dynamic web*, *technology enhanced* or *online*, depending on the extent of technology used to deliver the course (CVU, 2012). The issue with defining a course according to its amount of online content is that it creates a continuum between traditional face-to-face courses and completely integrated digital courses, so even courses with a minimum of web-based content could be categorized as *online* courses. In "Going the Distance", an annual publication about online learning in the United States (2011, p. 7), online courses are defined as those in which at least 80 percent of the course content is delivered online; face-to-face courses or traditional courses as those in which less than 30 percent is delivered online; and blended or hybrid courses as those in which online content represents between 30 and 79 percent. The traditional and blended modalities in this classification are clear, and do not pose any confusion. However, the "Going the Distance" classification, or any other that relies on percentages of web-based content delivered to define what is an online course and what is not, sets arbitrary boundaries. In

the strict sense, a course that delivers 90 percent of its content online but still requires a face-to-face component should be classified as a blended course. At any moment, an online course can include another content delivery method (such as textbooks or other printed materials) that without question will affect the percentage of its web-based content delivered. A differentiation of online courses from blended courses should be based not on the percentage of content online, but rather the absence of a face-to-face component and the use of communication tools, such as a LMS, to facilitate exchanges. Thus, this research considers that online courses are those which do not require or integrate any face-to-face components.

2.1.2. **Educational Technology**

In 2008, a committee of the Association for Educational Communication and Technology (AECT) presented the most up-to-date definition of the field of Educational Technology: “Educational technology is the study and ethical practice of *facilitating* learning and improving performance by creating, using, and managing appropriate technological processes and resources” (p. 1). This definition promotes the notion that learning is *facilitated* (rather than produced or controlled), and uses the terms *creating, using*, and *managing* to convey a broad view of the design processes used within the field (Reiser, 2007, p.4). The inclusion of the word *ethical* places emphasis on a professional conduct requirement (Reiser, 2007).

In the field of Educational Technology field, individual and social constructivist approaches to instructional design delineate subsets of the field. Constructivist and subjectivist theories endorse different learning activities. For individual constructivists, knowledge is constructed based on personal experiences and hypotheses about the learner’s environment, allowing them to promote the use of cognitive tools and cooperative learning (CTGV, 1992). For social constructivists, knowledge is socially constructed from interactions among persons and their environments. Construction is not wholly the result of a cognitive process, but a consequence of mental contradictions that result from interactions with the environment; thus, “knowing is viewed as practices of communities and the abilities of individuals to participate in those practices and participatory abilities” (Greeno et al., 1996, p. 23). Social constructivists promote collaborative leaning and the formation of knowledge communities (O’Neill, 2004; Lipponen, 2002). For a situated theorist the idea of “knowledge”, as a concept, gives

way to the idea of “knowing” as action and participation. Brown, Collins, and Duguid (1989) have suggested the design and use of "authentic tasks" as these enable students to immerse themselves in the culture of an academic domain, much as an apprentice is immersed in the culture of a profession. Brown et al. (1989). also suggest that authentic tasks (apprenticeships) should be designed with the aim of immersing students in the “culture of traditional academic domains” such as science or history.

2.1.3. **Second Language Pedagogy**

The modern history of Second Language Pedagogy has been characterized by the use of many different pedagogical approaches and methods. The concern for designing new forms of teaching and learning in effective ways has prompted educational researchers to develop and adopt learning theories and teaching practices that incorporate the most current technological advances. Several different theoretical assumptions about language learning have either replaced or complemented each other in the search to continually improve foreign language (FL) learning models and practices. Therefore, during the last six decades, FL instruction has helped students learn effectively, based on how well all the elements involved in the instruction are coordinated, including instructors, students, materials and resources, media, and learning environments (Bartolomé, 2004, p. 23).

The following sections will briefly present the basic assumptions of the three major learning approaches – Behaviourism, Cognitive theories and Constructivism – and how they have guided some SL instructional methods.

The Behaviorist theory

Behaviourism focuses on the paradigm of “Stimulus-Response Association”, which assumes that all behavior is an organism’s response to environmental stimuli. “Learning is the formation, strengthening, and adjustment of those associations” (Greeno, et al., 1996, p. 21). That is, according to this theory, teaching requires selecting the correct stimuli in accordance to the environment so learners can respond properly; correct responses are then reinforced by repetition. Behaviors can and should be observed and measured for assessment, and the cognitive thought processes occurring in the mind are not taken into account. Students’ learning progresses in small stages

through selective reinforcement. Since the goal of behaviourist instruction is to have learners respond correctly to a stimulus, instruction needs to set triggers to which learners respond, as well as partition material to be learned into small sections that can be mastered one after another. Practice, or frequent response by learners, is required as it is reinforcement in relation to the correctness of the response.

Following the postulates of behaviorist theory, two language teaching methods were developed during the 1950s in the field of SLA, and grew rapidly in the 1960s after the appearance of Skinner's book *Verbal Behavior* in 1957. These methods were the Audiolingual and the Audiovisual methods. The audiolingual language learning method emphasizes speaking and listening skills over reading and writing skills, and is characterized by the extensive use of practicing patterns and repetitious drills. The objective of this method is to produce accurate pronunciation and grammar, develop the ability to respond quickly and accurately in speech situations, and accumulate knowledge of sufficient vocabulary to be used with certain grammar patterns. In this method, language learning is habit-formation, mistakes are viewed as negative, and should be avoided as they form bad habits. Further, language skills are learned more effectively if they are presented orally first, then in written form (Richards & Rodgers, 2001). The audiovisual method, developed in Europe, is similar to the audiolingual method in many ways, but its unique feature is that it presents new language materials using filmstrips and corresponding tapes that describe social scenarios (Chapelle, C., 2001, Levy, 1997).

The Cognitive theory

Cognitive theory, which was developed in the 1970´s and 1980´s "emphasizes [the] understanding of concepts in different subject matter domains and cognitive abilities, such as reasoning, planning, problem solving and comprehending language" (Greeno et al. 1996, p. 16). This paradigm argues that the "black box" of the mind should be opened, studied and understood. Learners are viewed as information processors and not merely "programmed animals" who simply respond to environmental stimuli; people are thought of as rational beings who need to actively participate in order to learn, and whose actions are a consequence of their cognitive schema and individual manner of thinking. A change in behavior is still observed, but only as an indication of what is occurring inside the learner's mind (Richards & Rogers, 2001, Schunk, 2000).

In the realm of SLA, Cognitive theories maintain that learning a second language is very different from learning a first language, particularly for adults; since adults consciously learn the system of the new language. Thus, the method of assessing learning is expanded to include assessment of student's thinking as well as their behavior. In cognitive theory, "conscious learning" is an important feature. In order to become proficient in a second language, students need to incorporate and organize new language forms and skills into their own prior mental representations of language (Roblyer et al., 1997). New language forms that are not represented in a student's mental schema can become unconscious or automatic processes through making connections to prior mental representations and through practice, that is, they can be acquired or learned in this way (O'Malley & Chamot, 1990).

Communicative approaches, which are still the dominant method of second language instruction used in North American classrooms today (Richards & Rogers, 2001), are based on cognitive learning theories. Communicative language teaching presents activities based on real-life situations that require communicative interactions. The teacher sets up a situation that students are likely to encounter in real life. Unlike the Audiolingual method, which relies on repetition and drills, the communicative approach does not have a predetermined result or outcome; this will vary according to the entire class reaction and responses. Lessons are built around practical situations and functions in the real world, e.g. asking for information, complaining, apologizing, job interviews and telephoning.

Constructivist Theories

Constructivist learning theories state that learning is an active, contextualized process of constructing knowledge through communication, rather than acquiring it through memorization and reinforcement alone. Knowledge is constructed based on learners' personal experiences and their hypotheses about their environment. Learners continuously test these hypotheses through social negotiation of meaning. Therefore, each person has a different interpretation and process of constructing knowledge. However, two varieties of constructivism, the individual and social, differ in relation to the roles that the environment or context is considered to play in the construction of knowledge. From the individual framework (Piaget, 1969; Adey & Shayer, 1994), mental structures are created out of earlier structures, not directly from environmental

information; thus “knowledge is not a mirror of external world acquired through experiences, teaching, or social interactions” (Schunk, 2000, p. 230). Knowledge is constructed by a cognitive activity of abstraction. Alternatively, in the social constructivist view (or *sociocultural* as it is termed in SLA field), knowledge is constructed from interactions between persons and their environments (Lowenthal, 2010; Lowenthal & Wilson, 2010). Construction is not the whole result of the individual’s cognitive process, but the consequence of mental contradictions that result from interactions with the environment. Pure social constructivists believe that “learning occurs via the construction of meaning in social interaction, within cultures, and through language” (Lowenthal & Muth, 2008). Hence “knowing is viewed as practices of communities and the abilities of individuals to participate in those practices and participatory abilities” (Greeno et al. 1996, p. 23).

According to Reinfried (2000), constructivist SLA learning should be *action-oriented,* where language is learned through collaboration, free creation is rewarded, and learning is attained through actively doing projects and performing self-regulation. Constructivist language learning should be *learner-centered* and should support the individualization of learning and learner autonomy. Learners should develop *awareness* not only to learn the language, but also to understand the intercultural aspects of the specific language. Constructivist language learning is *holistic,* authentic and content-oriented, and provides a complex learning environment. Since the environment or social world is the source of all learning, “participation in culturally organized activity is essential for learning to happen” (Lantolf, Thorne & Poehner, 2015, p. 16). This requires not only interaction with others, but also with the utterances and materials (such as written texts) that others have produced, since learners observe and try to imitate them (Ohta, 2001). Task-based, project-based and content-based methods of instruction seek to integrate learners in authentic environments, and also to integrate the various skills of language learning and use (Gündüz, 2005, Samuda and Bygate, 2008).

Second and Foreign Language Acquisition

SLA has two important subdivisions, second language acquisition and foreign language acquisition. The difference between these sub-areas encompasses the purposes of learning a different language. “Second language” refers to a language that is going to be used for daily living, and it is normally applied to the situation of

immigrants who need to know a language to live, work and socialize in their new communities; furthermore, "literacy" is often attached to this concept, although it also is considered a distinct area of study. A "Foreign language" is one that is not spoken in the community of the learner as a whole, so it has different target applications, such as studying, traveling and doing business; it would not be used to describe the situation of living permanently in a target language community. Normally, the acronym SLA comprises both kinds of language learning, second and foreign, unless otherwise specified.

2.1.4. **Computer Assisted Language Learning (CALL)**

CALL is normally considered a subfield of Second Language Acquisition (SLA), but it has been influenced by many other fields of study, such as educational technology and instructional design, applied linguistics, cognitive science, computing, psychology, and artificial intelligence.[1] Therefore, CALL is related to both second language and foreign language learning.

In relation to computer applications, most people do not realize how old CALL is. Its history can be traced back to Skinner, who designed and advocated the use of teaching machines (Skinner, 1954). The early pioneers of CALL used mainframe computers and tended to work on large-scale funded projects in U.S. universities, such as PLATO (Programmed Logic for Automatic Teaching Operations) and TICCIT (Time-shared, Interactive, Computer Controlled Information Television) (Levy, 997). What is interesting about these projects is how they start to use techniques that are still present in many language computer-based programs, such as the use of authoring systems to produce mainly behavioural materials – that is, ones that provide students with positive (or negative) reinforcement in order to elicit voluntary behaviours in a certain context.

The introduction of the personal computer (PC) in the 1980s not only brought new learning possibilities, but also resurrected the structural drills that belonged to behaviorism. Currently, in Second Language beginners' courses, for example, it is very common to find simple computational programs whose only objective is to ensure that students are learning vocabulary by repetition and positive reinforcement. In flash-card

[1] Levy (1997) counts 22 different disciplines and theoretical frameworks that influence CALL.

applications, for example, students are shown a set of cards with texts and/or images and are asked to spell and/or select the correct term. If the desired response is given, the card is automatically discarded; but if the response is not the correct one the system will show the correct answer to the student and place that card back into the deck to be displayed again later. Other behaviourist-inspired activities common in CALL nowadays are “match the columns”, “multiple choice”, “fill in the blanks” and “find the stranger”, where the idea of behavioural reinforcement is very clear.

CALL activities that are framed in the cognitive paradigm opt to promote open and flexible learning in which students take control of the learning process. Computer programs are designed to function as tutors and to reduce cognitive load in order to enable learning. They assist learners by providing feedback and/or localizing the nature of errors in order for students to realize and correct them, but do not provide explicit explanations of rules, or correct responses (Luke, 2006, p. 25). Thus, the use of computers to facilitate language learning from the cognitive perspective centres on promoting inductive activities, because these force learners to be active participants in the learning process (Shaffer, 1989).

Some examples of cognitively-oriented CALL programs are concordances and authoring tools for creating class-based learner dictionaries or other databases, because these function as cognitive tools. Further examples of cognitive CALL are intelligent tutors. In intermediate levels of language learning, for example, localizing the kind of error a student has committed is crucial for students’ learning; hence, intelligent tutors (such as “etutor”[2]) will not provide a correct answer in response to a student’s error, but rather an explanation of the kind of error, and sometimes hints to help correct it. The system will not only recognize the incorrect response because of a misspelled word, but also because there is an error in grammar, syntax and/or adequacy to the context. In order to provide feedback to students, intelligent tutors not only deal with behavioural manifestations of students’ solutions on the computer, they also relate such manifestations to “some sequence of production firings in the cognitive model” (Anderson, *et al.*, 1995).

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[2] The *etutor* also provides error-specific and individualized feedback by performing a linguistic analysis of student input and adjusting feedback messages suited to learner expertise. http://www.e-tutor.org:8080/et/about.jsp

The beginning of the twenty-first century brought important changes to CALL. The advancement of IT, such as the Internet, multimedia, websites, virtual learning environments and (most noticeably) learning management systems opened new possibilities for language learning. More widespread access to broadband Internet allowed synchronic and higher-quality communication (both audio and video). As happened in the field of Educational Technology in the previous decade, CALL started to introduce different learning designs to promote constructivist types of learning such as task-based and problem-solving approaches (Rüschoff & Ritter, 2001, Hoven, 2006). Warschauer (2000) states that CALL entered into a phase that he labels 'Integrative CALL' in which many teachers moved away from a cognitive view of communicative teaching to a more social or socio-cognitive view, placing greater emphasis on language use in authentic social contexts (Warschauer & Healey, 1998).

At present, CALL is an area of study on its own, with dedicated journals and a significant number of research publications[3] dating from the 1980's that impart to the field a sense of "maturity" (Chambers, 2010). Some leading CALL researchers, such as Levy and Stockwell (2006), perceive CALL under a unified research agenda with Second Language Learning, and this in turn, under the wider research context on learning and education (Chambers, 2010).

2.2. Scope of the Study

As has been previously explained, the study of the use of LMSs in online Second Language courses can be located in the intersection of three scholarly fields: Second Language Acquisition, Educational Technology and Distance Education. Therefore, to conduct an effective literature review, it was necessary to examine what has been published on this topic in a variety of scholarly publications related to these three fields. As Levy and Ellis state (2006, p. 183), an effective literature review helps to understand the existing body of knowledge and where new research is needed, provides a solid

[3] The major publications related to CALL date from 1980's and onwards. Some of the major publications are CALL, ReCALL (the journal of EUROCALL), CALICO and the online journal of Learning & Technology, Computer Assisted Language Learning.

theoretical foundation, justifies the proposed study, and frames and validates the research approach.

2.2.1. **Literature search strategy**

A four-step process was followed to identify research publications relevant to the study.

Step 1 was to conduct an extensive key-word search in four electronic databases and nine journals. The databases searched were: the SFU library catalogue, Google Scholar, ERIC and Education Source. Four of the targeted journals belong to the area of SLA and technology, and the other five to the areas of Educational technology and E-Learning. See Table 2.1.

Table 2-1 Journals included in the Literature search

Second Language Acquisition and Technology:

CALL (Computer Assisted Language Learning)
ReCall (The journal of EuroCALL)
CALICO (Computer-Assisted Language Instruction Consortium)
Language Learning and Technology (LL&T).

Educational Technology and E-Learning:

Educational Technology Research & Development
The Journal of Educational Computing Research
Journal of Research on Technology in Education
Interactive Learning Environments
Knowledge Management & E-Learning: An International Journal

The key words used in the journal search indices (in various combinations) and the number of sources found are shown in Table 2.2. For the electronic databases and Educational Technology and E-Learning journals, sources that did not include the key-words “second/foreign language” or “language learning” were not considered.

Table 2-2 Journals included in the Literature search and Number of Sources Found

	Number of Sources found	
	SLA Journals	**Educational Technology and E-Learning Journals**
learning management system (LMS)	49	26
learning platform	38	33
virtual platform/classroom	58	1
virtual learning (environment)	70	4
online course/class	118	27
online teaching (skills)	35	-
online pedagogy	50	1
Total:	418 (57)	92 (13)

In Step 2, the researcher reviewed the abstracts and/or content of the obtained resources, and works that did not appear related to the study were discarded. From the 510 sources first identified in the index searches (418 from the SLA journals and 92 from the Educational Technology and E-Learning journals), the number of publications relevant to the present study was reduced to less than 70.

The third step consisted of conducting a manual search of the SLA and Technology journals since the year 2000 to include sources that had not been identified during the previous stages of the search. This search of the journals was meant to identify additional articles from the journals that were not abstracted in the databases (for example LL&T) and some comparative studies that may not have contained the key words used in the search. Finally, in the fourth step, when a source of interest was found, backward footnote chaining was used to locate other related sources. Overall, approximately 90 related sources were identified in computer and manual searches.

Since the main purpose of this review was to identify articles related to the use and evaluation of LMS's in current online language courses, rather than to conduct a historical review of their uses and functionalities, it was reasonable to limit the search to works published largely since 2000. However, since the literature review also employed the backward chaining method to localize relevant research, a few papers considered in this review were published prior to 2000. Likewise, because literature explicitly related to fully online language learning through an LMS was scarce in the literature indexes, it

became necessary to include literature that was somewhat related to blended or hybrid language learning and/or fully online learning of non-language-specific subjects when performing backward chaining.

2.3. Review of the research literature on the use of LMSs in online language courses

Given what appeared in the literature mainly from 2000-2016 and taking into consideration all the publications related to online language education, the literature was sorted into the following thematic groups: 1) challenges of online language learning, 2) adequacy of LMSs for online language learning, 3) the use of an LMS's tools, and 4) student participation and interaction. These four areas will be reviewed in the following sections.

2.3.1. Challenges of online language learning

The rapid spread of online courses in post-secondary education set important challenges for second language instruction, which have been examined and reflected on by both instructors and researchers. Key studies identified in the literature review focused on the differences between teaching in traditional face-to-face (F2F) classrooms and online environments (Nielson & Gonzalez-Lloret, 2010, González-Lloret & Ortega 2014, Wilson & Stacey, 2004; Stockwell, 2007), the competences and skills necessary for online teaching (S. Y. H. Sun, 2011; Hampel & Stickler, 2005; Guichon, 2009; Kessler, 2007; Salmon, 2003; McPherson & Nunes, 2004), and the proposal of new pedagogic approaches and frameworks (Ally, 2004; Chateau & Zumbihl, 2012; Comas-Quinn, 2011; Comas-Quinn, de los Arcos, & Mardomingo, 2012; Compton, 2009; Hampel & Stickler, 2005; Wang & Chen, 2013).

When developing online courses, it is important for instructors to keep in mind that one is not designing curricula and materials to compensate for the lack of physical contact, F2F communications and non-verbal cues in online media, but rather to exploit the benefits that working online can bring to the learning experience (Nielson & Gonzalez-Lloret, 2010, Wilson & Stacey, 2004). As Newlin and Wang (2002) point out, "if educators develop Web instruction solely as a means of changing student access,

they have missed the point about using the Web as an instructional tool" (Nielson & Gonzalez-Lloret, 2010, p. 329). As S. Y. H. Sun (2011) argues:

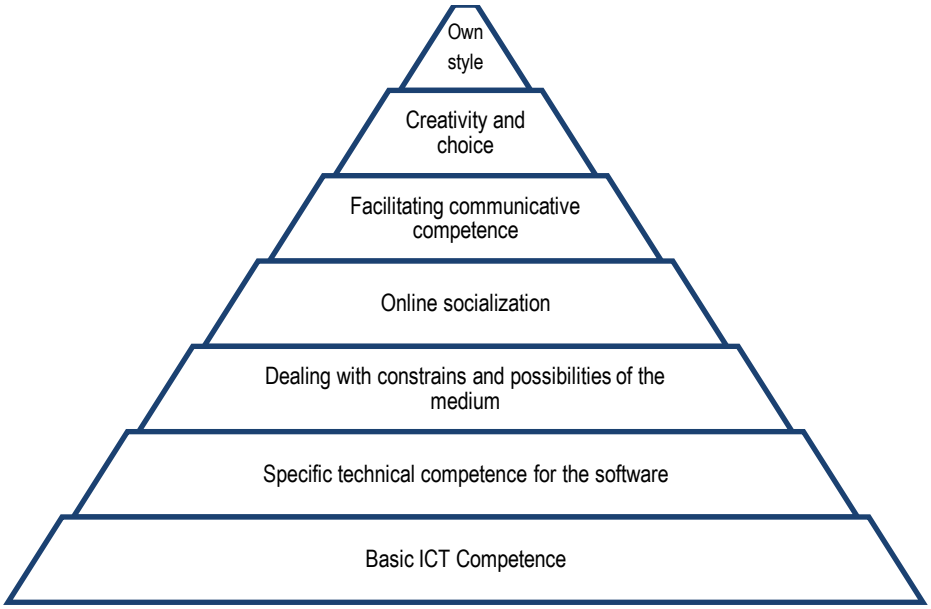
> Unfortunately, the kind of technology-focused approach which insists that teachers must develop competence and skills in managing a virtual classroom has misled teachers into believing that the loss of the traditional classroom can be made up by the virtual classroom, and they can continue to organize class lectures and design various group task/activities there. (p. 439)

Assuming that a good instructor in the F2F environment can be easily transferred to an online environment is, according to the literature, a common myth among many instructors (Davis & Rose, 2007; Wood, 2005), at least until they actually immerse themselves in online teaching. It is argued that instructors need to make rational choices among the many technological options available based on theoretical and methodological principles when preparing their online courses. Stockwell (2007, p. 118) views the relationship between technology and pedagogy as a ''symbiotic one, where they are mutually dependent upon each other, potentially to their benefit, but also potentially to their detriment'', and concludes that ''the most important responsibilities for those teachers who make the decision to use technology as a part of their language learning environments is to ensure that they are familiar with the technological options available and their suitability to particular learning goals'' (op. cit.). Thus, online instructors should be prepared to develop a completely new set of skills (technological, methodological and pedagogical) in order to respond to the needs and characteristics of online students (S. Y. H. Sun, 2011).

Some authors suggest that online language teaching requires not only different skills from those used in F2F courses, but also skills that are different from teaching other courses online (Compton, 2009; S. Y. H. Sun, 2011). Some researchers have worked to identify the particular skills that online language teachers require. One study to address the pedagogical aspects of online language teaching was conducted by Hampel and Stickler (2005), which has been broadly used as a platform for developing further analyses (Shelley *et al.*, 2006; Compton, 2009; Yun, 2011). In their study, Hampel and Stickler identify seven components for successful online teaching and present them in the form of a pyramid, ranging from the most general skills at the bottom to individual and personal styles at the peak (Hampel and Stickler, 2005, p. 317). The three lower levels of the pyramid are issues related to hardware and software (basic ICT

competence, specific technical competence for the software and dealing with the constraints and possibilities of the medium); levels four and five relate to pedagogy (online socialization and facilitating communicative competence); the sixth level refers to the ability to create and select learning materials; and the seventh and highest skill-level is acquired when instructors are able to develop a "personal teaching style, using the media and materials to their best advantage, forming a rapport with [the] students and using the resources creatively to promote active and communicative language learning" (p. 319). (See Figure 1.)

Figure 2-2 Hampel & Stickler's Skill Pyramid



(Hampel & Stickler, 2005, p. 317. Use with permission of Taylor and Francis.)

In later work, Compton (2009) addresses the "limitations" of Hampel and Stickler's skills pyramid and proposes a modified framework. Compton argues that online teaching skills do not have to be developed sequentially, as Hampel and Stickler's pyramid implies, since some of the skills can be developed concurrently. In addition, Compton notes that Hampel and Stickler's framework "does not provide any indication of when an online language tutor is ready to teach" (p. 81) and that only one skill (i.e. facilitating communicative competence) is specific to online language learning. Compton reviewed the then-existing literature and proposed a different framework for online

language teaching skills. In Compton's framework (Compton, 2009, p. 82, Figure 2), the skills consist of three major areas: 1) technology in online language teaching; 2) pedagogy of online language teaching; and 3) evaluation of online language teaching. Each of these areas is divided into three levels of expertise: novice, proficient and expert.

Hampel and Stickler and Compton's skill frameworks for online language teaching are basically descriptive and theoretical, and offer a good initial baseline to indicate which skills online language instructors must learn and practice; however, it has been suggested that they are lacking in detail in some important ways (S. Y. H. Sun, 2011). Therefore, other researchers have opted to focus on teachers' experiences and perspectives on their own readiness and willingness to engage with new technologies in the language classroom (Kessler, 2007; Rosell-Aguilar, 2007; Murday *et al*., 2008; Wiebe & Kabata, 2010; Nielson & Gonzalez-Lloret, 2010). As S. Y. H. Sun (2011) explains, referring to Hampel and Stickler and Compton's descriptive schemes, such "superficial talks, while it may be theoretically sound, practically offers little help to the struggling online teachers" (p. 430). What is most needed by online teachers, S. Y. H. Sun continues, "is advice and guidance with sound theoretical basis for everyday teaching practice" since many of them are "left to do their own experiments and perhaps learn from their own mistakes" (p. 431). S. Y. H. Sun's approach exposes new skills and approaches for online language teaching, with learners firmly in mind. This author presents how online learners' profiles and learning behavior have important pedagogical implications for teaching online, and calls for learner-centered pedagogies to be adopted in online language teaching.

The teaching of foreign languages online is clearly reflected in the literature as requiring more than the acquisition of ICT skills. As Kozma would suggest, it requires a pedagogical understanding of the affordances of the new medium (Kirkwood & Price, 2005), and an acceptance by instructors of the new and different instructional roles they must perform. Kurek (2015, p. 15) notes that "technology-mediated learning environments have their unique affordances and constraints which, first, enable certain types of learner activity or discourse and, then, require suitable tasks to address them".

Training and guidelines are most needed for online language instructors in order to break false assumptions about the online medium and use its affordances with a clear

objective in mind. Such training, as Kirkwood & Price (2005) indicate, has to be designed to teach instructors how to use the tools, but also include “why” they should use them. As Gonzalez-Lloret and Ortega (2014) assert:

> no matter how exciting new technologies or language learning may seem, they can become nothing more than entertainment unless their design, use, and evaluation are guided by viable educational and language developmental rationales. (p. 3)

Gonzalez–Lloret (2014) also states that successful online teaching depends to a large extent on the teacher’s knowledge and awareness of available technology affordances and limitations, since they need to consider which of them can assist in achieving the learning objectives. Other authors, therefore, suggest that online instructors, more than simply working with CALL (Computer Assisted Language Learning), are also expected to understand and use frameworks for evaluating online learning tools (whether compounded in an LMS or not) as they use them in their courses (Hubbard & Levy, 2006a: 11, Hughes, 2005; Kassen et al., 2007).

2.3.2. **Adequacy of LMS for online language learning**

A second important topic addressed in the literature reviewed for this study is the adequacy of commercial and educational LMSs (also referred as Virtual Learning Platforms or Course Management Systems) for language teaching and learning.

Institutions have chosen online distance education courses partly as a cost-effective means to offer courses to large numbers of students who are not present on campus or have challenging work schedules. From an economic standpoint, it appears obvious for administrators to make decisions to purchase course management software based on the general needs of their distance courses. Such software may not be ideally suited for language teaching, but are justified as they can be supported centrally and the licensing costs can be spread over a large number of courses.

In higher education generally, many authors have examined the advantages of LMS’s, mentioning that they assist instructors in designing, presenting and assessing online courses; providing “an unimaginatory repository for teaching materials” (MacLaren, 2004); and offering a convenient communicative and collaborative virtual environment (Bongey, Cizadlo & Kalnbach, 2005; Chan & Robbins, 2006; Rosenberg,

2001). The convenience and user-friendly interface of LMSs, which are often intuitive and do not require knowledge of programing for developers, are usually mentioned as well (Bongey, Cizadlo & Kalnbach, 2005).

There are a large number of publications which are concerned with how different LMS tools (usually CMC tools) and functions are used for language learning; but normally such studies are performed under the umbrella of traditional F2F courses. That is, such studies target activities that complement traditional F2F classes, and target specific learning outcomes (Brandl, 2005; Chen, Belkada & Okamoto, 2004; Priyanto, 2010; Su, 2006). While many language teachers have included LMSs in their face-to-face language courses, empirical research investigating the use of LMSs in completely online language courses has been scarce (W.-K. Yu *et al*. 2010, p. 334).

When moving to online language distance education, some authors (Doughty and Long, 2003; Long, 1988, Byrne, 2007; W.-K. Yu *et al.,* 2010) have pointed out that most course management software lacks comprehensive functionalities that target the development of language skills, since they are designed for the teaching of subject matter. Therefore, they do not offer functions that one would ideally want to help develop a functional ability to use language.

In many cases, rather than developing a functional ability to use language, online courses using an LMS deliver a structural grammar-based type of learning (consciously planned or unconsciously reached); this is far from what many language instructors and researchers would nowadays consider desirable (Sun, Tsai, Finger, Chen, & Yeh, 2008). For instance, (Moore & Kearsley, 1996) and some language focused researchers (Sun, Tsai, Finger, Chen, & Yeh, 2008) have pointed out that LMSs do not offer real time feedback or opportunities for meaningful and flexible interaction, which are essential for language learning. More specifically, from the perspective of constructivist language teaching philosophy, language learning requires more than flexible interaction as a form of putting different communicative skills into practice; it requires working collaboratively with others in order to construct knowledge; that is, to participate in a knowledge building community of second language learners (Warschauer & Kern, 2000). Collaborative activities allow learners not only to build better memory structures, but to participate in their language learning community.

Godwin-Jones (2011, p. 5) mentions that there are LMSs explicitly designed for language learning that incorporate features beyond those typically useful in content-focused courses. These tools include personal learning portfolios, students' notes and vocabulary lists (CNAI Center in Pamplona), or others which include student monitoring features that allow language instructors to give real-time feedback based on students' actual language performance (English Language Self-Access Centre ELSAC at the University of Auckland) (Reinders, 2007). However, creating a customized LMS for language learning is usually not a viable option for postsecondary institutions, since this requires large amounts of human and financial resources. Licensing an existing LMS that is tailored to language teaching may also not be considered cost-effective for the institution. Thus, online language instructors are usually required to use the LMS that has been adopted by their institution (Jager, 2009). The lack of influence that language instructors have over the systems the educational institution adopts is not necessarily undesirable, however. Jager (2009) notes that, in the end, "individual teachers may be better served with one working technology that is properly supported than with a wide of range of incompatible tools for which no adequate training or support can be provided, and the same holds true for students." (p. 41.)

Furthermore, there is a large range of features in most commercial LMSs that provide substantial instructional potential and have yet to be explored by language instructors. Godwin-Jones (2008, 2009) holds that some content-focused LMSs, such as Moodle, are more "popular" in the language-learning field because they are more flexible and customizable than others, and Wright & Wright (2011) specifically exemplify how one Thai educational institution customized Moodle for delivery of language instruction. In the same way, Baskerville & Robb (2005) and more recently Wu (2017) have stated that Moodle, among other LMSs, offers mediating tools which help to implement and achieve the objectives of social constructivist-based teaching.

Most of the value of LMSs resides in the increased opportunities for interaction and communication that they afford to language learners (Conole & Dyke, 2004; Robb, 2004; Acar & Kayaoğlu, 2017). However, the use of these capabilities alone cannot ensure learning, as there must be a pedagogical foundation as well as an appropriate integration of all the course elements (Biggs & Tang, 2007 in Comas-Quinn, 2011; Kirkwood & Price, 2005). Further, even if instructors are proficient with LMS features, they may be required to reconsider "their own sense of what is good pedagogy, or even

what the best methods are for class management and what their responsibilities should be as teachers'' (West, Waddoups & Graham, 2007, p. 18). As Nijhuis & Collis (2003) point out, if instructors cannot provide a well-designed online learning environment, it cannot be expected that students will use the learning resources and tools as expected, nor participate in learning activities.

W.-K. Yu *et al.* (2010) critically evaluate LMS adoption through a content-specific lens. Employing a mixed-method approach, their study examines college English teachers' and students' experiences and perceptions of LMS adoption for language learning and teaching purposes. The findings of this study show that despite the teacher and students perceiving advantages of using LMSs in language courses, the lack of content-area specificity undermines many of the potential benefits. W.-K. Yu *et al.'s* research, although examining the use of LMS for language teaching, is limited in its relevance to this thesis study since it focused on blended courses where the F2F component dominates. However, it is worth mentioning that these authors conclude that, "despite the many potential advantages of [LMSs], they are not systems specifically designed for language learning and teaching purposes. So, how and to what extent one may be able to enjoy the benefit of [LMS's] largely depends on the course creators' methods of incorporating [LMSs] into their curriculum." (p. 344). The authors also stress the necessity of providing technical assistance, professional training, and additional human and pedagogical resources to instructors to fully exploit the benefits of a LMS.

2.3.3. **The use of an LMS's tools**

The literature review also examined scholarly interest in the use of specific tools provided within LMSs. According to McPherson & Nunes (2004), the proper selection and use of the tools of an LMS is central for successful language courses (as it should be for any online course) since that shapes leaners´ perceptions. These authors explain that the manner in which language instructors present and use the different components and tools of the LMS impacts learners' perceptions of how important and useful these components and tools are and, therefore, how extensively they are going to be used. However, according to Kirkwood & Price (2005), knowing how to use the LMS's tools is not enough for second language instructors; they need to know also *why* they should use them. This is part of their pedagogical understanding of the online medium, and is embedded in much more than technical issues. There is no doubt that some features of

LMSs, such as synchronous and asynchronous conferencing tools, blogs and discussion boards, provide valuable opportunities for learners to exercise the target language but how usage is designed is critical.

Davis (2005), Mwaura (2003) and Oncu, Delialioglu & Brown (2008) mention the importance of collaboration among instructors as an important factor for technology adoption. Mirriahi, Dawson & Hoven (2012) also mention that the creation and support of professional social networks of academics led to greater technology adoption. In the specific case of LMSs, Comas-Quinn (2011) points out that an important challenge is to enable instructors to make the most of LMS tools, and support them as they acquire the necessary mastery, while W.-K. Yu *et al*. (2010) state that "despite the many advantages of [LMS]s, end-users' satisfaction with the technology, as well as their intention to adopt it, largely depend on their attitudes towards the systems" (p. 333). West, Waddoups and Graham (2007) also claim that what prompted instructors from initially using only one or two tools of an LMS to using a broader variety was whether the instructors could work with the system without having to devote a great amount of time to it, in other words, assessing how easy or intuitive was its use.

From a broader theoretical perspective, other authors analyze and classify LMS tools in different groups or "environments" to evaluate the suitability of the systems. Chin and Williams (2006, p. 15-19) present a schema of seven learning environments to evaluate the capabilities and affordances that each learning system presents in relation to the subject of study in which it is going to be used, which could be useful in language learning. The seven learning environments are 1) the instructive environment (presentation and delivery of content), 2) the situated environment (the activity and context in which learning occurs), 3) the constructive environment (how the system allows learner engagement), 4) the supportive environment (which involves 'performance support' and entails the tools needed for the task, and 'cognitive support' which concerns people and e-resources), 5) the communicative environment (how the system connects all members of the learning community), 6) the collaborative environment (how well the collaborative work is supported), and 7) the evaluative environment (mainly referring to formative evaluation).

In relation to language learning, Hung (2001) presents a scheme for evaluating computer-based learning environments where a "unified computer-based environment"

should integrate different kinds of tools to support different instructional approaches and, therefore, "different learning theories and situate them in the appropriate instructional context based on the learning objectives" (p. 286). The five groups of tools presented by Hung are as follows:

- **Individual instructive tools, such as** multimedia tutorials (multimedia) or drills for grammatical practice**.** Designed to be used by individual learners when they require them. These mainly facilitate behaviourist or cognitivist-oriented activities.
- **Informative tools,** such as lexical, grammatical, phonetic and cultural reference banks and selected internet resources**.** These mainly facilitate cognitivist-oriented activities.
- **Individual constructive tools,** such as multimedia authoring tools, and word processors designed for SLA. Included to support guided inquiry and can be used constructively to mainly facilitate an individual constructivist type of learning.
- **Social Communicative tools** such as video conferencing, e-mail, voice messaging, and discussion boards. These facilitate communicative processes among a community of learners, however they do not provide the means to organize knowledge and discussions.
- **Social Constructive tools,** such as document sharing, wikis, Knowledge Forum or other systems designed to support knowledge building communities. These tools mainly facilitate a social-constructivist type of learning. (p. 284-286)

Hung's classification scheme is based on instructional approaches but does not consider other tools required for credit-based online courses, such as assessment, reporting and informational tools (announcement areas or calendar, for example). These tools will also determine the overall efficacy of the system for online language learning within the institutional setting. In this thesis research, since one of the objectives is to locate which LMS components are the most used by online language instructors, another classification was created (See section 4.2.) The LMS tools were grouped into seven categories.

The first group consists of tools that aim to deliver general course information to all students, such as announcement and calendar tools, which Hung´s scheme does not consider and which are important for course organization and dynamics. The second group incorporates tools designed to deliver materials or assignments to students, such as course content modules, links and files, and student file storage tools. This second

group encompasses Hung´s individual instructive and informative categories. The third group, the collaboration group, comprises those tools which are designed to help students involved in a common task to achieve their common goals, such as wikis, peer review, and document sharing – these are partially included in Hung´s social constructive tools group. Hung´s communicative tools are split into two different categories in this study: The fourth category includes the asynchronous communication tools, namely email and discussion boards, while the fifth includes the synchronous tools, namely chat rooms, whiteboards and multimedia rooms. The last two groups include the reporting and the assessment tools, and the grade book and the test creator tools respectively, and which are not included in Hung´s classification.

LMS and CMC tools

Student participation is crucial for language learning, in any of its modalities - F2F, blended or fully online interaction (S. Y. H. Sun, 2011). In an online learning environment, participation and collaboration are made possible by Computer Mediated Communication (CMC) tools, thus numerous studies have explored effective ways of incorporating them in courses (see, e.g., Biasutti, 2011; Cañado, 2010; Capdeferro & Romero, 2012; Liaw & Bunn-Le Master, 2010; Mohd Nor, Hamat, & Embi, 2012; Wang & Chen, 2009). As for collaborative learning, there are many studies that have revealed its advantages, such as encouraging active and constructive learning, promoting critical thinking, and task-based learning (Bernard & Rubalcava, 2000; Doughty & Long, 2003; Collentine, 2009).

Among online tools for language learning, CMC tools are the most commonly studied in Second Language learning journals. In relation to online tools or applications to facilitate CMC, important research has targeted both CMC tools based on written language, such as email, forums and discussion boards (Chang, 2007; Kitad, 2000; Tudini, 2003; Smith, 2003; Nor Fariza Mohd Nor *et al.*, 2012; Yang, 2011;) and oral-visual interaction tools such as virtual classrooms (Elluminate / BB Collaborate, for example) or video-conferencing tools (Abrams, 2003; Alastuey, 2010 & 2011; Hampel, 2003; Heins *et al.*, 2007; Lamy, 2004; Yung, 2012).

In general, to make effective use of CMC tools, researchers have pointed out the necessity not only to know how to implement the tools, but also to consider the

pedagogical bases for doing so and students' computer literacy (). Thus, Hauck and Young (2008), in relation to selection and use of synchronous CMC tools, state the need to make an informed pedagogic design, one which takes at least two criteria into consideration: the affordances of the tools, and the environment and the insights from previous teaching experience. In the same line of thinking, Winke and Goertler (2008), in analyzing student computer access in hybrid courses, also express the necessity of training in the use of CMC tools, not due to a lack of computer literacy (among either instructors or students), but because of the nature of learning tasks. Hampel (2006, p. 111) also notes that it should be assumed that the students are not familiar with the use and affordances of the CMC tools when planning to use them. Finally, Winke and Goertler, (2008 in McBride, 2009) propose that a practical response to effective use and selection of CMC tools may be to craft the learning activities "more to the practices that our students are familiar with" (p. 38).

Concerns related to synchronous CMC are specially noted in the case of virtual group sessions or classrooms. S. Y. H. Sun (2011, p. 431) even states that "synchronous online teaching in a virtual classroom is problematic from the outset", and suggests that gathering the class together at the same time is particularly hard not only for presenting formal lectures and performing learning activities, but also due to practical issues such as different time zones, differing levels of connectivity (i.e. speed), and different schedules among students. Other researchers identify additional challenges, such as the loss of video and audio synchronization (which affects verbal cues), and poor sound or image transmissions (Coverdale-Jones, 2000; Wang, 2004). Additionally, S. Y. H. Sun (2011) and Hampel & Stickler (2005) have reported that integrating virtual classroom tools into the LMS has not resolved concerns about the lack of synchronous audio-visual interaction.

The use and integration of communication tools inside the LMS environment has not been much explored in the literature, but some publications have launched interesting inquiries. Wang and Chen (2009) stress that synchronous oral and visual interaction is an important component in online language learning; thus, LMSs used for language learning need to foster real-time interactions. These authors categorize LMSs as asynchronous LMS (ALMS) and synchronous LMS (SLMS), and explain that although ALMS use synchronous tools to support synchronous interaction, that is not enough since both functionalities are not "seamlessly integrated." The use of tools that foster

asynchronous communication are only capable of promoting one or two language skills at a time, rather than promoting language learning as an integrative pursuit. Ideally, a SLMS "seamlessly integrates both synchronous and asynchronous tools to support a learning environment that can be accessed with a single login account" (Wang & Chen, 2009, p. 2)[4]. Jager (2006) also recommends an integrative approach instead of the exclusive (or almost exclusive) use of a single tool; and he points to the need for a sound pedagogical base for using virtual learning environments (specifically Blackboard) for language learning.

2.3.4. **Student participation and interaction**

Student participation in activities and interaction between and among students have long been recognized as essential to effective second language learning (Long, 1996; Zao, 2005). The different views about the role of participation and interaction have changed over time, either acknowledging them as a medium for practicing what had been taught or, as it is now more broadly assumed, as a means by which learning a language takes place (Gass, 1997). Thus, the issue of student participation and interaction prove to be another important thread in the literature. Studies related to student participation in online courses are numerous, and although most of them are not directly related to the use of LMSs as the medium of online instruction but as a complement for F2F classes, they are worth considering here.

In the general context of online education, reduced or lack of participation (Anderson & Simpson, 2004) and widely varying levels of participation and commitment (Tseng and Yeh, 2013) have been identified as significant problems. In online language leaning, student participation requires more than the actual tools (synchronous or asynchronous) to make it possible; as Kreijns, Kirschner, and Jochems (2003) state, "one cannot take for granted that participants will socially interact simply because the environment makes it possible" (p. 8). Nguyen (2011) also states that CMC learning "does not automatically ensure the successfulness of the integration of CMC into

[4] These authors categorized broad-used LMSs such as Blackboard or Moodle synchronous LMSs; however, it may be expected that in reviewing the most recent versions of these systems this would no longer be the case.

language education" (p. 1414). In the context of online learning via LMS, the findings are similar: Moore and Lida (2010) investigated how often students used CMC tools in the Blackboard LMS, and found that many students use the group-work and discussion tools infrequently. These authors explain that the low use of CMC tools stems not only from technical issues and lack of knowledge of how to use the tools, but in addition, students were "discouraged by the inactivity of other students" (p. 976). Students' low participation or lack of participation, and the low use of CMC tools are, as Grooms points out (2003, p. 1), areas that require attention when designing online courses.

Second language students' participation and behavior were also analyzed by S. Y. H. Sun, (2011). In her study, Sun observed that students 1) avoided class meetings at the virtual classroom; 2) preferred to work in small groups or in pairs, and 3) ceased working with other members of the class and worked instead with their small group or partner (pp. 441–442). S. Y. H. Sun stated that in the fully online class, "There was a radical shift in the way people learn languages – independently through choosing their own tools, and, as a consequence, creating their own 'Personal Learning Environments', [which] continues to evolve as learning progresses" (pp. 441–442).

It must be mentioned that in none of these studies did the authors consider the issue of graded participation. In the area of online education, Yeh (2005) notes that student participation increases when instructors assign a grade weight to activities, including participation in forums. This is not surprising, as Shaul (2007) notes, since graded assignments garner more attention from students than non-graded activities. Swan (2001) confirms this, stating that "The greater the percentage of the course grade that was based on discussion, the more satisfied the students were [and] the more they thought they learned from the course" (p. 325). Shaul (2007, p. 40) even indicates that while most LMSs provide instructors some means of grading student participation, "current tools remain either overly limited or too time consuming to use." It should be mentioned, though, that LMS grading capabilities have greatly improved during the last decade. Now, for example, in most LMSs, instructors can view and grade essays or participation in discussion assignments (in discussion boards and/or chatrooms) online, which was not always possible some years ago.

In the literature review, low student participation and interaction was also explained by the nature of the learning materials and the students' control over them, by

student frustration over maintaining adequate communication, and by a lack of adequate guidance. Chen, Belkada & Okamoto (2004) studied student interaction with learning materials in a web-based language course, and reported that students had a better attitude about the effectiveness of communication when they were able to choose their own path to the content and activities. The authors conclude that "self-initiated clarification attempts and self-negotiated comprehensible output involved in the learner-content interaction should be encouraged as one of the preferred instructional strategies in a CALL environment" (p. 47).

Relatedly, Murday *et al*. (2008), studying student and instructor satisfaction in two French and Spanish online courses delivered via WebCT, reported that some beginner students found chatting online to be anxiety provoking, and intermediate students expressed feeling "uncomfortable participating in debate-style conversations," which they found "too confrontational. Other students found it difficult to respond in a timely fashion, which then made them uncomfortable participating at all." (p. 132). Murday *et al*. (*ibid*) also found that students generally liked chat sessions when they were guided and kept on the topic by the moderator.

2.4. Towards a study of LMS's for online language learning

This literature review has shown that despite the numerous publications concerning language learning in an online context, most of the studies have focused on teachers' fragmented experiences, on single learning activities, on the affordances of LMS tools considered in a decontextualized fashion, or on general overviews and evaluations. However, the literature shows clearly that LMSs, despite their many capabilities, are not a panacea for language learning. They are a delivery media with great potential to create successful online learning experiences by providing a variety of tools that can be used to facilitate specific activities or full online courses. Designing for effective, pedagogically-motivated use of these tools in the specific circumstances of institutions and students' own lives remains an ongoing challenge.

This review also revealed repeated recommendations that instructors should receive appropriate preparation and training for online teaching (Comas-Quinn, 2011 and 2012; Compton, 2009; Hampel & Stickler, 2005; Nielson & Gonzalez-Lloret, 2010; S. Y. H. Sun 2011 & 2014; Wang & Chen, 2013; West, Waddoups & Graham, 2007).

Despite this, there is scant knowledge about how LMSs are received and used by language instructors in online courses, or about their pedagogical preferences. In recognition of this, this thesis research is an attempt to enrich scholarly understanding of post-secondary instructors' use of LMSs for online language teaching.

As will be discussed later in the Methodology chapter, this study utilizes a collection of quantitative and qualitative data from an online questionnaire delivered to LMS instructors. Following a survey research design, the analysis examined 97 postsecondary online language instructors' accounts of their pedagogical preferences toward and experiences with the use of LMSs in general, and with the specific tools they provide, in their courses. The research questions and results are presented in the following two chapters.

Chapter 3.

Methodology

This chapter introduces and discusses the methodology and research design employed to address the research questions. It begins with a restatement of the overall purpose of the study and the four research questions; then it presents the survey design and the pragmatic philosophical assumption that supported and guided the study. The following section presents the research design, including the selection of participants, the instrument design and data collection procedure and analysis plan. The non-parametric tests used to analyze the quantitative data are explained, as well as the inductive coding required for the qualitative analysis. The subsequent section describes the analytic strategy followed for each of the research questions. The chapter concludes with a discussion of relevant issues of reliability, validity, credibility and dependability.

3.1. Restatement of Purpose and Research Questions

The aim of this study is 1) to analyze how different LMS components may facilitate and/or constrain some activities and pedagogical approaches in fully online language teaching; and, at the same time, 2) to examine the extent to which instructors can exercise their pedagogical preferences when teaching in LMS environments. Three factors are taken into consideration: the LMS used, the language taught, and the degree of instructors' expertise with online instruction. The study considers these factors which not only influence the use of certain tools over others and the kind of activities delivered to students, but also factors that may be influencing instructors' ability to enact certain pedagogical principles.

Based on the first goal, the study addressed the following three research questions and sub-questions to guide the research:

1. What are the LMS components most used by online language instructors?

    - Is there a significant difference across LMSs?
    - Is there a significant difference across languages taught?
    - Is there a significant difference between novice and experienced online instructors?

2. What is the relationship between the use of different LMS components and the learning activities provided for students?

    - Is there a significant difference across LMSs?
    - Is there a significant difference across languages taught?
    - Is there a significant difference between novice and experienced online instructors?

3. What is the relationship between the use of different LMS components and pedagogical approaches?

    - Is there a significant difference across languages taught?
    - Is there a significant difference between novice and experienced online instructors?

Based on the second goal, the study addressed the fourth research questions and sub-questions to guide the research:

4. How is teaching online through a LMS related to language instructors' teaching practices and perceived ability to enact their pedagogical preferences?

    - To what extent do online teaching practices accord with instructors' pedagogical preferences?
    - What do online language instructors perceive to be the major pedagogical sacrifices when teaching online?
    - What do online language instructors perceive to be the major pedagogical gains they make when teaching online?

The first three research questions focus on searching for significant differences across LMSs, languages taught and/or instructors' online experience. The fourth research question explores whether or not online language teaching affects instructors' ability to enact their pedagogical preferences and explores instructors' perceptions about pros and cons of online teaching.

3.2. Method of Inquiry

This study employed a survey design with scaled and open-ended questions to collect the information needed to answer the four research questions. Survey research designs are supported by a number of respected scholars (Fowler, 2012, Edmonds and Kennedy, 2016, Sullivan, 2011). Fowler (2009) pleads for a *total survey design* that pays close attention to sampling, designing questions, and data collection since these three components "have a major effect on the likelihood that the resulting data will describe accurately what they are intended to describe" (p. 5). In the same way Artino *et al* (2014, p. 463), state that survey design research should follow rigorous methodologies or *best practices* in order to "capture the essence of what the survey developer is attempting to measure".

The survey design primarily followed a quantitative analysis, but it also incorporated a qualitative strand to develop a broader and deeper understanding of the quantitative results. The incorporation of quantitative and qualitative data analyses is supported by numerous scholars as Creswell and Plano Clark (2011) who point out that research problems are suited for different methods when "results need to be explained" and when "a second method is needed to enhance a primary method" (p. 8). In the same way, Greene, Caracelli, and Graham (1989) mention two justifications for combining qualitative and quantitative analyses. The first is *complementarity,* since using both analyses will "increase the interpretability, meaningfulness, and validity of constructs and inquiry results;" the second is *expansion,* since both analyses will "extend the breadth and range of inquiry by using different methods for different inquiry components" (p. 259). Bryman (2006), based on an examination of researchers' practices, also advises that *completeness, type of research questions, explanation, unexpected results, illustration and enhancement or building upon quantitative/qualitative findings* are viable reasons to use a different type of analyses. Finally, Johnson et al. (2007) indicate that

the two most general purposes for a different research analyses are *breadth and depth of understanding* and *corroboration of findings*.

The philosophical assumption that guided this study was pragmatism. It was delimited by the research questions and variables that were empirically measured. The method of data collection was an online survey, emailed to language instructors who teach online courses. As Creswell mentions, surveys are research tools that can provide numeric descriptions of “trends, attitudes, or opinions of a population by studying a sample of that population” (2009, p. 12). In order to develop a better understanding of online language teaching practice, open questions were included on the survey as well as sections in which participants had the opportunity and possibility to explain and elicit their responses. The main purpose of embedding open questions was to “validate the quantitative outcomes with qualitative data representing the voices of the participants” (Creswell & Clark, 2007, p. 192). The methodology of this research followed educational research methods that normally embrace both quantitative and qualitative techniques in an eclectic way according to the research objectives (Cox, 2010; Phillips, McNaught, & Kennedy, 2012).

This descriptive study aims to present instructors’ pedagogical preferences and limitations when teaching via LMS environments. It can also be considered a predictive study as it develops models that might be used to predict the use of various LMS components by online language instructors of different languages, based on the LMS used, the language taught, and the experience level of instructors’ online teaching.

3.3. Research Design

As mentioned above, this research followed a survey design. The collection of quantitative and qualitative data occurred simultaneously via an online questionnaire (Appendix B). Creswell (2009, p. 12) stated that surveys as research tools provide a numeric description of "trends, attitudes, or opinions of a population by studying a sample of that population." On the other hand, Jensen (2010, π 1) points out that surveys can also respond to a qualitative perspective when they look to determine the *diversity* of some topic of interest within a given population.

3.3.1. **Study Participants**

Candidate participants for this study were defined as university and college second-language instructors located in Canada and the United States, who were currently teaching or had taught credit-bearing online courses. Due to the lack of national or academic directories of second-language instructors, which could have determined the accessible population, candidates were selected by researching the webpages of modern language departments and/or distance education courses in the United States and Canada. A total convenience sample of 359 candidates was obtained: 326 from the United States and 33 from Canada. The use of a convenience sample does not invalidate the data and statistical analyses but, as Coladarci et al. state (2011), it is necessary to describe the sample so the accessible population is better understood. The distribution of candidates across languages taught is presented in Table 3.1 below.

Figure 3-1 Distribution of Candidates' Taught Language

Taught Language	Candidates		Taught Language	Candidates	
	Number	Percent		Number	Percent
Arabic	8	2.2%	Japanese	9	2.5%
Chinese	16	4.5%	Khmer	1	0.3%
Croatian	1	0.3%	Korean	2	0.6%
French	46	12.8%	Norwegian	1	0.3%
German	31	8.6%	Persian	2	0.6%
Greek	1	0.3%	Portuguese	1	0.3%
Hawaiian	1	0.3%	Russian	6	1.7%
Hebrew	2	0.6%	Spanish	215	59.9%
Hindi	2	0.6%	Thai	1	0.3%
Indonesian	1	0.3%	Turkish	1	0.3%
Italian	10	2.8%	Ukrainian	1	0.3%
			Total	359	100%

3.3.2. **Data Collection**

The quantitative and qualitative data was collected independently through an online survey. Open questions were used to obtain deeper understanding and detail about instructors' practices and responses. The design and implementation procedures of the online survey instrument are described below.

Online Survey Instrument Design

Fink and Kosecoff (1998, p. 1) define a questionnaire as "a method of collecting information from people about their ideas, feelings, health, plans, beliefs, and social, educational, and financial background." Therefore, a questionnaire was designed to gather information about how different LMS components facilitate and/or constrain some pedagogical approaches and activities in fully online language teaching Additionally, the questionnaire's purpose was to explore the degree to which instructors exert their pedagogical preferences when teaching in LMS environments.

As a first step, a planning document for the data collection instrument was developed. The objectives were set by the research questions and sub-questions. Then, survey items were created and assigned to the research questions. Closed questionnaire items addressed respondents' background information, views and experiences working in an LMS environment, as well as on LMS tools used, on types of learning activities, and on pedagogical approaches. Close questions used a consistent format to assure internal consistency of the scales.

Open-ended questions allowed teachers to convey their views and experiences on their online courses as well as their pedagogical preferences and beliefs about online language learning.

The online questionnaire was first piloted with three language instructors, before the link was emailed to the whole cohort of candidates. These three instructors did not participate in the actual study.

The online questionnaire contained six sections targeting information about 1) instructors' background, 2) use of LMS components, 3) pedagogical approaches, 4)

learning materials, 5) instructor authoring of teaching materials and 6) perceived challenges of online teaching.

The time required to complete the questionnaire was approximately 35 - 40 minutes. The questionnaire had a “save and continue” option that allowed participants to save their responses and continue later should they get interrupted. At the end of the questionnaire, participants were asked if they would agree to be contacted again by email in case the researcher needed to follow up with them about some of their questionnaire responses. The online questionnaire is included in Appendix B.

Online Survey Procedure

The online questionnaire was conducted using “Simple Survey” (http://www.simplesurvey.com), an online data collection and analysis software hosted and supported in Montreal, Canada.

An invitation to participate in the study was emailed to all candidates. The invitation explained the purpose of the study and assured the free participation of candidates. It also guaranteed participants’ confidentiality. The invitation included an e-link to access the Study Consent form (Appendix A). At the end of the Consent Form, participants were able to decide if they wanted to participate or not. If they opted to participate, the questionnaire would start; if they decide not to participate, the link was terminated. Ninety-seven instructors accepted the invitation, and responded to all or part of the survey between March 15th and September 14th 2015 (see Table 3.1).

Table 3-1 Candidates Invitation Response Statistics

Number of contacts:	359
Number of emails sent:	359
Number of participants:	97
Number partially completed:	21
Number entirely completed:	76
Response rate:	27.01 %
Un-subscriptions:	18
No response to invitation	244

Not all questions were delivered to all participants. The online survey employed a "question branching" feature, which allowed respondents to skip questions that became irrelevant based on earlier responses, or even terminate the survey based on their answer to a single question.

3.4. Data Analysis

As previously stated, this research data collection developed both quantitative and analyses. Quantitative and qualitative research tools were used to provide an understanding of the research questions, as well as to help answer them (Creswell, 2009; Creswell & Plano Clark, 2011; Tashakkori & Teddlie, 1998; Wilson & Rossman, 1985).

Quantitative data derived from closed questions was summarized and analyzed using descriptive and inferential statistical methods. Participants' pedagogical and perceptions data were mostly obtained and measured by Likert scale type questions which, according to Gliner and Morgan (2000), are acceptable within the quantitative analyses.

Qualitative data, mainly gathered through open-form questions, were analyzed using an open coding procedure. Questions 1 to 3 followed quantitative analyses and were complemented with qualitative data. Research question 4 involved both data analyses, a quantitative analysis for the first sub-question, and a qualitative data analysis for the other two sub-questions.

3.4.1. **Quantitative Data Analysis**

The purpose of the quantitative data analysis was to maximize objectivity, replicability, and generalizability of findings about the use of LMSs in the online base-credit language courses.

Quantitative data analysis was carried out using SPSS 23.0. The first step in the analysis was to check and clean the data; then, descriptive statistics were used to analyze participants' profiles according to the language taught, the LMS employed to deliver the online course, and years of experience teaching. Various inferential statistics were used to analyze the data. For each research question and sub-question, null

hypotheses were tested. Since most of the data gathered were nominal or ordinal, analyses required the use of non-parametric tests such as measures of association, contingency tables, likelihood, lambda and gamma tests, Cramer's V, as well as logistic-ordinal regressions. The statistical results were followed by analyses of participants' qualitative responses in order to have a full understanding of the quantitative results.

Likelihood Ratio Test

The Likelihood Ratio (LRT) is a test of significance which indicates if there is a relation or not between two nominal or ordinal variables. It is an alternative for Pearson's Chi-Square test (X^2). It is commonly used as a criterion of goodness of fit and independent statistics in contingency tables and multivariate analysis. LRT are normally employed when the assumptions needed for a X^2 test are violated, that is, when the minimum expected count of cells with values less than 5 is less than the stated assumption (20% of cells or less). The LRT is also recommended in tables bigger than 2x2 (Field, 2013).

The LRT is used to compare the goodness of fit of two models, one of which (the *null model*) is a special case of the other (the *alternative model*).

Lambda, Gamma and Cramer´s V tests

Lambda, Gamma and Cramer's V tests are measures of association for nominal and ordinal variables, and are based on the concept of Proportionate Reduction of Error (PRE). If the score on the independent variable is known, a better guess about the score of the dependent variable is likely to be made; in other words, the error is reduced by some measurable proportion.

The conceptual formula for all PRE measures of association is PRE = E1-E2/E2, where E1 is errors of prediction made when the independent variable is ignored (Prediction 1), and E2 is errors of prediction made when the prediction is made on the independent variable.

PRE measures of association can range from 0 to the absolute value of +1 or -1. If there is a nominal variable involved, the values can only range from 0 to +1; if there are two ordinal variables involved, a direction can be stated and the PRE can have a negative value. The closer the PRE value to 0, the weaker the association, and the

closer the value to +1 or -1, the stronger the association. Lambda test is used for nominal variables, Gamma test for ordinal variables and Cramer's V for nominal or ordinal variables (Field, 2013; Sheskin, 2000).

Logistic Regressions

The logistic regression is a statistical method for analyzing a dataset in which there are one or more independent variables that determine a dichotomous outcome variable: that is, a variable in which there are only two possible outcomes (Long, J., 1997). The objective of logistic regression is to find the best fitting model to describe the relationship between the dichotomous characteristic of interest (outcome variable) and a set of independent variables. "Logistic regression generates the coefficients (and its standard errors and significance levels) of a formula to predict a *logit transformation* of the probability of presence of the characteristic of interest" (Schoonjans, n.d.). Thus, instead of searching to minimize the sum of squared errors (as in linear regression), logistic regression searches to maximize the likelihood of observing the same values. Logistic regression generates the coefficients (and its significance levels) of a formula to predict a *logit transformation* of the probability of presence of the characteristic of interest (Schoonjans, n.d.).

Logistic Regression Interpretation

In a logistic regression, the *deviance*, or -2 log-likelihood (-2LL) statistic, indicates how much unexplained variation there is in the model; the higher the value of the deviance, the less accurate the model. Since the deviance depends on the sample size and the number of parameters in the model, evaluating its size involves comparing the value of the null model (without explanatory variables) against the full model (with explanatory variables). If the full model explains the data better than the null model, there should be a significant reduction in the deviance (-2LL), which can be tested against the chi-square statistic to give a *p* value (ReStore, n.d.). If the P-value is less than the conventional 0.05, then there is evidence that at least one of the independent variables contributes to the prediction of the outcome.

A second way of evaluating the effectiveness of a logistic regression is using a pseudo R^2. There are different versions of pseudo R^2s, but for the purposes of this study, the Nagelkerke R^2 was considered. The Nagelkerke R^2 describes the proportion

of variance in the outcome that the model successfully explains. Its values range from ‘0’ to ‘1’ where ‘1+’ suggests that the model explains 100% of the variance and ‘0’ that it does for none of the variance (ReStore, n.d.).

In order to know if individual independent variables make a statistical contribution to the model, the Wald test is performed. The Wald test is analogous to the t-test performed in a linear regression. A b coefficient is also used to know the magnitude of the association, but in logistic regression the b coefficient indicates the increase in the log odds of the outcome by increasing the value of the explanatory variable by one, and by taking the exponent of the log odds, the results can be interpreted in terms of odds ratios (Model 5, p. 28). SPSS shows the odds ratios for the explanatory variables labeled as Exp(B).

3.4.2. **Qualitative Data Analysis**

Qualitative data analysis can be defined as “working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others” (Bogdan and Biklen, 1982, p 145). One approach recommended by Creswell and Plano Clark (2007, p. 208) involves coding the data, dividing the text into small units, assigning a code to each item, and then grouping the codes into themes. The purpose of such qualitative data analysis was to describe and better understand the opinions and experiences of language online instructors.

As stated above, qualitative data were collected through the online questionnaire via open-ended questions. The open-ended questions did not intend to obtain quantitative data to be analyzed by statistical tests, but to determine the variety or coherence of participants’ experiences and opinions derived from their online teaching experiences; they did not count the number of participants with the same characteristic (value of the variable), but looked to establish the relevant dimensions and values (Jensen, 2010, π 6). The qualitative data analysis was carried out using NVivo (version 11.3.2).

Inductive Coding

Many procedures and assumptions related to qualitative data-coding analysis are associated with specific approaches or traditions, such as grounded theory (Strauss & Corbin, 1998), phenomenology (van Manen, 1990), and narrative analysis (Leiblich, 1998). The analytical approach of this study did not follow a specific tradition of qualitative research, but pursued a generally inductive analysis. As Thomas (2006, 238) states, “the inductive approach is a systematic procedure for analyzing qualitative data in which the analysis is likely to be guided by specific evaluation objectives.” Thomas also describes the general purposes of the inductive analysis as follows:

1. to condense extensive and varied raw text data into a brief, summary format;
2. to establish clear links between the research objectives and the summary findings derived from the raw data and to ensure that these links are both transparent (able to be demonstrated to others) and defensible (justifiable given the objectives of the research); and
3. to develop a model or theory about the underlying structure of experiences or processes that are evident in the text data. (Thomas, 2006, p. 238.)

In general, the inductive data analysis starts by examining the raw text data and then developing codes and categories to finally arrive at a model, framework or scheme. The framework contains key themes identified by the researcher(s) or coder(s) during the coding process. Even though specific research questions lead the inductive data analysis, the analysis is inductive because it is not framed by a theory, hypothesis, or model. Code labels were assigned following a descriptive method by using a phrase to summarize the basic topic of a phase or sentence (Saldaña, 2009; Miles et al., 2014). If more than one idea was transmitted in a single statement, each idea was coded separately. Ideas which were not related to the research questions were coded as “Not related”.

3.5. Analytical strategy

This section describes the analytical strategy and statistical analyses that were applied in addressing each of the research questions.

Research question 1: What are the LMS components most used by online language instructors?

Sub-questions:

- Is there a significant difference across LMSs?
- Is there a significant difference across languages taught?
- Is there a significant difference between novice and experienced online instructors?

The first research question aimed to analyze which factors influence the use of LMS components. Therefore, all data were first analyzed using descriptive statistics to provide simple summaries about the sample and the measures, and to detect general tendencies.

In order to determine to what extent different LMSs, languages taught and levels of online teaching expertise influenced the frequency of use of each one of the LMS components, a series of binary logistic regressions were conducted. The objective was to establish whether or not there was any systematic relationship between each one of the explanatory factors (LMS, language and expertise) and the probability of a higher use frequency of LMS components. The frequency of use of fifteen different LMS components, such as discussion boards, student document sharing or content modules, were considered as the dependent variables.

Dependent variables were ordinal variables, which indicate how often each one of the LMS components was used by the participants. The data were originally codified in five categories, which ranged from “very frequently” to “never.” Then, due to the relatively small size of the dataset (97 responses), they were further reduced into binary categories. The LMS and Language Taught factors were re-categorized to reduce the number of categories (and therefore, the number of cells with zero frequencies)—that is, the combination of variables that were not represented.

Research question 2: What is the relationship between the use of different LMS components and the learning activities provided for students?

Sub-questions:

- Is there a significant difference across LMSs?
- Is there a significant difference across languages taught?
- Is there a significant difference between novice and experienced online instructors?

The second research question for this study focused on determining whether or not there is a systematic relationship between the use of different LMS components and the learning activities provided for students. Once again, all participants' responses were first analyzed using descriptive statistics to detect general tendencies.

In order to determine whether or not there is a relation between the use of different LMS components and the learning activities provided for students, as well as a significant difference across LMSs, languages taught, and/or the level of instructors' online teaching experience, a series of contingency tables and likelihood tests were performed. Adjusted standardized residuals were also computed to determine which categories (cells) were the major contributors to the significant associations. The independent variables were (as in the previous question) the LMS used, the language taught and the online teaching experience of the instructor. The dependent variables were different learning activities computed as binary variables—namely, the implementation (1) or not (0) of a learning activity by the instructor during the course.

Research question 3: What is the relationship between the use of different LMS components and pedagogical approaches?

Sub-questions:

- Is there a significant difference across LMSs?
- Is there a significant difference across languages taught?
- Is there a significant difference between novice and experienced online instructors?

The goal of the third research question was to determine whether or not there was a relationship between the use of different LMS components and pedagogical approaches—that is, do pedagogical preferences significantly influence the preference of use of some LMS components over others? As in the previous section, all participants' responses were first analyzed using descriptive statistics to detect tendencies.

Participants were asked to indicate if they agreed, disagreed or neither agreed nor disagreed with twelve statements regarding teaching methods, so as to gauge their stance toward three general pedagogical approaches in the teaching of foreign languages. Four statements were developed to accord with behaviorist language learning principles, four with cognitivist language learning principles, and four with constructivist language learning principles. A Cronbach's alpha test was conducted to check the internal consistency of each pedagogical group measurement scale (4 items each). All three question groups obtained an alpha value higher than 0.7. An average score was computed for each statement in order to gauge each participant's general preference toward each pedagogical orientation.

In order to determine to what extent a preference for a pedagogical approach influences the frequency of use of each one of the LMS components, a series of binary logistic regressions were conducted as with research question 1. The objective was to establish whether or not there was any systematic relationship between the explanatory variables (the average score of behaviorist, cognitivist and constructivist statements) and the probability of a higher use frequency of LMS components. The explanatory variables were the average score of each pedagogical approach and the dependent variables—the frequency of use of each one of the fifteen LMS components—were reduced to binary categories: frequently used (1) and never or very low used (0).

Research question 4: How is teaching online through a LMS related to language instructors' teaching practices and perceived ability to enact their pedagogical preferences?

Quantitative sub-question:

- To what extent do online teaching practices accord with instructors' pedagogical principles?

The last research question has three sub-questions. The first questions required a quantitative analysis, which was complemented with qualitative examination in order to enhance a deeper understanding of the numerical results (Creswell and Plano Clark, 2007, p. 91).

As in previous sections, descriptive statistics were used in order to present distributions and trends of how often instructors believe they have to yield their teaching practices and pedagogical preferences to the capabilities of the LMS in their courses, as well as to identify the teaching practices that online language instructors commonly use in their courses.

Gamma tests of association were conducted to examine if there was a relationship between participants' expressed pedagogical preferences (Behaviorist, Cognitivist and Constructivist) and their perceptions about the necessity to yield some of their pedagogical preferences in online courses. Gamma tests were also carried out to measure the extent to which online teaching practices accorded with instructors' pedagogical principles. In a second step, ordinal regressions were done in order to infer the association between participants' pedagogical preferences and the necessity to yield among participants.

Qualitative sub-questions:

- What do online language instructors perceive to be the major sacrifices they make pedagogically when teaching online?
- What do online language instructors perceive to be the major pedagogical gains when teaching online?

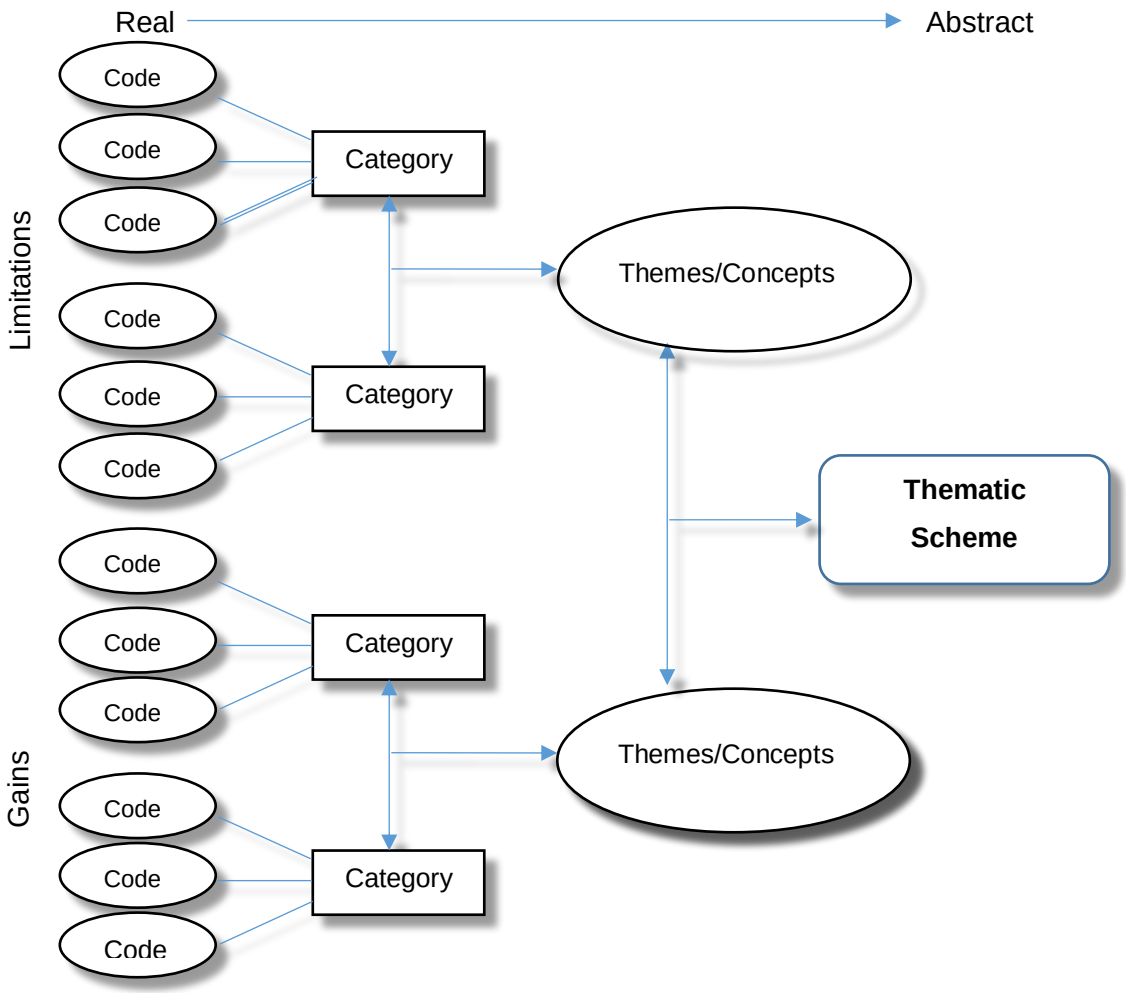
Analysis for the last two sub-questions of research question 4 followed a qualitative analysis, which involved an inductive coding of data. Participants were asked to indicate what they perceived to be the major language-learning pedagogical limitations and gains when teaching languages online through a LMS. They were asked to mention at least one issue and a maximum of three. Additionally, they were required to indicate what they perceived to be the major challenges.

Participants' open-ended responses were qualitatively analyzed using inductive coding. The first step was to read carefully through all responses to get a general perspective; then a second reading was performed, and a preliminary coding was created *de novo*. A series of short phrases that represented the key attributes of the unique responses were created. The main objective of carrying out an inductive coding data analysis was to limit the possibility of forcing a preconceived set of categories on the data, based on the researcher's experiences and existing literature. The preliminary coding was reviewed by performing a constant comparison process of moving back and forth from the codes to the data. The codes that emerged from this first iterative data analysis were then grouped into categories.

The second step of the qualitative analysis was the development of two preliminary coding frameworks: one for the participants' perceptions of pedagogical limitations when teaching languages online, and the other for the perceptions on the pedagogical gains. Subsequently, an "intercoder agreement" procedure (Miles and Huberman, 1994 cited in Creswell and Plano Clark, 2007, p. 212) was implemented. Participants' texts were coded by a second coder using the preliminary coding frameworks; then, both coders' codings were compared to determine where they agreed and disagreed, and thus, where the coding categories needed to be made more explicit. When different codes were assigned to a segment of data, a discussion about the reasons for coding a text in a certain way took place, and an agreement was pursued. After a coding comparison, discussion and analysis, the coding frameworks were redefined and participants' texts were coded a second time. The process of moving back and forth from codes to data was finished until exhaustiveness was reached; that is, until no new codes emerged and all data were coded.

Finally, all categories were compared with each other and consolidated into broader thematic constructs (second coding process suggested by Saldaña, 2009). As the categories of both frameworks showed some similarities, the researcher decided to organize them in a parallel way and encompass them into a single thematic scheme. In very broad terms, the codifying process followed a streamlined scheme (modified from Saldaña, 2009, p.12) as illustrated in Figure 3.2.

Figure 3-2 A Streamlined Codes-to-Thematic Scheme for Qualitative Analysis



3.6. Reliability and Validity

The quality of data collected and analyzed in this study pursued relevant quality standards for quantitative and qualitative research in each strand. From the quantitative perspective, data quality is based on validity and reliability, whereas from the qualitative perspective, data quality refers to credibility and dependability (Graff, 2012, p.57, Creswell, 2014, p. 201).

According to Creswell and Plano Clark (2007, p. 210) validity refers to the quality of the scores from the instrument used, and to the quality of the conclusions drawn from the results of the quantitative analyses. The online questionnaire used in this study was carefully designed and all constructs were developed based on the research questions. As a first step, a planning document was created and all items were directly organized according to the research questions. The development of the planning document and the online questionnaire was supervised and revised by my two supervisors. The wording used in all items and its clarity was reviewed by two language instructors. All comments, suggestions and corrections were carefully discussed, analyzed and taken into account. The introduction of open-ended questions to solicit qualitative data along with the quantitative closed-form questions was another measure taken to raise the validity of this research (Cohen, Manion, and Morrison, 2011).

Since no national database of postsecondary online language instructors exists, the researcher was forced to use a convenience sample. As a result, the extent to which the results can be generalized to a larger population are limited. Gliner and Morgan (2000) emphasize lack of generalizability as a potential threat to the external validity of a study. Further studies will be needed in order to generalize the findings of this research.

From the qualitative perspective, validity refers to the credibility with which "researchers evaluate whether the findings are credible interpretations of the participants' data" (Graff, 2012, p.57). Creswell (2014, p. 201-204, 210-211) presents some strategies to promote credibility: triangulation, member checking, comprehensive narration, bias clarification, presenting discrepant information, time peer debriefing and using an external auditor. In order to assure credibility in this study, findings were described in detail and the researchers' biases were presented. Finally, all negative and discrepant information was also reported.

For Creswell and Plano Clark, quantitative reliability means that scores received from participants are consistent and stable over time (2017, p. 211). The online questionnaire was carefully designed and all items were created targeting the research questions; however, it was pilot tested only once, so the test-retest reliability of participants' responses cannot be fully assured. On the other hand, the data collected was statistically tested in order to ensure measurement reliability. Cronbach's Alpha reliability tests were conducted for the instructors' pedagogical preference constructs to determine consistency across items for each category.

Finally, qualitative reliability or dependability has been described as when a researcher's approach is consistent across different researchers and different projects (Creswell and Plano Plank, 2007, p. 212). The qualitative data analyses of this study followed an intercoder agreement procedure (Miles and Huberman, 1994 cited in Creswell and Plano Clark, 2007, p. 212), which involved having two people (myself and my supervisor) coding participants' written answers and then comparing their work to determine when and why they did not produce comparable coding results. When different coding occurred, an exchange of perspectives took place to reach an agreement. The analysis and coding process followed a constant comparison process of moving back and forth from the codes to the data; the data coding process was not finished until exhaustiveness was reached. Dependability was also supported by describing in detail all research procedures.

Chapter 4.

Presentation of Results (I): Functionality of LMSs for SLA

This chapter presents the results of the first part of the study that inquired into which LMS components are most used by instructors, and whether or not those components facilitate and/or constrain the development and implementation of different activities in fully online language teaching. The chapter is divided into four sections and organized as follows:

The first section (4.1) presents the sample distributions of the participants by the LMS used to deliver the online course, by the language taught and by the number of years of online experience. The sample distributions will show that Blackboard and Canvas are the most used LMSs by 60 percent of the participant sample; Spanish and French are the most frequently taught languages; taught by 66 percent of the participant sample. Years of online teaching experience were more evenly distributed across the categories. The novice instructors (with less than one year of experience each) made up less than 10 percent of the sample, but all other experience categories contained more than 20 percent of the sample.

The second section (4.2) focuses on the research question "What are the LMS components most used by online language instructors?" It begins by presenting the frequency distributions with which participants use fifteen different LMS tools, individually and by groups of tools. The most frequently used tools are the reporting and asynchronous communication tools (gradebook, e-mail and discussion boards), and the least used tools are the synchronous and collaboration tools (chatrooms, peer-review, whiteboards and wikis).

The third section (4.3) centers on the research question "What is the relationship between the use of different LMS components and the learning activities provided for students?" It begins by presenting the twelve learning activities that were considered, which include lexical and grammar activities (tutorials and practice exercises), activities designed to practice one or more of the four language skills (speaking, listening, writing and reading), activities focused on promoting student-student interactions, activities to

promote cultural awareness, and assessments. Section 4.3, also presents the percentage of instructors who implement each of these activities in their online courses and the percentage who do it through a LMS – the latter figure being considerably lower in most cases. The reader will see that the learning activities that require work to be done in pairs and/or groups, or to do an individual oral recording, are delivered via the LMS only by a minority of participants.

Section 4.4. presents a summary of chapter results.

4.1. Study sample distributions

This section presents the study participants in relation to LMS employed, language taught and years of online experience.

4.1.1. Learning Management Systems

All participants were asked to indicate in the online survey which LMS(s) they were using (and/or have used) to deliver their online course(s); they were also asked to indicate whether or not they were using the same system as the one provided by their institution and/or department. The online survey displayed a list of LMSs and gave them the option to make more than one choice and to write down any other system if it was not provided on the list. In many cases, instructors selected the same as the one provided by their institutions, but they also selected or added a second or third LMS. Six participants selected or added a system that was categorized a *publishers'*, that is, a system provided by a publisher company when purchasing a textbook or an online-textbook. Table 4.1 presents the distribution of LMS used by participants (see table 4.1).

Table 4-1 LMS Used for Teaching

N: 97	Frequency	Percent	Cumulative Percent	Used by the Institution/Dept.	
				Same as	Other than
Blackboard	43	44.3	44.3	42	1*
Canvas	15	15.5	59.8	13	2
Desire2Learn (D2L)	9	9.3	69.1	9	0
Moodle	8	8.2	77.3	7	1
Angel Learning	7	7.2	84.5	7	0
Publishers' LMS	5	5.2	89.7	0	6
Sakai-Laulima	4	4.1	93.8	2	1
LMS In-House-Designed	3	3.1	96.9	2	2
BrainHoney	1	1.0	97.9	1	0
Adobe Connect LMS	1	1.0	99	1	0
Other (Not LMS)	1	1.0	100		
Total:	97	100.0	100	84	13

* CourseSites (a free version of Blackboard)

4.1.2. **Language Taught**

Participants indicated the language they teach online; the system allowed selecting more than one option and allowed them to add any language not considered on the list. The total number of responses was 109 — 86 participants taught 1 language, but 10 participants indicated that they were teaching two different languages and 1 participant, 3 languages. For the purposes of statistical analyses, the instructors who teach or have taught more than one language were asked to respond the online questionnaire selecting only one of the taught languages. The language most offered was Spanish (49.5% of responses), followed by French (18.6%) and German (10.3%). Chinese and Russian were selected 4 times each (3.7% each), and Italian, Japanese 3 times (2.8 % each). All other languages had one response each (.9%) (see table 4.2). 10 participants of the participants taught 2 languages, and 1 participant indicated to

Table 4-2 Language Taught

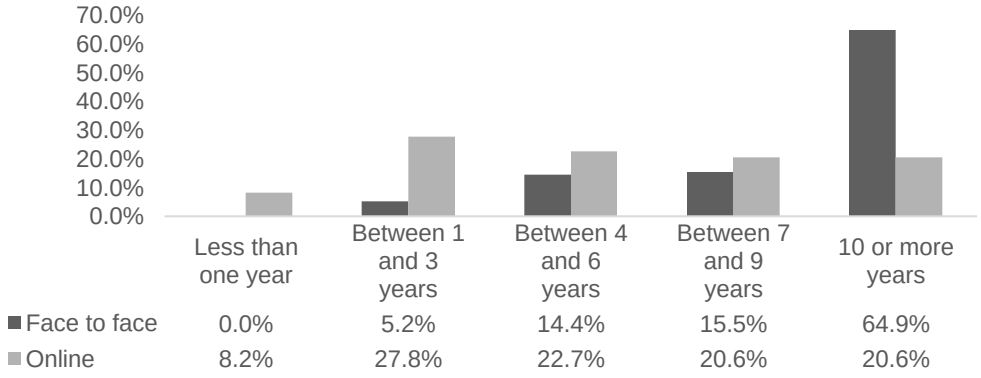
N: 97

Language Taught	Frequency	Percent	Language Taught	Frequency	Percent
Spanish	47	49.5%	Dutch	1	0.9%
French	17	18.6%	Farsi/Persian	1	0.9%
German	9	10.3%	Modern Greek	1	0.9%
Chinese	4	3.7%	Hebrew	1	0.9%
Russian	4	3.7%	Indonesian	1	0.9%
Italian	3	2.8%	Portuguese	1	0.9%
Japanese	3	2.8%	Ukrainian	1	0.9%
Arabic	1	0.9%	Norwegian	1	0.9%
			Thai	1	0.9%
			Total	97	100%

4.1.3. **Instructors' Experience**

In order to determine the level of experience of participants, they were asked about the number of years they had been teaching in each modality, face-to-face courses and online courses. They were provided with 5 categories to choose from: less than 1 year, from 1 to 3 years, from 4 to 6 years, from 7 to 9 years, and 10 or more years. According to the results, the great majority of participants have a high level of experience in face-to-face courses (64.9% 10 years or more and 15.5% between 7 and 9 years). In the case of online experience, the distribution among the different levels was more balanced: 20.6% have 10 years or more of experience, 20.6% between 7 and 9 years, 22.7% between 4 and 6 years, 27.8% between 1 and 3 years, and 8.2% less than one year (see chart 4.1).

Chart 4-1 Years of Teaching



4.2. LMS components most used by online language instructors

The first research question addressed which LMS components are the most used by online language instructors, and whether there is a relationship among the LMSs used, the languages taught and years of online teaching experience of instructors. The main question required the use of descriptive statistics, but the sub-questions needed the use of logistic regressions.

Research question 1:

What are the LMS components most used by online language instructors?

- Is there a significant difference across LMSs?
- Is there a significant difference across languages taught?
- Is there a significant difference between novice and experienced online instructors?

The results of the descriptive statistics are presented in the following section, 4.2.1. As the reader will note, instructors tend to more frequently use tools that facilitate the communication of course requirements (such as email, announcements and content modules) and let students know how well they have met those requirements (grade book). On the other hand, instructors make the least use of synchronous communication

and collaboration tools that can support social-constructivist activities (Bernard & Rubalcava, 2000; Collentine, 2009, Doughty & Long, 2003; Wang & Chen, 2009).

4.2.1. **Frequency of use of LMS tools**

In the online questionnaire, study participants were asked to indicate how often they utilize fifteen LMS tools in their online course from a 5-point Likert-type scale ranging from very frequently to never. Then, responses were assigned a value from 4 to 0 to create a use-frequency score; “very frequently” received a value of 4, “frequently” a value of 3, “occasionally” a value of 2, “rarely” a value of 1 and “never” a value of 0. Table 4.3. shows the average use rating of those fifteen MLS tools. They have been ordered from the most frequently used to the least.

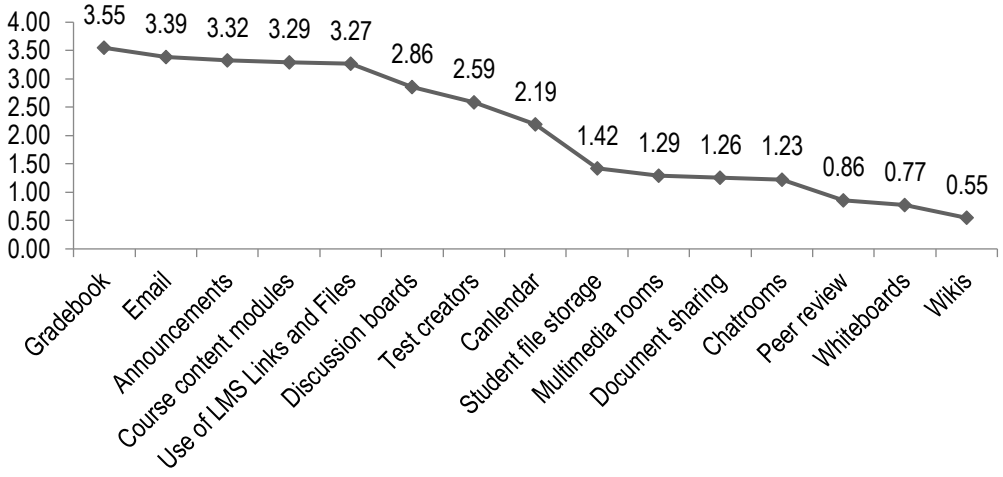
Table 4-3 Frequency of Use of LMS tools

Use of LMS	Very frequently (4)	Frequently (3)	Occasionally (2)	Rarely (1)	Never (0)	Average Rating
Grade book	74	9	2	3	5	3.55
Email	59	18	9	7	0	3.39
Announcements	56	21	9	4	3	3.32
Content modules	60	20	1	4	8	3.29
Links and files	59	17	7	3	7	3.27
Discussion boards	37	27	15	7	7	2.86
Test creators	39	19	10	8	17	2.59
Calendar	29	15	13	17	19	2.19
Student file storage	17	6	16	14	40	1.42
Multimedia rooms	15	6	15	12	45	1.29
Document sharing	15	5	14	14	45	1.26
Chat rooms	7	10	17	22	37	1.23
Peer review tools	8	6	7	16	56	0.86
Whiteboards	6	3	8	23	53	0.77
Wikis	3	5	7	10	68	0.55

According to the average use ratings, the LMS component most used by instructors is the Grade book (3.55) followed by email (3.39), the announcement area (3.32), the course content modules and the links and files tools (3.27). On the other side

of the average ratings, the least used components were the peer review (.86), whiteboards (.77) and Wikis (.55). The use average ratings of the fifteen LMS tools are also presented in chart 4.2. The maximum possible value was 4, which indicates a very frequent use of the component, and the minimum was 0, which indicates that the tool is not used at all[5].

Chart 4-2 Average Frequency Use of LMS Tools



Subsequently, LMS tools were grouped in seven categories. The first group consists of tools that aim to deliver general course information to all students, including the announcements and calendar tools. The second group incorporated tools designed to deliver materials or assignments to students, including course content modules, links and files, and student file storage tools. The third group, the collaboration group, comprises wikis, peer review, and document sharing tools designed to help students involved in a common task to achieve their common goals. The fourth and fifth groups encompass the reporting and the assessment tools, and they contain only one tool each—the grade book and the test creator tools respectively. The sixth and seventh groups include the communication tools; the sixth includes the asynchronous tools—namely email and discussion boards—and the seventh includes the synchronous tools—

[5] The survey also provided to participants the option to add "other" tools not considered in the options provided. From the additional tools provided, only one response was considered a LMS tool: "Statistics and Syllabus". The other responses provided were "Skype" (5 times), "PowerPoint" (3 times), "YouTube" (2 times), "iTunes" (1 time), "Voicethread" (1 time), "text editors" (1 time), "Zoom Video Conference" (1 time), and "wikis outside platform" (1 time).

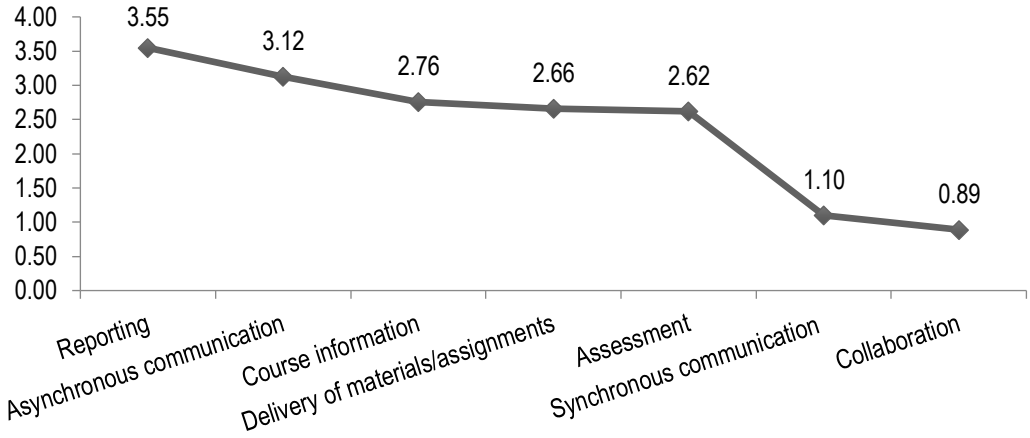
namely chat rooms, whiteboards and multimedia rooms. The average use frequency score of each group is presented in table 4.4 and chart 4.3.

The reporting and asynchronous communication tools were the most used by instructors. The reporting tool, which only consists of the gradebook, outperformed all other groups with an average score of 3.55, and asynchronous communication tools follow it with an average score of 3.12. The following three groups, informational tools, delivery of materials/assessments tools, and assessment tool, each obtained an average score higher than 2.5, which indicates that they are also frequently utilized by instructors. The least used groups are the synchronous communication tools with an average score of 1.10, which indicates an occasional use, and the collaboration tools with average score of .89, which indicates a very low use.

Table 4-4 Frequency of Use of LMS Tools by Groups

Use of LMS'	Very frequently (4)	Frequently (3)	Occasionally (2)	Rarely (1)	Never (0)	Avg. Rating
Reporting tools (Grade book)	74	9	2	3	5	3.55
Asynch. communication tools (Email and discussion boards)	96	45	24	14	7	3.12
Informational tools (Announcements and Calendar)	85	36	22	21	22	2.76
Delivery of materials/assignments tools (Course content modules, links and files and student file storage)	136	43	24	21	55	2.66
Assessment tools (Test creators)	39	19	10	8	16	2.59
Synch. communication tools (Chat rooms, whiteboards and multimedia rooms)	28	19	40	57	135	1.10
Collaboration tools (Peer review tools, wikis and document sharing)	26	16	28	40	169	0.89

Chart 4-3 Average Frequency Use of LMS Tools per Group



The frequency use results indicate that LMSs are mainly used to communicate course requirements to students and let them know how well they have met these requirements. The low scores that synchronous communication and collaboration tools received indicate a substantially reduced use of those capabilities.

4.2.2. Factors that influence the use of LMS components

Having already examined which LMS tools are most used by language instructors, this section centers on analyzing how much the selection and use of such components are related to three factors: LMS used, the language being taught, and the instructor's years of online teaching experience.

A series of logistic regression models were used; due to the relatively small size of the dataset (97 participants), the LMS and Language taught variables were re-categorized to reduce the number of categories and, therefore, the number of cells with zero frequencies; that is, the combination of variables that were not represented. All dependent variables (the frequency use of each one of the fifteen LMS components) were reduced to binary categories: *never, rarely* and *occasionally* responses were coded as 0, and *frequently* and *very frequently* responses were coded as 1. The *LMS* variable was reduced from 11 categories to 7: Blackboard, Canvas, Desire2Learn, Moodle, Angel Learning, Sakai, and Publisher's. The variable of *language taught* was reduced to 6 categories: Spanish, Romance (French, Italian and Portuguese), Oriental (Chinese,

Japanese, Indonesian and Thai), Asian (Arabic, Farsi/Persian and Hebrew), Germanic (German, Dutch and Norwegian) and other European (Russian, Ukrainian, and Greek). The *online teaching experience* variable was kept to five categories: less than 1 year, from 1 to 3 years, from 4 to 6 years, from 7 to 9 years and 10 or more years. Blackboard for LMS factor, and Spanish for language taught factor were set as the reference categories since they were the most frequent categories. For Online language experience, the most experienced instructors (10 or more years) were set as the reference category. All variables were included in the logistic models using the *Enter* method.

The dependent variables were the frequency use of each one of the fifteen LMS components, but instead of keeping their original ordinal values, they were reduced to binary categories: *never, rarely* and *occasionally* responses were coded as 0, and *frequently* and *very frequently* responses were coded as 1. The LMS and Language taught variables were re-categorized to reduce the number of categories and, therefore, the number of cells with zero frequencies; that is, the combination of variables that were not represented.

4.2.3. **Summary of findings**

Only a few significant results were revealed. These indicated a systematic relationship between the use of some tools and the LMS, language taught, and years of online teaching experience. Table 4.5 shows the factors and, more precisely, the categories that obtained statistically significant values from the logistic regression models. The reference categories of each factor are indicated in the heading row; Blackboard is the reference category for the LMS variable; Spanish, for the language variable; and the most experience instructors, for the experience variable. The symbol "+" or "-" beside each category indicates if the category is "more" or "less" likely to frequently use the tool than the reference category. The last column of the summary table shows the significance of the model (*p* value) and the Nagelkerke pseudo R^2 value, which indicates how much variation in the outcome is explained by the logistic regression model.

Table 4-5 Factors that influence the use of LMS components (Logistic Regression Results)

N: 97 Included in analysis: 88 Missing cases: 9	Factors (Reference categories)			
Independent variables	**LMS (Blackboard)**	**Language taught (Spanish)**	**Years of online teaching (10+ years)**	**Nagelkerke R^2 (p value)**
Email	Publishers (-) Angel Learning (+)	Romance (-) Other European (-)	-1 (-) 1-3 (+) 7-9 (+)	.458 (p =.020)
Announcements		Romance (-)	7-9 (+)	.387 (p =.052)
Test creators			4-6 (-)	.202 (p =.051)
Document sharing			3-5 (-) 4-6 (-) 7-9 (-)	.403 (p =.037)

As table 4.5 shows, there are only a few tools that proved to be associated with the independent variables. The significant results are discussed below. The full results of all logistic regression models are included in Appendix C.

4.2.4. Significant results

a) E-mail.

The percentages of frequent use of the e-mail tool were very high among almost all categories. All instructors teaching through Angel Learning and Sakai made frequent use of e-mail (100%); in the same manner, all Asian language instructors made frequent use of e-mail. However, it is important to note that 60% of *other European* language instructors made little or no use of the LMS e-mail tool. Finally, the percentage of instructors frequently using LMS e-mail is lower among those with less than one year of experience (57%) than among more experienced instructors (96%, 76%, 90% and 80%, respectively). See table 4.6 for details.

Table 4-6 Percentages of Frequency Use of E-mail by LMS, Language and Years of Online Experience

N: 97 Included in analysis: 88 Missing cases: 9 Nagelkerke R^2 = .458		E-mail		
		Frequent use	Never-low use	Odds ratios*
LMS	Blackboard	83%	17%	Reference category
	Canvas	86%	14%	
	D2L	78%	22%	
	Moodle	75%	25%	
	Angel Learning	100%	0%	6.039**
	Sakai	100%	0%	
	Publisher's	67%	33%	.285
Language	Spanish	89%	11%	Reference category
	Romance	71%	29%	.214
	Oriental	89%	11%	
	Asian	100%	0%	
	Germanic	88%	13%	
	Other European	40%	60%	.004
Online teaching experience	Less than one year	57%	43%	.140**
	From 1 to 3 years	92%	8%	6.146**
	From 4 to 6 years	76%	24%	
	From 7 ato9 years	90%	10%	3.382**
	10 or more years	80%	20%	Reference category

*Variables with a non-significant WALD test statistic were not included in table.
** Slightly over $p < .05$.

The logistic model which included e-mail as an independent variable showed a significant result (p = .020), and accounts for a substantial proportion of the variation in the frequency use of this tool, giving a Nagelkerke pseudo R^2 of 45.8%. The OR indicates the odds of more frequently using the email tool for each category, relative to the odds of the base category of each group. That is, the odds for Blackboard users, Spanish instructors and most experienced instructors, respectively. This shows that instructors that are using a publisher's LMS are only a little less than one third as likely to use the e-mail component as frequently as Blackboard instructors (0.285:1). On the other hand, Angel Learning users are more than six times as likely to use the email component as Blackboard users (6.039:1). One of the explanations that participants

provided that may explain the frequency use of the e-mail tool in Angel Learning was its connection with other LMS features. Specifically, participant 24 mentioned that one of the features (s)he liked the most of Angel Learning was having the ability of "Logging chat rooms and dropbox with optional email feature"; participant 78 also stated that "ANGEL Mail not only delivers to students' ANGEL accounts, but also to their university mail." However, it should be mentioned that the connection between the e-mail and other tools is not an exclusive feature of Angel Learning.

In relation to the language variable, instructors of Romance languages (French and Italian) and Other European languages are less likely to use the email tool than Spanish instructors. Romance instructors were less likely in the ratio 0.214:1, and other European language instructors much less likely, showing a ratio of .004:1.

In terms of the number of years of online teaching experience, there appears to be an overall tendency to use the email tool less often with more years of experience. Instructors with 1 to 3 years of experience were six times more likely, in the ratio 6.15:1, than instructors with 10 or more years of online teaching, and instructors with 7 to 9 years of experience were more likely, in the ratio 3.382:1. (Instructors with 3 to 6 years of experience also were more likely to frequently use email than very experienced instructors, in the ratio 4.403:1, but the result was not statistically significant, $p = .089$.) On the other hand, the least experienced instructors (those with less than 1 year of online experience) were one seventh (.140:1) less likely to frequently use the email component than the most experienced instructors.

b) Announcements.

Announcement and Calendar tools form the Informational group; together the frequency use average score was 2.76 over 4 (see table 4.4, in page 68). Between the two, announcements were better ranked, with an average score of 3.32, while the calendar, obtained an average of 2.19 (see Table 4.3 in page 66). However, the logistic models showed only a few significant results for the announcement tool.

Table 4-7 Percentages of Frequency Use of Announcements by LMS, Language and Years of Online Experience

N: 97 Included in analysis: 88 Missing cases: 9 **Nagelkerke R^2 = .387**		Announcements		
		Frequent use	**Never-low use**	**Odds ratios***
LMS	Blackboard	85%	15%	Reference category
	Canvas	86%	14%	
	D2L	89%	11%	
	Moodle	88%	13%	
	Angel Learning	71%	29%	
	Sakai	100%	0%	
	Publishers	67%	33%	
Language	Spanish	91%	9%	Reference category
	Romance	71%	29%	.059
	Oriental	89%	11%	
	Asian	33%	67%	
	Germanic	75%	25%	
	Other European	80%	20%	
Online teaching experience**	Less than one year	100%	0%	
	From 1 to 3 years	80%	20%	
	From 4 to 6 years	86%	14%	
	From 7 ato9 years	90%	10%	2.612
	10 or more years	70%	30%	Reference category

*Variables with a non-significant WALD test statistic were not included above.
** Slightly over $p < .05$.

A high frequency use of the announcement area was constant across all LMSs, languages, and years of online teaching experience – except in Asian languages, in which instructors indicated a low average of frequent use (33%).

The logistic model accounts for a large proportion of the variation in the frequency of use of the announcement tool, giving a Nagelkerke pseudo R^2 of 38.7% (see table 4.5). Two categories were significant in this model, Romance languages and instructors with 7 to 9 years of experience. The OR indicates that Romance language instructors are almost 20 times less likely to use the announcement component than Spanish Instructors (.059:1). On the other hand, instructors with 7 to 9 years of experience are more than twice as likely to use the announcement capabilities than the most experienced instructors (2.612:1).

It is worth mentioning that, even though the statistical results for the other categories of instructors with less experience are not statistically significant, there is a

tendency to make less use of announcements with more years of experience. These statistical results are in some ways confirmed by participants' open-ended comments: An instructor with 1 to 3 years of online teaching experience indicated that one of the features (s)he liked was "The ability to post announcements" (participant 86); an instructor with 4 to 6 years of experience liked the fact that (s)he can use the announcement area for other purposes besides announcements, such as uploading video links (participant 97). However, an instructor with 7 to 9 years of experience expressed their concern that "only a small portion of students seem to be active here [the announcement area]" (participant 89).

c) Test creators.

LMS test creator tools obtained an average ranking of use frequency of 2.59 from 0 to 4, which indicates use between occasional and frequent. Among LMSs there is large range of use frequency. Sakai is the LMS with the lowest average of frequent use with 50%, while Moodle had the highest average with 88% (see table 4.8). Among languages (see table 4.8), only 33% of Asian language instructors (Arabic, Farsi/Persian and Hebrew) and 40% of other European language instructors (Russian, Ukrainian, and Greek) indicated a frequent use of test creators, which could be explained by the special character requirement of those languages (*i.e.* they do not use the Roman alphabet). However, on the other hand, Oriental language Instructors (Chinese, Japanese, Indonesian, Korean and Thai) reported a more frequent use of test creator tools, with an average of 78%, which indicates the existence of special character inputs for these languages, or, at least, for Chinese and Japanese. Regarding online teaching experience, the majority of instructors in all groups indicated using test creators on a frequent basis. Instructors with between 4 and 6 years of online teaching were the group with the lowest average, 52%, and instructors between 7 and 9 years of experience were the group with the highest average, 75%. See Table 4.8.

Table 4-8 Percentages of Frequency Use of Test Creators by LMS, Language and Years of Online Experience

N: 97 Included in analysis: 88 Missing cases: 9 Nagelkerke R^2 = .202		Test Creators		
		Frequent use	Never-low use	Odds ratios*
LMS	Blackboard	58%	42%	Reference category
	Canvas	57%	43%	
	D2L	78%	22%	
	Moodle	88%	13%	
	Angel Learning	71%	29%	
	Sakai	50%	50%	
	Publishers	67%	33%	
Language	Spanish	62%	38%	Reference category
	Romance	62%	38%	
	Oriental	78%	22%	
	Asian	33%	67%	
	Germanic	75%	25%	
	Other European	40%	60%	.140
Online teaching experience**	Less than one year	71%	29%	
	From 1 to 3 years	56%	44%	
	From 4 to 6 years	52%	48%	.153
	From 7 ato9 years	75%	25%	
	10 or more years	65%	35	Reference category

*Variables with a non-significant WALD test statistic were not included in table.
** Slightly over p < .05.

The binary logistic regression nearly reached statistical significance p = .051. Overall, LMS and language variables did not obtain significant results; and the years of experience variable merely approached the significant level with p= .053. Only instructors with 4 to 6 years of experience proved statistically significant (p = .031), with an odds ratio of .153, which indicates that in relation to the most experienced instructors (10 or more years of experience), this group of instructors is 6.6 times less likely to use test creator tools. The complete results of the logistic regression models are shown in Appendix C.

d) Document sharing.

The document sharing tools was part of the collaboration tools category along with peer-review and wikis tools. The average frequent use rating of this category was .89 (from 0 to 4), which indicates a use lower than “rarely” (see table 4.4 in page 68). Among these three tools, the best ranked was document-sharing with an average frequent score of 1.26, then peer-review with .086, and wikis with the lowest average score among all tools: .55 (see chart 4.2 in page 67).

The binary logistic regressions for the Peer-review and Wikis tools did not provide any significant results. However, for document sharing, the model helped to explain the variance in the average use of this tool (Omnibus test, p = .037). The logistic model accounts for a substantial proportion of the variation in the frequency of use of the document sharing tool, giving a Nagelkerke pseudo R^2 of 40.3%. The most experienced instructors are 8.3 times more likely to frequently use document sharing tools than instructors with 3 to 5 years of experience (0.123:1), more than three times more likely than instructors with 4 to 6 years of experience (0.312:1), and almost two times more likely than instructors with 7 to 9 years of experience (0.483:1). Table 4.9 reveals the odds ratios from all language categories. The complete results of the logistic regression models are shown in Appendix C.

Table 4-9 Document Sharing Tool Odds Ratios by Years of Experience

N: 97
Included in analysis: 88
Missing cases: 9

Online teaching experience (p = .052)	**Odds ratios***
Less than one year	
From 1 to 3 years	.123
From 4 to 6 years	.312*
From 7 to 9 years	.483**
10 or more years	Reference category

* p = .058, ** p = 062.

4.3. LMS components and learning activities provided for students

The second research question for this Chapter focuses on whether or not there is a systematic relationship between the use of different LMS components and the learning activities provided for students.

Research question 2:

What is the relationship between the use of different LMS components and the learning activities provided for students?

- Is there a significant difference across LMSs?
- Is there a significant difference across languages taught?
- Is there a significant difference between novice and experienced online instructors?

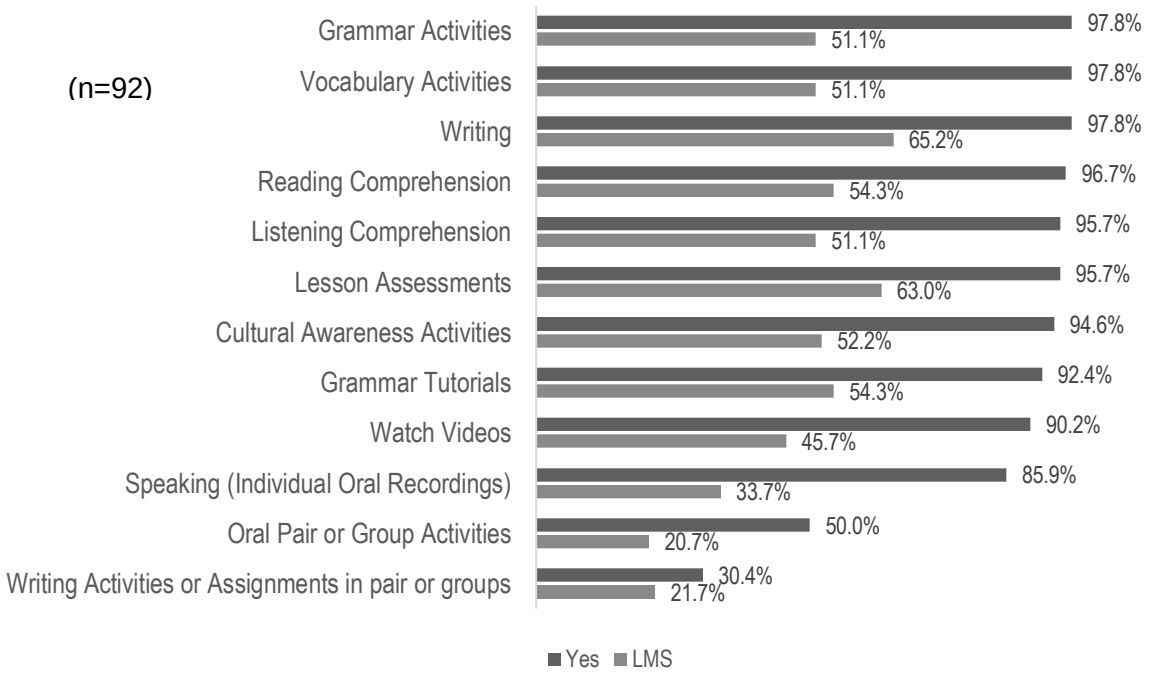
In the online questionnaire, participants were asked to indicate whether or not their students had access to a series of twelve different types of learning activities, and how students were given access to those activities. The twelve activities included lexical and grammar activities (tutorials and practice exercises), activities designed to practice one or more of the four language skills (speaking, listening, writing and reading), activities focused on promoting student-student interactions, activities to promote cultural awareness, and finally, assessments.

When instructors indicated that students did have access to a certain type of activity, the questionnaire then asked them to select how students gained access to those activities, from 8 different options: 1) from the LMS where activities were previously uploaded by the instructor; 2) from a printed textbook; 3) from an online textbook; 4) from a printed student activity manual; 5) from an online student activity manual; 6) from other web resources; 7) from other printed resources; and/or 8) “other.” Instructors could select more than one option. Finally, if a participant selected the first option, “from the LMS,” the system requested them to indicate which LMS tool(s) they used to create and/or deliver that kind of activity.

Chart 4.4 shows the percentage of online instructors who reported implementing each of the different language activities in their courses. A large majority of instructors (85% or more) indicated that they implemented ten of the twelve types of activities. The two least reported activities provided by online instructors are those that required students to work in pairs or groups; 50 percent of instructors required students to perform oral conversations in pairs or groups, and only 30.4% asked students to perform writing activities or assignments in pairs or groups. Chart 4.4 also presents the percentage of instructors who made use of a LMS tool to deliver those activities. (All numbers are presented in Appendix C, Table C-2.1.)

A great majority of instructors indicated they implemented almost all the types of learning activities, but the percentage who indicated this was done through the LMS is considerably lower in most cases. In most of the activities, around 50% of instructors made use of the LMS to implement activities; and, in the case of the individual oral recording activities, and those who required work to be done in pairs and/or groups, the percentages are lower: 33.7% for individual oral recordings, 20.7% for oral pair or group activities, and 21.7% for writing activities or assignments in pairs or groups. This requires explanation, since 81.7% of instructors participating in the study indicated an agreement with the constructivist methodological statement that “by working collaboratively, students have the opportunity to realize the gaps in their language learning” (see section 5.1). In Chapter 5, I will address the issue of whether or not there is an association between teaching online through an LMS and language instructors’ ability to enact their pedagogical preferences, particularly those with constructivist orientations.

Chart 4-4 Percentage of Online Instructors Who Implement Different Learning Activities and the Percentage who do it via LMS tool(s)



In order to determine whether or not there is a systematic relationship between the use of different LMS components and the learning activities provided for students, as well as a significant difference across LMSs, languages taught and/or instructor's online teaching experience, a series of contingency tables and likelihood tests were performed. Adjusted standardized residuals were also computed to determine which categories (cells) were the major contributors to the significant associations. The variables were each one of the learning activities computed as binary variables—where 0 indicates that the instructor doesn't use that tool for that particular activity, and 1 that (s)he does—and the LMS categories (Blackboard, Canvas, Desire2Learn, Moodle, Angel Learning, Sakai and Publisher's), the languages taught (Spanish, Romance, Oriental, Asian, Germanic and other European), and the online teaching experience of instructors (less than 1 year, from 1 to 3 years, from 4 to 6 years, form 7 to 9 years and 10 or more years).

4.3.1. **Summary of findings**

Table 4.10 presents a summary of the significant results of the likelihood tests. The LMS tools are organized according to the same groups presented in section 4.2.1,

and Table 4.4 (excepting the reporting tools group that is composed of the gradebook and the calendar tool, which were not included in this test since they are not used to implement learning activities). The first column indicates the LMS tool, and the next one the learning activities that showed a significant relation with that tool (Likelihood Ratio with a significance $p \leq .05$). The following columns indicate the categories that significantly contributed to the association. Each category is followed by a "+" or "-" symbol, which indicates if such category frequently uses the LMS tool ("+") to deliver the learning activity or not ("-"). The magnitude of the association is also shown for each model. The Cramer's V test calculates the strengths of association (effect size) after the Likelihood tests has determined significance and its values range from 0 to 1. Normally, Cramer's V values lower than .3 indicate a weak relationship between the variables; values lower than .5, a moderate relationship: and values of .5 or higher, a strong relationship.

Table 4-10 Association between LMS Components and Learning Activities (Likelihood test summary results)

		Significant Difference					
	Type of Language Activity	LMS Used		Language Taught		Years of Experience	
LMS tools		Categories	Cramer's V	Categories	Cramer's V	Categories	Cramer's V
a) Asynchronous communication tools:							
E-mail	Pair/Group writing	Publishers' (+)	.656				
	Cultural awareness	Angel Learning (+)	.569				
	Grammar activities			Asian (+)	.420		
Discussion boards	Oral recording	Canvas (+) Blackboard (-)	.655			+10 years (+)	.513*
	Vocabulary					-1 year (-) 1–3 years (+)	.470
	Reading comprehension					7-9 years (+)	.422
b) Informational tools:							
Announcements		No significant results					

c) Delivery of materials/assignments tools:

Content Modules	Grammar explanations	Angel Learning (-)	.551				
	Grammar activities			Spanish (+) Romance (-) Germanic (-)	.604		
	Pair/Group writing			Germanic (-)	.617		
	Pair/Group Oral			Romance (+)	.729*		
	Reading comprehension					-1 year (-)	.445
	Watch videos					-1 year (-) 4-6 years (+)	.507
	Vocabulary	Blackboard (-) Moodle (+) Angel Learning (+)	.478				
Links and files	Grammar explanations			O. European (-)	.446*		
	Grammar activities			Oriental (-)	.426		
	Listen comprehension			Oriental (-)	444		
File storage	Reading comprehension			Spanish (+)	.423		
	Cultural			Spanish (-) Germanic (-)	.416*		

d) Assessment tools:

Test creator	Grammar activities			Romance (+) Oriental (-)	.481

e) Synchronous communication tools: Chat-rooms, whiteboards and multimedia rooms

Chatroom	Vocabulary	Blackboard (-) Angel Learning (+)	.608
Multimedia room	Writing	Blackboard (-)	.400*
	Oral recording	Blackboard (+)	.591
Whiteboard	No significant results		

f) Collaboration tools:

Document sharing	Reading comprehension		1-3 years (-) 4-6 years (-)	.500
Peer review		No significant results		
Wikis		No significant results		

*Slightly over $p \leq .05$

As table 4.10 shows, the use of seven out of eleven LMS tools proved to be associated with one or more of the factors considered. Only four tools did not show any association. The results of the Likelihood Ratio tests showed that there are some significant associations between LMS components and the type of learning activities they are used for, and that some of these relations are related to the LMS used, the language taught and/or instructors' online experience.

In the case of the LMS used, Blackboard, Angel Learning, Canvas, Moodle and Publishers' platforms showed some relations and some interesting differences. Blackboard was the system with the most associations between tools and learning activities, with five significant associations; however, in four of those associations the majority of instructors do not use the associated tool to deliver the learning activity, unlike instructors using other LMSs. For example, Blackboard instructors do not tend to use the discussion board to deliver oral recording activities, but Canvas instructors do; and instructors using Blackboard do not use content modules to deliver vocabulary activities, but Canvas and Angel Learning instructors do.

Angel Learning was the second major LMS contributor, with four significant associations. It should be noted, however, that six of nine instructors who used Angel Learning belong to the same university, and some of them may be following the identical "master" course design created by another instructor. As one of the participants explained, "At our university the online courses are pre-set up by a member of the department and are the same for all instructors and students" (Participant 38).

The language taught was the variable with the most associations between LMS tools and language activities, which indicates that the language taught has some influence over the tools instructors choose to deliver language activities, and more notorious, grammar activities. Some of the differences that can be observed from the

summary table (Table 4.10) is that Spanish instructors make use of Content modules to deliver or implement grammar activities, but most of the Romance and Germanic language instructors prefer not to do so; Asian language instructors make use of the LMS e-mail to deliver grammar activities, and Oriental instructors do not normally use Links and Files, nor test creators to deliver grammar activities.

In relation to the number of years of online experience, it can be observed that in general the least experienced instructors tend to use some tools less than more experienced instructors. For example, novice instructors tend not to use discussion boards to deliver vocabulary activities, but instructors with a little more experience tend to do so; novice instructors also do not normally use content modules for reading comprehension or video- watching activities, or the document sharing tool for reading comprehension activities.

Three of the tools that were not associated with any variable – Peer-reviews, Whiteboards and Wikis – also obtained the lowest average use ratings (see section 4.2.1), thus, the lack of association can be explained by their very low usage. On the other hand, the Announcements (the fourth LMS tool not associated with any of the variables) was the third most used tool by instructors though the Calendar and Gradebook components, and its high use may be explained by the nature of online courses and not by the type of language activity.

4.3.2. Significant results: Relationship between the use of different LMS components and the learning activities provided for students

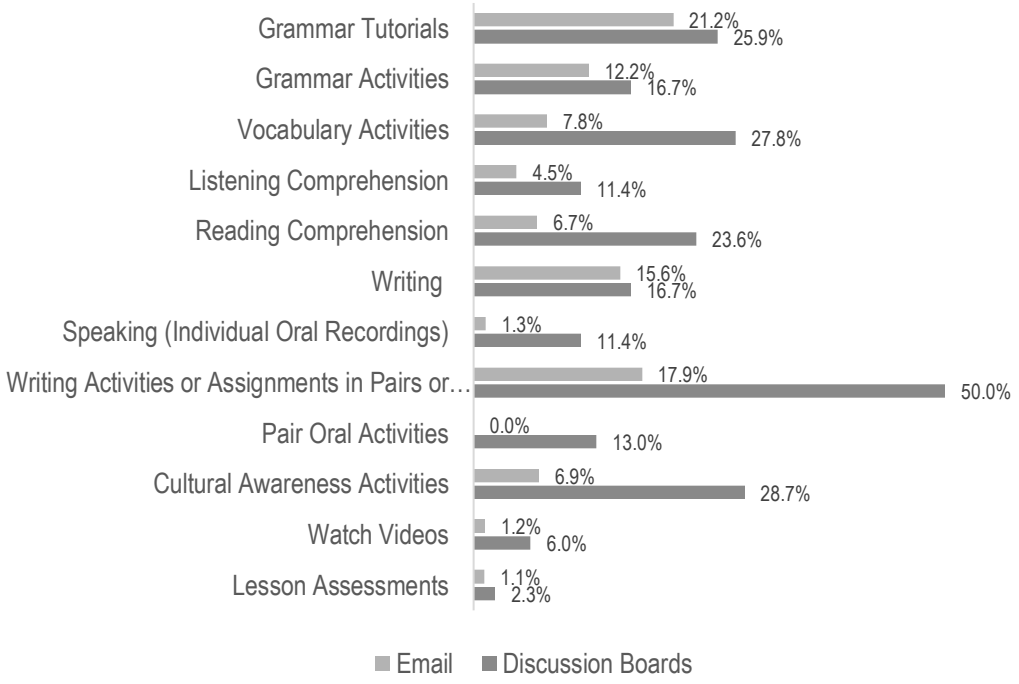
The analyses of the complete Likelihood tests are presented below following the same group categorization of LMS tools used in table 4.10. As before the “gradebook” and “calendar” tools were not included.

a) Asynchronous communication tools: email and discussion boards

Chart 4.5 shows the percentage of instructors who reported using their LMS email and discussion board tools to deliver or implement each one of the learning activities. Emails are more frequently used to deliver grammar tutorials (21.2%) and writing activities or assignments that have to be done in pairs or groups (17.9%);

discussion boards are also more frequently used for writing activities in pairs or groups (50%) and cultural awareness activities (28.7%).

Chart 4-5 Percentage of Online Instructors Who Implement Different Learning Activities via LMS Email and Discussion Board Tools



Email. The association between the email tool and each one of the learning activities was found to be statistically significant for pair or group writing activities (LRT = 9.683, df = 4, p=.046; Cramer's V = .656) and cultural awareness activities (LRT = 13.497, df = 6, p =.036, Cramer's V =.569) in relation to the LMS. In other words, the use of LMS email for pair or group writing activities and cultural awareness activities is related to the particular LMS that is being used. In the case of writing activities in pairs or groups, instructors who used publishers' platforms (n = 2) were the category that significantly contributed to the association ($z = \pm 2.5$, $p \leq .05$). Both of the instructors indicated that they used the email tool of the publisher's LMS to deliver pair or group writing activities for students. In the other LMS categories, all or a great majority of instructors (12 out of 17) do not use email for these kinds of activities. The only LMS significantly associated with cultural awareness activities was Angel Learning ($z = \pm 3.3$, $p \leq .05$): 66.7% (2 out of 3) of Angel Learning's instructors used the email tool to deliver or implement these kinds of learning activities, while in the other LMSs, the great majority of instructors (41 out of 44) did not.

The language taught variable was also significantly associated with the use of email to deliver or implement grammar activities (LRT = 11.70, df = 5, p = .048, Cramer's V = .420). However, only the Asian language category proved to contribute to this association ($z = \pm 1.9$, $p \leq .05$). It must be mentioned that this category was composed of just a single instructor.

The online experience variable was not associated with any of the learning categories.

Discussion boards. A strong relationship was observed between oral recording activities delivered via discussion boards and the LMS variable (LRT = 13.489, df = 5, p=.019, Cramer's V = .655) and instructors' online teaching experience (LRT = 7.935, df = 4, p=.094, Cramer's V = .513). In relation to the LMS variable, Canvas ($z = \pm 3.1$, $p \leq .05$) and Blackboard ($z = \pm 1.9$, $p \leq .05$) LMSs are the categories that significantly contribute to the association, but in opposite ways. 83.3% of Canvas instructors (5 out of 6) used discussion boards to deliver or implement speaking (individual oral recordings); meanwhile 85.7% of Blackboard instructors (12 out of 14) did not use it. The probable explanation for this finding is that Canvas has a feature to allow the embedding of audio or video recordings directly into the discussion posts easily, by selecting the audio or film icons in the rich text editor. Blackboard, on the other hand, has a voice-based discussion forum (board) tool that is separate from the traditional discussion (text based) boards.

In relation to the instructor's online teaching experience, the most experienced instructor category has a significant impact over the use of discussion boards for oral recording activities ($z = \pm 2.7$, $p \leq .05$); 80% of instructors with 10 or more years of experience (4 out of 5) reported using this tool for individual oral recordings. The great majority of less experienced instructors (21 out of 26) did not. Instructors' online experience also contributed to a significant relationship with the use of discussion board for vocabulary (LRT = 12.236, df = 4, p = .016, Cramer's V = .470) and reading comprehension (LRT = 12.140, df = 4, p = .016, Cramer's V = .422) activities. None of the three instructors with less than one year of online experience reported to use discussion boards for vocabulary activities ($z = \pm 1.9$, $p \leq .05$), but 81.3% of instructors with 1 to 3 years of experience (13 out of 16) did ($z = \pm 2.9$, $p \leq .05$). In the case of reading comprehension activities, the group that significantly contributes to the

association is instructors with 7 to 9 years of online experience ($z = \pm 2.8$, $p \leq .05$); all of them (n = 9) indicated that they use this tool to deliver this kind of activity.

b) Informational tools: announcements and calendar

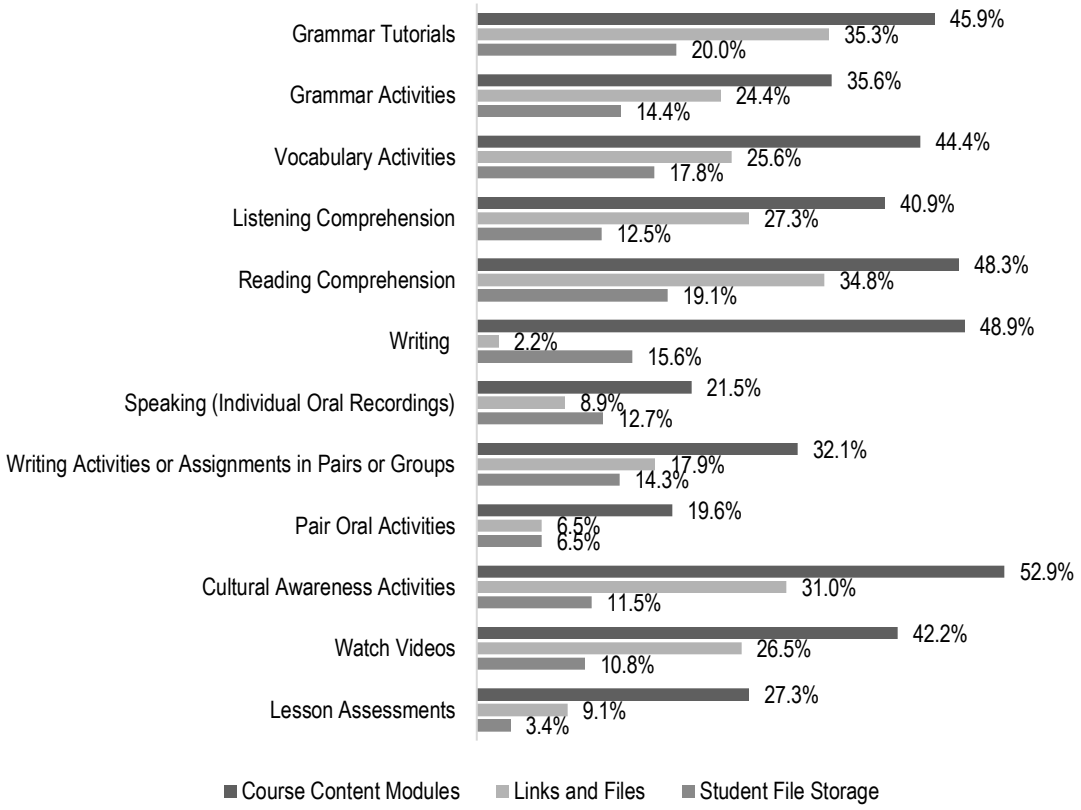
The use of the LMS calendar was not selected by any of the participants when indicating which tools they use to implement or deliver learning activities.

In general, the announcement area was not used by the majority of instructors to deliver or implement learning activities –which is not surprising due to the nature of this tool. None of the association tests were statistically significant.

c) Delivery of materials/assignments tools: course content modules, links and files and student file storage

Course content modules and links and files were the tools most used by instructors to deliver or implement different learning activities. This is not surprising, since the objective of these tools is precisely to facilitate the delivery of learning materials to students. As presented in chart 4.6, student file storage capabilities were not, in general, not as much used as the other two tools, except in the case of writing and individual oral recording activities, in which 15.6% and 12.5% of instructors, respectively, made use of them.

Chart 4-6 Percentage of Online Instructors Who Implement Different Learning Activities via LMS Course Content Modules, Links and Files, and Student File Storage Tools



Course content modules were used by approximately half of the participating instructors to deliver or implement cultural awareness activities (52.9%), writing activities (48.9%), reading comprehension activities (48.3%) and grammar tutorials (45.9%). Links and files were used by approximately a third of instructors for grammar tutorials (35.3%), reading comprehension activities (34.8%), cultural awareness activities (31%) and listening comprehension activities (27.3%).

Course content modules were used by approximately half of the participating instructors to deliver or implement cultural awareness activities (52.9%), writing activities (48.9%), reading comprehension activities (48.3%) and grammar tutorials (45.9%). The association with the LMS used, language taught, and online experience variables were significant in several cases.

The use of content modules to deliver grammar explanations showed a significant association with the LMS variable (LRT = 15.774, df = 6, p=.015, Cramer's V

= .551). Angel Learning was the category which contributed to the association (z = ±3.2, p ≤.05), but in a negative sense: None of the Angel Learning instructors (n = 3) makes use of this tool, while more than 82% of other LMS instructors (38 out of 46) do it.

The use of content modules to deliver grammar activities, as well as pair or group writing and oral activities, were also significantly associated with the Language variable. Spanish (z = ±2.8, p ≤.05), Romance (z = ±2.0, p ≤.05) and Germanic (z = ±3.2, p ≤.05) languages proved to be most strongly associated with the use of content modules for delivering grammar explanations, but in an opposite way. While 86.4% of the Spanish instructors (19 out of 22) used content modules to deliver grammar activities, only 41.7% of Romance instructors (5 out of 12) and none of the Germanic instructors (n = 5) did. For pair or group writing activities, none (n = 4) of the Germanic language instructors (z = ±2.0, p ≤.05) used this tool, whereas 56.2% of other language instructors (9 out of 16) did. For pair or group oral activities, only the Romance language was significantly associated (z = ±2.4, p ≤.05); all Romance instructors (n = 4) indicated that they used course content modules to deliver pair or group oral activities. In all other language categories, all or the great majority of instructors did not use this tool for oral activities in pairs or groups.

The online language teaching experience variable was significantly associated with the use of course content modules to deliver reading comprehension and video watching activities.[6] In the case of reading comprehension activities (LRT = 9.671, df = 4, p=.046, Cramer's V = .445), the least experienced instructors are those who contributed most to the relationship (z = ±2.7, p ≤.05), since 66.7% of them (2 out of 3) do not use course content modules to deliver reading comprehension activities, in contrast to all other categories where the great majority of instructors (42 out of 58) do use this tool. In the case of the video watching activities (LRT = 11.305, df = 4, p=.023, Cramer's V = .507), the least experienced instructors (z = ±2.6, p ≤.05) and instructors between 4 and 6 years of experience (z = ±1.9, p ≤.05) proved to be the categories that contributed to the association, but in opposite ways: none of the two least experienced instructors used course content modules to deliver videos to students, while 54.5% of

[6] Embedded or via links.

the other category (6 out of 11), did. Again, the most experienced instructors normally used this tool to deliver or implement video-watching activities.

The **Links and file**s tool was used by approximately a third of instructors for grammar tutorials (35.3%), reading comprehension activities (34.8%), cultural awareness activities (31%) and listening comprehension activities (27.3%); and by a little more of a quarter of instructors for vocabulary activities (25.6%).

The usage of the Links and files tool was related to the type of LMS only in relation to the implementation of vocabulary activities (LRT = 13.250, df = 6, p=.039, Cramer's V = .478). Moodle, Angel Learning and Blackboard contributed equally to the association ($z = \pm 1.9$, $p \leq .05$); however, while 68.4% of Blackboard instructors (13 out of 19) do not use the links and files tool, 100% of the other two LMSs (n = 6) instructors do.

The use of links and files also proved to be associated with the language variables in relation to the delivery of grammar explanations (LRT = 12.239, df = 6, p=.057, Cramer's V = .446), grammar activities (LRT = 11.298, df = 6, p=.046, Cramer's V = .426), and listening comprehension activities (LRT = 11.675, df = 6, p=.040, Cramer's V = .444). The Other European languages category contributes to the association for grammar explanations ($z = \pm 2.2$, $p \leq .05$), but in a negative way, since all of the instructors (n = 3) indicated that they don´t use that tool to deliver grammar explanations, as other categories do. In the same way, Oriental languages contributed negatively, as all instructors (n = 5) indicated that they do not use links and files for grammar activities ($z = \pm 2.1$, $p \leq .05$) nor for listening comprehension activities ($z = \pm 2.4$, $p \leq .05$).

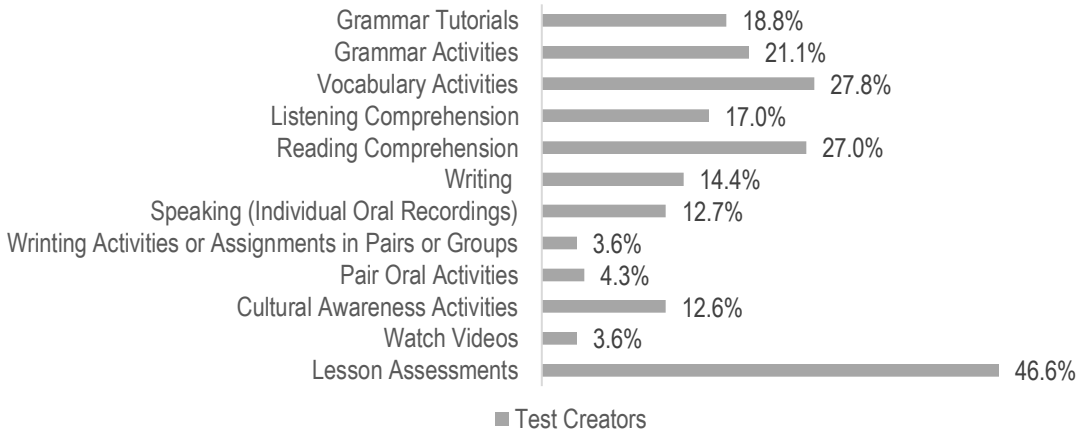
For the **student file storage** tool, the only significant associations were with the language variable in relation to the delivery of reading comprehension activities (LRT = 11.622, df = 5, p=.04, Cramer's V = .423) and cultural activities (LRT = 10.460, df = 6, p=.053, Cramer's V = .416). For reading comprehension activities, Spanish instructors were the category that contributed most to the association, 48% (12 out of 25) of whom indicated making use of student file storage capabilities. The percentage of instructors who used this tool is lower for all other categories, except Asian languages, where the only instructor of this category indicated to use it. In the case of cultural activities, Spanish and Germanic language instructors contributed most to the association: the

majority of Germanic instructors (2 out of 3) use this tool, the majority of Spanish instructors (52%, 21 out of 28) do not use this tool. In all other categories, most instructors (17 out of 18) did not make use of Student file storage capabilities to deliver or implement cultural activities.

d) Assessment tools: test creators

A test creator capability is a common asset of all LMSs, but instructors also resort to this tool for all types of activities. Chart 4.7 presents the percentage of instructors who reported using this tool to deliver or implement various activities.

Chart 4-7 Percentage of Online Instructors Who Implement Different Learning Activities via LMS Test Creator Tool



As may be expected, the "test creator tool" is mainly used to create lesson assessments; 46% of instructors use it for this purpose. Instructors also use this tool to deliver or implement vocabulary activities (27.8%), reading comprehension activities (27%), grammar activities (21.1), and grammar tutorials (18.8%). Activities required to be done in pairs and/or groups, cultural awareness activities and video watching activities made the least use of the test creator tool.

The association between the test creator tool and each one of the learning activities was statistically significant only for the grammar activities (LRT = 14.527, df = 5, p=.013, Cramer's V = .481) in relation to the Language variable. Romance and Oriental languages were the categories that significantly contributed to the association, but while 66.7% of Romance instructors (8 out of 12) used the test creator capability for

implementing grammar activities, none of the Oriental language instructors (n = 5) did. Asian and other European instructors also did not use this tool for grammar activities.

e) Synchronous communication tools: Chat-rooms, whiteboards and multimedia rooms

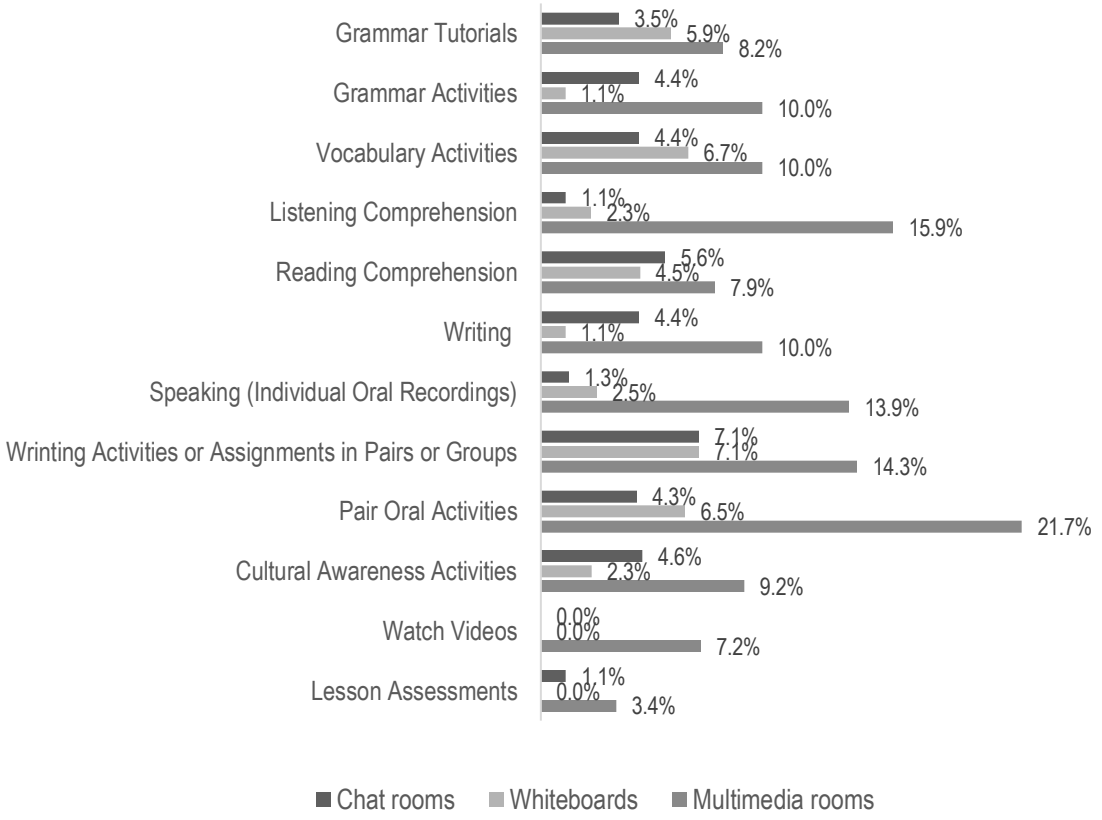
The synchronous communication tools were the least resorted to by instructors in general. As Chart 4.8 (in the following page) shows, around 15% or less of instructors used these tools to deliver learning activities to students. Multimedia rooms used for pair oral activities was the tool with the highest reported use, with 21.7% of instructors indicating that they use it.

The chat room tool showed a significant association with vocabulary activities (LRT = 12.951, df = 6, p=.044, Cramer's V = .608). Angel Learning and Blackboard were the platforms associated with the use of chatrooms for delivering grammar activities, but in an opposite way: 66.7% of Angel Learning instructors (2 out of 3) used this tool, while none of the Blackboard instructors did (n = 19).

The use of **multimedia rooms** was associated with writing (LRT = 12.157, df = 6, p=.059, Cramer's V = .400) and oral recording activities (LRT = 12.350, df = 6, p=.025, Cramer's V = .591) in relation to the LMS. In both cases, Blackboard was the system that contributed to the association ($z = \pm 3.2$, and $z = \pm 2.5$ $p \leq .05$, respectively); however, while only 29.2% of Blackboard instructors (7 out of 24) used the multimedia room to deliver or implement writing activities, 57.1% (8 out of 14) did so for oral recording activities. In the case of the other LMSs, all or most of the instructors reported not using multimedia rooms for writing activities, nor for oral recordings. None of the Angel Learning instructors indicated making use of the system to deliver oral recording activities; all of them indicated using the online textbook, the online Student Activity Manual or another web platform, such as "YouSeeU."[7]

[7] http://www.youseeu.com/

Chart 4-8 Percentage of Online Instructors Who Implement Different Learning Activities via LMS Chat-rooms, Whiteboards and Multimedia Room Tools



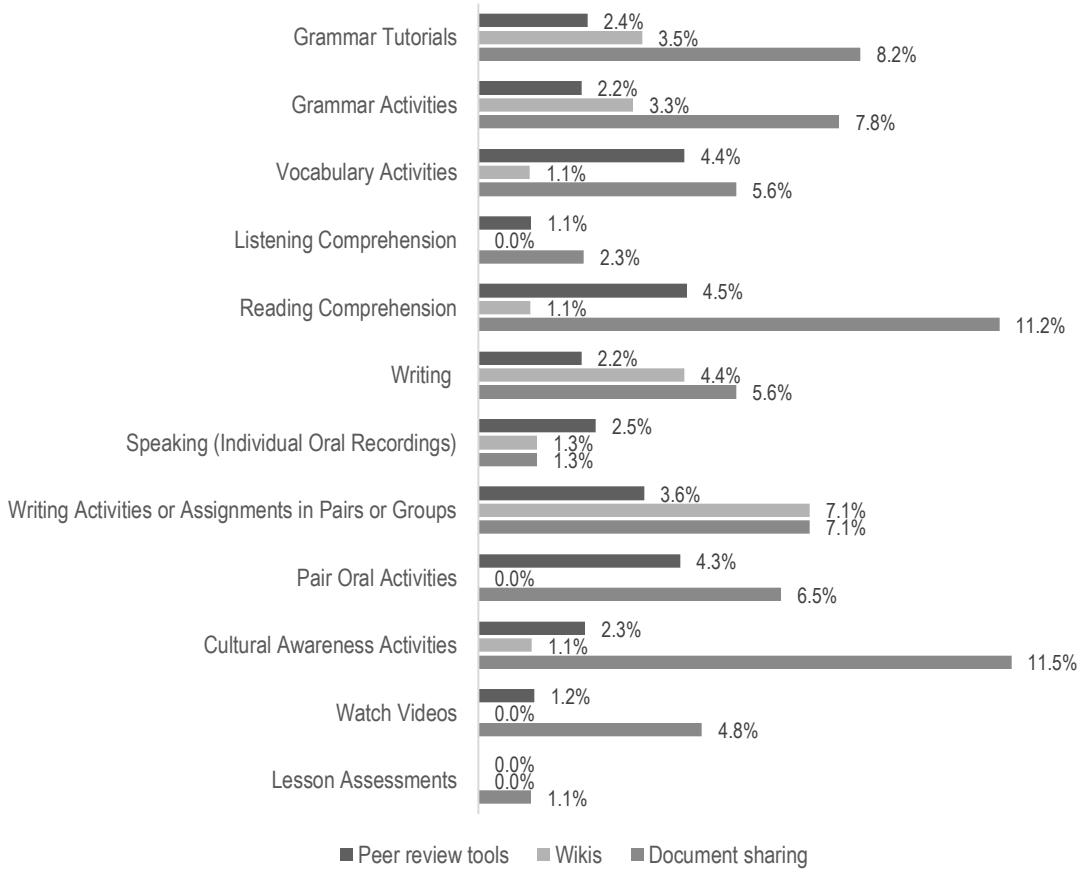
The Whiteboard tool did not show any significant association with any type of activity.

f) Collaboration tools: Peer review, wikis and document sharing

The collaboration tools category is composed of peer review, wikis and document sharing tools; however, the percentage of instructors who use these three tools to deliver different types of activities through the LMS was extremely low. This confirms the generally low use of these tools in online language courses generally presented in section 4.2. Only the document sharing tool was reported to be used by little more than 10% of instructors to deliver reading comprehension and cultural awareness activities. See Chart 4.9.

The **document sharing** tool was the only one associated with a learning activity. The likelihood test indicated that this tool was significantly associated with reading comprehension activities, in relation to instructors' online experience (LRT = 14.225, df = 4, p=.007, Cramer's V = .500). Instructors with 1 to 3 years and 4 to 6 years of online experience were the categories that contributed to the association (z = ±3.4, and z = ±2.1 p ≤.05, respectively). While 47.1% of instructors with 1 to 3 years of experience (8 out of 17) indicated using this tool, 100% of instructors with 4 to 6 years of experience (n = 13) did not use it. In general, the great majority of instructors in all categories did not use this tool.

Chart 4-9 Percentage of Online Instructors Who Implement Different Learning Activities via LMS Peer-Review, Wikis and Document Sharing Tools



4.4. Chapter summary

This chapter focused on analyzing whether or not different LMS components are used in the development and implementation of different activities in fully online

language teaching. As a first step, the study examined how often participants used the various LMS components, and determined that whilst participants made frequent use of the reporting, asynchronous communication, and informational tools (email, announcement area, course content modules and links and files), they barely used the synchronous and collaborative tools (chat-rooms, whiteboards, multimedia rooms, peer review, whiteboards, Wikis, and document sharing). The very low scores of the synchronous and collaborative tools stand out because they indicate a substantially reduced use of those capabilities that can foster social-constructivist learning.

In order to find out if there is a relationship between the LMS used, the language taught or the instructors' amount of online teaching experience and the reported use of the LMS components, the research employed a series of logistic regressions. The results were not very conclusive, since they showed significant associations for only a few of the tools: the email, announcement area and document sharing capability. In relation to the LMS used, it was found that instructors using a publisher's LMS tended to use email less, and instructors who used Angel Learning tended to use it more than Blackboard instructors. In relation to the language taught, Spanish instructors tended to use email more often than Romance (French, Italian and Portuguese) and other European language instructors. Moreover, Spanish Instructors are much more likely to use the announcement component than Romance instructors. Finally, in relation to online teaching experience, more experienced instructors tended to use LMS email less frequently, but the document sharing capability more frequently.

A second analysis focused on finding more specific relations between LMS tools and the types of learning activities they are mainly used to support. The analysis also examined whether the LMS used, the language taught, or the level of online teaching expertise of instructors were factors influencing such relations. Even though the results were complex (as it was necessary to construct many series of contingency tables and likelihood tests), a few interesting relations were found.

In relation to the different LMSs, it was found that some of the components of Angel Learning, Blackboard, Canvas, Moodle and Publisher platforms were associated to the delivery of some learning activities. Blackboard was the system with the most associations between tools and learning activities, with five significant associations. The tests showed that Blackboard instructors do not tend to use the discussion board tool to

deliver oral recording activities, nor the files tool to deliver vocabulary activities. They also indicated that instructors who used a Publisher platform tended to make more use of email to deliver pair or group writing activities, while Angel Learning instructors used it more to deliver cultural awareness activities.

The language taught was the variable with the most associations between LMS tools and language activities. All categories — Spanish, Romance, German, other European and Oriental and Asian languages—seemed to be associated with the use of tools and activities. Some of the differences between languages that were noted were that while Spanish instructors tended to use content modules to deliver or implement grammar activities, Asian instructors tended to use the email for this purpose. The results also indicate negative associations in the sense that the teaching of some languages did not involve the use of some tools for delivering certain activities that other languages would. For example, this was the case with Oriental language instructors, who do not normally use Links and files or test creators to deliver grammar activities, or other European language instructors who do not use Links and files to deliver grammar explanations.

The third factor, the number of years of online teaching also proved to be related to some of the LMS tools and the learning activities they are used for. In general, results showed that least experienced instructors tended to use some tools less than the more experienced instructors. This was the case with discussion boards used to deliver vocabulary activities, or content modules used to deliver reading comprehension and video- watching activities.

Chapter 5 presents the results of the second part the study, which examines whether there is a relationship between the use of different LMS components and instructors´ self-reported pedagogical preferences. It also presents the qualitative results regarding how instructors believe teaching online through a LMS influences their ability to enact their pedagogical preferences.

Chapter 5.

Presentation of Results (II): LMS Components and Pedagogical Preferences

This chapter presents the results of the second part of the study that analyzed whether there was a relationship between the reported use of different LMS components and the self-reported pedagogical approaches valued by online language instructors. It also presents an analysis of instructor perspectives on the benefits and limitations involved in teaching online through a LMS. The Chapter is divided in five sections:

The first section (5.1.) presents the sample distributions of participants´ declared pedagogical preferences. The pedagogical preferences were analyzed indirectly by asking participants to indicate their level of agreement with twelve statements regarding teaching methodologies, so as to know their stance toward three general pedagogical approaches: Behaviorism, Cognitivism and Constructivism. Then, an average score was computed for each statement. The sample distributions will show that, in general, participants agree with elements of all three approaches, but placing Behaviorist statements in the first place, Cognitivist statements in the second and Constructivist statements in the third place.

Having displayed the pedagogical preference of instructors, the second section (5.2.) focuses on the third research question of this study, which looked to find if there was a relationship between the use of different LMS components and declared pedagogical approaches, and if there also was a pedagogical preference difference among languages taught and among years of online teaching experience, that would be related to the selection of certain LMS tools over others. The statistical results show a that a higher preference for the Behaviorist approach will increase the odds of using more frequently the announcement and Whiteboard tools, but less frequently the document sharing tool; and a higher preference toward the Cognitivist approach, will also increase the odds to frequently use the Whiteboard and document sharing tools. In relation to the language taught, the tests show that teaching Spanish and Romance languages is related with Constructivist statements, but in an opposite way, Spanish instructors seem to favor them while Romance instructors do not. Finally, the only

significant association for the experience variable was obtained for instructors between 1 to 3 years of experience; this group had lower agreement with elements of the Behaviorist approach statements. The statistical test and procedures used to analyze the relations are explained in each case.

The third and fourth sections of this chapter target the fourth and last research question, which focuses on analyzing how teaching through a LMS is related to language instructors' ability to enact their pedagogical preferences. Section 5.3 addresses to the sub-question "To what extent do online teaching practices accord with instructors' pedagogical preferences?". Section 5.4 addresses the sub-question "What do online language instructors perceive to be the major pedagogical gains, or the major sacrifices they make pedagogically, when teaching online?".

The presentation of the quantitative analysis is done in three phases. First, the relationship between instructors' pedagogical approach preferences and their expressed necessity to yield those preferences when teaching online was explored. It was found that higher preference for the Constructivist pedagogy was related to a higher likelihood of the expressed necessity to yield those preferences. Next, the frequency distributions of the 12 teaching practices and their relation to the instructors' pedagogical approach preferences is presented. The descriptive statistics show that Behaviorist teaching practices are the most frequently used by online language instructors, and that those associated with a Constructivist perspective are the used least. Finally, the relationship between instructors' preferences for a given pedagogical approach and their reported teaching practices was explored. The findings of this section indicate that stated teaching practices do not accord with instructors' self-reported pedagogical preferences, except in the case of practices associated with a Behaviorist perspective. Data analysis procedures and the non-parametric tests employed (e.g. Gamma tests and ordinal regressions) are described at the beginning of each section.

The last section of the Chapter, 5.5, presents a summary of findings.

5.1. Pedagogical Approach Distributions

As in the previous Chapter, all participants' responses were first analyzed using descriptive statistics to detect general trends in the data.

Participants were asked to indicate if they agreed, disagreed or neither agreed nor disagreed with twelve statements associated with three general pedagogical approaches described earlier in the thesis: Behaviorist, Cognitivist or Constructivist. On the survey, four pedagogical belief statements were presented which accorded with behaviorist language learning principles. Four statements accorded with cognitivist language learning principles, and four accorded with constructivist language learning principles. Survey respondents rated all twelve statements on a scale from "strongly agree" to "strongly disagree."

The behaviorist statements were framed mainly under the assumptions of the Audiolingual and Audiovisual language learning methods—which dominated language teaching during the 1960´s. As described earlier in the thesis, these methods emphasized speaking and listening skills over reading and writing skills, and were characterized by the extensive use of practicing patterns with repetitious drills, where correct answers were rewarded, and errors corrected immediately to avoid the reinforcement of incorrect habits. The objective of learning, under a pure behaviorist perspective, is to produce accurate pronunciation and grammar, acquire the ability to respond quickly and accurately, and learn sufficient vocabulary to use with certain grammar patterns (Richards & Rogers, 2001). The statements that were presented to instructors on the survey emphasized the idea of repetition and practice (statements 1 and 2, quoted as *Beh1* and *Beh 2*), the necessity to promptly correct errors to avoid bad habits (statement *Beh3*) and the presentation of model dialogues to model correct language use and pronunciation (statement *Beh4*).

The cognitivist statements on the survey were formulated following some general principles of this approach, but more specifically of the communicative approach. Under a pure cognitivist approach to language learning, the use of forms (content) rather than the forms themselves is more important, so students are encouraged to generate utterances rather than simply manipulate prefabricated language (cognitivist statement 4, quoted as *Cog4*). Furthermore, the presentation of new material should be embedded in a meaningful context, and new rules should be presented to learners with opportunity

to apply them to several examples (statement *Cog3*). Alternatively, learners can be first exposed to a number of examples, and then asked to infer the rule through guided discovery (Molina, 2005). The point of a pure cognitivist approach is that learning has to be done in a conscious way, and involve reflection. Learning should be guided and progressive (statement *Cog4*), organized from less challenging to more challenging cognitive processes and content (such language skills), and should be broken into different chunks to reduce cognitive load (Statement *Cog1*).

The Constructivist statements presented on the survey responded to the idea that SL learning should be *action-oriented* (Reinfried, 2000), where language is learned through collaboration, free creation is rewarded, and learning is attained through self-regulation and active work on projects. Constructivist language learning should be *learner-centered* and should support the individualization of learning and learner autonomy (constructivist statements 1 and 2, quoted as *Cons1* and *Cons2*). From this paradigm, teaching methods should promote learning environments and facilitate opportunities for students to use, practice and reflect on language use and learning (Richards, 2006) (statement *Cons3*). The classroom (by it physical or virtual) is conceived as a community where learners learn by collaborating and sharing (statement *Cons4*).

All statements were randomly presented in order to avoid linking one statement to the following one. A Cronbach's alpha test was conducted during the analysis phase to check the internal consistency of each pedagogical group measurement scale (4 items each), and all three subscales obtained an alpha higher than .7 (Behaviorist α = .785, Cognitivist α = .701 and Constructivist α =.707). Participants' pedagogical preferences are presented in Table 5.1 and their graphic distributions in charts 5.1 and 5.2. All statements are abbreviated in the Table. The full instrument are in Appendix B.

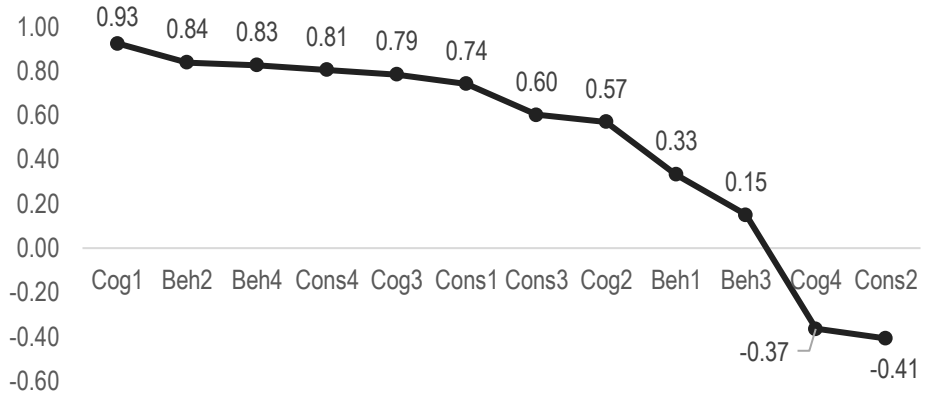
An average score was computed for each statement in order to see the general preference towards each teaching statement (see table 5.1, last column). Negative values ($-1 \geq X < 0$) indicate overall unfavorable views toward the pedagogical approach, while a value of 0 indicates a neutral position, and positive values ($0 < X \leq 1$) indicate overall favorable views. Chart 5.1 presents the average of all participants' ratings for each statement in order, from the most favorable statement to the least favorable average rating. Ten out of the twelve statements received a favorable average rating; however, statements Beh1 and Beh3 were closer to a neutral value on average.

Statements Cog4 and Cons2 received unfavorable average scores, indicating that on average, instructors disagreed with these statements.

Table 5-1 Participants´ Agreement to Methodological Statements

Behaviorist Statements n = 93, Average rating = .54	Agree N (%)	Neither N (%)	Disagree N (%)	Participants´ Average score
(Beh1) Grammar drills and information gap activities are necessary for students to learn a second language.	49(52.7%)	26(28.2%)	18(19.4%)	.33
(Beh2) Repetition is a good technique for language learning.	82(88.2%)	7(7.5%)	4(4.3%)	.84
(Beh3) Language mistakes should be corrected promptly in order to avoid bad habits.	39(41.9%)	29(31.2%)	25(26.9%)	.15
(Beh4) Dialogues are a good method to model correct language use.	79(84.9%)	12(12.9%)	2(2.2%)	.83
Cognitivist Statements n = 93, Average rating = .48				
(Cog1) Learning a second language implies the acquisition of diverse skills in order to be able to communicate effectively and efficiently.	86(92.5%)	7(7.5%)	0	.92
(Cog2) Students should do activities in order, moving from less difficult to most difficult.	62(66.7%)	22(23.7%)	9(9.7%)	.57
(Cog3) Students should review the lesson tutorial first before engaging in activities.	76(81.7%)	14(15.1%)	3(3.2%)	.78
(Cog4) The correct use of language forms is more important than language use.	9(9.7%)	41(44.1%)	43(46.2%)	-.37
Constructivist Statements n = 93, Average rating = .44				
(Cons1) The sequence of learning materials and activities should be flexible to respond to different learning styles.	73(78.5%)	16(17.22%)	4(4.3%)	.74
(Cons2) Guidance should be provided to students only when they request it.	17(18.3%)	21(22.6%)	55(59.1%)	-.41
(Cons3) Ability to communicate ideas is more important than language correctness.	61(65.6%)	27(29%)	5(5.4%)	.60
(Cons4) By working collaboratively, students have the opportunity to realize the gaps in their language learning.	76(81.7%)	16(17.2%)	1(1.1%)	.81

Chart 5-1 Pedagogical Statements Ordered from Most Favorable to Least Favorable



The average ratings of each pedagogical group indicate, in a global sense, that instructors have a favorable view of all three approaches. However, as a group, they place Behaviorist statements in the first place (average rating = .54), Cognitivist statements in the second place (average rating = .48), and Constructivist statements in the third place (average rating = .44). However, these average ratings are fairly close together.

5.2. Relation between Pedagogical Preferences and LMS used, Language Taught and Online Teaching Experience

Having presented the pedagogical preferences of the participants, this section discusses whether there is a relationship between such preferences and the LMS components instructors select to use, and it also analyzes if the language taught and the years of experience are associated. Therefore, the research question and sub-questions that guided this section were stated as follow:

Research question 3:

What is the relationship between the use of different LMS components and pedagogical approaches?

- Is there a significant difference across languages taught?
- Is there a significant difference between novice and experienced online instructors?

In order to determine the extent to which a preference for a pedagogical approach is related to the frequency of use of each LMS component, a series of binary logistic regressions were conducted. The explanatory variables were the individual participants' average preference score for each pedagogical approach. The range of all dependent variables goes from -1 to 1, where -1 implies a total disagreement towards a group of four pedagogical statements (behaviorist, cognitivist and constructivist); 0 indicates a neutral preference, and 1 a favorable preference. All dependent variables, the frequency of use of each one of the fifteen LMS components, were reduced to binary categories: *never, rarely* and *occasionally* responses were coded as 0, and *frequently* and *very frequently* responses were coded as 1. Since all factors represent measurements on a continuous scale, no reference categories were necessary. All variables were included in the logistic models using the *Enter* method.

A series of association tests of independence X^2 (Chi-square) were performed to examine the relation between each group of languages taught and instructors´ stated pedagogical preferences. In the same way, X^2 tests were conducted between each level of online teaching expertise and instructors´ stated pedagogical preferences. The pedagogical preferences were reduced to binary variables where 1 denoted a favorable preference and 0 a neutral or unfavorable preference.

5.2.1. **Summary of findings**

Table 5.2 shows the result for the categories with significant (or close to significant) results; all other categories were not included. As table 5.2. displays, only three tools showed significant (or close to) significant results, Announcements, Whiteboard and Document Sharing. The odds ratios (Exp(B)) indicate that a higher stated preference for the Behaviorist approach is related to a higher likelihood to more frequently use the Announcements and Whiteboard tools, but a lower likelihood of frequently using the document sharing tool. In the same way, a higher preference toward the Cognitivist approach is associated with a higher frequency of use of the Whiteboard and document sharing tools.

Table 5-2 Relation between Pedagogical Preferences and Language Taught,Teaching Online Experience and LMS Components (Logistic regressions and X2 tests summary results)

	Pedagogical Approach		
	Behaviourism	**Cognitivism**	**Constructivism**
LMS components Binary Logistic Regressions			
Announcements (p = .058) Nagelkerke R^2 = .123	B = 1.846 (p = .021) Exp(B) = 6.337		
Whiteboard (p = .003) Nagelkerke R^2 = .301	B = 3.462 (p = .058) Exp(B) = 31.891	B = 3.420 (p = .051) Exp(B) = 30.576	
Document Sharing (p = .061) Nagelkerke R^2 = .081	B = -.437 (p = .055) Exp(B) =. 646	B = 1.776 (p = .049) Exp(B) = 5.905	
Language Taught X^2 Test and Phi value			
Spanish			X^2 = 4.299 (p = .038) Phi = .215
Romance			X^2 = 7.326 (p = .007) Phi = -.281
Online Teaching Experience X^2 Test and Phi value			
Less than 1 year			
1 – 3 years	X^2 = 6.934 (p = .008) Phi = –.273		

For the Language variable, Table 5.2 shows that there was an association only between the Spanish and Romance instructors and one of the pedagogical approaches, Constructivism, but in a different way, since Spanish instructors seem to have a favorable position towards constructivist statements and Romance instructors seems to have an unfavorable one. However, the strength of the relation (Phi) in either case was not high. In the case of online teaching experience, only one category proved to have a significant association; instructors with one to three years of online experience were negatively associated with the Behaviorist approach.

The statistical results could be influenced by the unequal data distribution, but it could also be an indication that instructors´ stated teaching practices do not accord with their expressed pedagogical preferences. Following, the significant results are presented in detail.

5.2.2. **Significant results**

a) LMS Components

The results of the three logistic regressions with significant results — Announcements, Whiteboard and Document Sharing— are presented below.

Announcements. In the "informational tools" group, only the binary logistic regression model for the announcements component showed results approaching significance (p = .058). The model accounts only for 12.3% (Nagelkerke pseudo R^2) of the variation in the frequency of use of the announcement tool. Only the Behaviorist variable contributed explanatory power to this model (p = .021). See Table 5.3.

Table 5-3 Logistic Regression Results for Announcements Tool

P = .068	B	S.E.	Wald	df	Sig.	Exp(B)
Beh Avg	1.846	.797	5.367	1	.021	6.337
Cog Avg.	-1.583	.996	2.528	1	.112	.205
Cons Avg.	-.294	.809	.132	1	.716	.745
Constant	1.591	.660	5.815	1	.016	4.910

The Odds Ratio (OR), indicated in Table 5.3 as Exp(B), shows that a one-unit increase in Behaviorist average preference increases the odds of frequently using the announcements tool by 6.337 times

Whiteboard. The logistic model also proved significant for use of the whiteboard tool (p = .03) and explains roughly 30% of the variance of the outcome (see table 5.4). Among the three dependent variables, the behaviorist and the cognitivist average preferences barely reach statistical significance (p = .058 and .051, respectively).

Table 5-4 Logistic Regression Results for Whiteboard Tool

P = .03	B	S.E.	Wald	df	Sig.	Exp(B)
Beh Avg.	3.462	1.896	3.334	1	.058	31.892
Cog Avg.	3.420	1.751	3.813	1	.051	30.576
Cons Avg.	1.244	1.060	1.378	1	.240	3.471
Constant	-7.524	2.214	11.544	1	.001	.001

The model shows that an increase on the average preference towards the behaviorist and cognitive statements is associated with a large increase in the odds of frequently using the whiteboard tool. The OR for a behaviorist preference is 31.892, and for a cognitivist preference is 30.576. The constructivist average preference did not prove to be a significant (or near to significant) factor in this model. However, it is worth mentioning that according to the data reported in Chapter Four, the whiteboard tool seems to be rarely used by instructors; the average frequency use score of this tool is .77 on a scale from 0 (never used) to 4 (very frequently used). (See section 4.2.1).

Document Sharing. Among the "Collaborative Tools" group, only the logistic model for the document sharing component approached the level of significance ($p = .061$). The predictive power of this model is not high though, since it only predicts 8% of the variance (Nagelkerke $R^2 = .081$). The OR indicates that the more favorable a preference an instructor has to the behaviorist statements, the lower the likelihood that they will frequently use the document sharing tool. Specifically, the multiplicative factor of .646 means that for every additional point on the behaviorist scale, an instructor is almost one third less likely to use document sharing. Conversely, a one-point increase in average preference toward the cognitivist statements increases the odds of frequently using the document sharing tool by a multiplicative factor of 5.905 ($p = .049$), that is, almost six times more. See table 5.5.

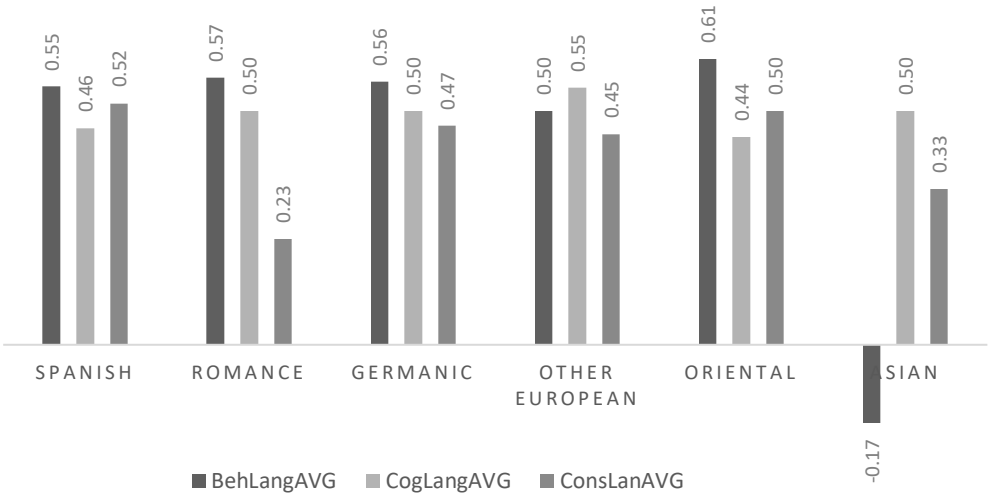
Table 5-5 Logistic Regression Results for Document Sharing Tool

P = .061	B	S.E.	Wald	df	Sig.	Exp(B)
Beh Avg.	-.437	.655	.445	1	.055	.646
Cog Avg.	1.776	.960	3.423	1	.049	5.905
Cons Avg.	.898	.739	1.479	1	.224	2.455
Constant	-2.393	.703	11.586	1	.001	.091

b) Language taught

Among Languages, some differences could be observed in the descriptive statistics. Instructors of Asian and other European languages indicated a slight favoritism towards cognitivist teaching statements over behaviorist and constructivist statements; constructivist teaching statements were secondly favored for Spanish, Oriental and Asian instructors, and, what is more noticeable, Asian language instructors were negatively disposed to the Behaviorist teaching statements. Constructivist statements received the lowest average score by Romance language instructors (French, Italian and Portuguese) with a low mark of .23, which indicates a position close to neutral. See chart 5.3.

Chart 5-2 Pedagogical Statements Ordered by Teaching Language



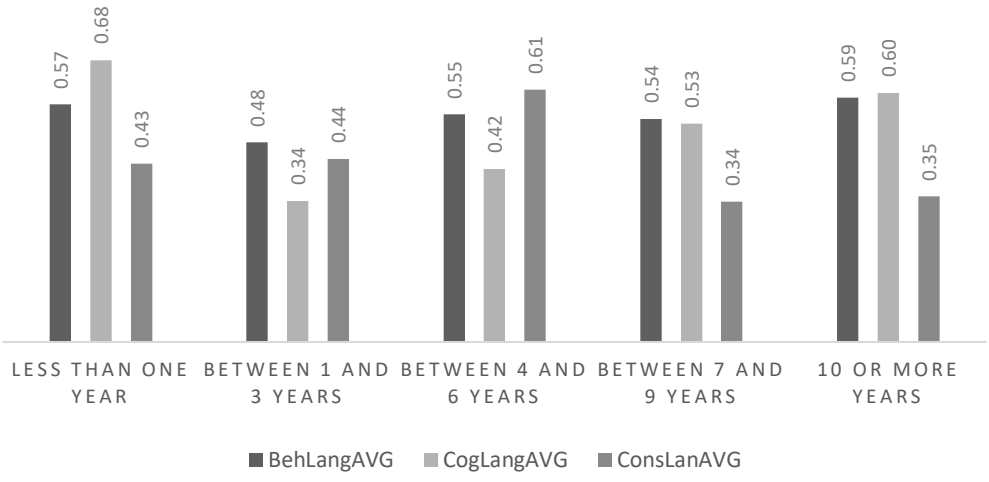
The association tests were statistically significant only for the Spanish $X^2(1df) = 4.299$ ($p = .038$) and Romance $X^2(1df) = 7.326$ ($p = .007$) languages in relation to the Constructivist approach. There were very few instructors of Asian and Other European language instructors with significant association—Asian: 3, and Other European languages: 5. In the case of Spanish, the association was positive, which indicates a favorable view of Constructivist pedagogical approaches. In the case of Romance instructors, on the contrary, the association was negative, which indicates an

unfavorable preference[8]. However, in both cases, the magnitude of the association was not strong (Spanish Phi = .215, and Romance Phi = -.281).

c) Online Teaching Experience and Pedagogical Preferences

Among teaching experience categories, instructors with 7 or more years of experience tend to favor behaviorist and cognitivist teaching statements almost equally, and rated them more highly than the constructivist statements. Instructors with 4 to 6 years of experience are the only ones who ranked constructivist statements over the other two categories. The least experienced instructors, those with less than 1 year of experience, place behaviorist statements in first place, cognitivist in second place and constructivist in the last place (see chart 5.3).

Chart 5-3 Pedagogical Statements Ordered by Learning Experience



As was done for languages taught, a series of association tests of independence (Chi-square) were performed to examine the relation between each level of online teaching experience (less than one year, between 1 and 3 years, between 4 and 6 years, between 7 and 9 years, and 10 or more years of online teaching) and the binary pedagogical variables. The only significant result was obtained between instructors with

[8] SPSS uses special formulas for phi in 2-by-2 tables so that phi varies from -1 to +1, allowing it to indicate negative relationships when used with dichotomous ordinal data, as in these cases.

1 to 3 years of online experience and the Behaviorist approach $X^2(1df) = 6.934$ ($p = .008$); however, the magnitude of this negative association is not strong (Phi =-.273). The negative relationship between 1 to 3 years of experience instructors and the Behaviorist approach indicates that this group is slightly less likely to favor Behaviorist pedagogical statements than the other groups; as chart 5.3 shows, this group obtained the lowest average score for Behaviorist statements.

5.3. LMSs and Language Instructors' Ability to Enact their Pedagogical Preferences

The goal of the last research question was to determine how teaching online through a LMS may or may not be associated with online language instructors' ability to enact their pedagogical preferences. This question has two sub-questions; the first sub-question followed a quantitative methodology, as in all previous sections, but the second sub-question pursued a qualitative examination in order to provide a deeper understanding of the numerical results. This section examines the quantitative strand, and section 5.4 will address the qualitative analysis.

Research question 4 (Quantitative strand):

How is teaching online through a LMS related to language instructors' teaching practices and perceived ability to enact their pedagogical preferences?

- To what extent do online teaching practices accord with instructors' pedagogical preferences?

The analysis to explore the relationship between instructors' stated pedagogical preferences and their teaching practices included different steps. In the first step, the study examined whether there was a significant relation between instructors' pedagogical approach preferences and their expressed necessity to yield those preferences when teaching online. The findings showed that instructors with stronger preferences for the Behaviorist and Cognitivist approaches were less likely to have to yield their pedagogical preferences than instructors with higher preferences towards the Constructivist approach.

Section 5.3.2 analyses and displays the frequency distributions of 12 teaching practices according to the pedagogical approaches they belong to. The frequency distributions show that teaching practices associated with the Behaviorist approach are the most frequently used by participants, closely followed by the Cognitivist practices and, in the third place, the Constructivist practices. In section 5.3.3., with the objective of measuring the extent to which online teaching practices accord with instructors' pedagogical principles, a series of Gamma association tests were performed between instructors' average pedagogical preference of each one of the approaches and their teaching practices. In general, the Gamma tests results showed that instructor´s stated teaching practices do not accord with their average pedagogical preferences. In the final step, a second series of Gamma tests were carried out, but this time between each one of the pedagogical statements and their specifically related teaching practice(s). These results also indicate that the relations between the pedagogical statements and the teaching practices were not strong in the case of Cognitivist and Constructivist pedagogical approaches.

5.3.1. **Pedagogical preferences and perceptions**

Before targeting the sub-question, it was necessary to examine participants' own perception about their necessity to yield their pedagogical preferences when teaching online, and examine if such perception had a relation with the pedagogical preferences.

Participants were asked to indicate how often they have had to yield or relax some of their pedagogical preferences when teaching online through a LMS. This question was structured as a 5-point Likert-type scale ranging from very frequently to never. Table 5.6 shows the frequency distribution of the responses.

Table 5-6 Frequency that Instructors Have to Yield or Relax Some of Their Pedagogical Preferences when Teaching Online Through a LMS

n = 92	Total	%
Very frequently	10	10.9%
Frequently	13	14.1%
Occasionally	41	44.6%
Rarely	22	23.9%
Never	6	6.5%

The results indicate that only 6.5% of instructors never yielded their pedagogical preferences when teaching online; the great majority indicated a need to yield to some degree. The most frequent response was the middle one: the necessity to yield occasionally. The question that arises from this general descriptive statistic is whether or not there is a difference among instructors with different pedagogical preferences.

As a first approach, in order to check if there is a relation between each one of the three pedagogical average preferences (Behaviorist, Cognitivist and Constructivist) and instructors' perception about the necessity to yield some of their pedagogical preferences in online courses, Gamma tests of association were conducted. The results of these association tests were significant in all cases.

The Behaviorist and Cognitivist average preferences were negatively associated with the necessity to yield or relax pedagogical preferences ($G = -.262$ and $G = -.269$, $p < .05$); but the Constructivist average preference was positively associated with that necessity ($G = .553$, $p < .05$). In other words, the stronger an instructor's positive preference for the Behaviorist and Cognitivist approaches, the less they expressed the necessity to relax pedagogical preferences in online language courses. However, in the opposite way, the stronger an instructor's positive preference for Constructivist approaches, the more they expressed the necessity to relax their pedagogical preferences when teaching online with a LMS.

In the next step of the analysis, an ordinal regression was performed in order to infer the association between the pedagogical preference and the necessity to yield their pedagogical preferences among participants. The responses to the necessity to yield question were assigned a ranked value from 4 to 0; "very frequently" received a value of 4, "frequently" a value of 3, "occasionally" a value of 2, "rarely" a value of 1, and "never" a value of 0. The average pedagogical preferences (Behaviorist, Cognitivist and Constructivist) were considered as ordinal variables with eight possible values ranking from -1 to 1 (-1, -.75, -.50. -.25, 0, .25, .50, .75, 1), where negative values express an unfavorable preference and positive values a favorable preference; the 0 rank designates a neutral preference.

The ordinal model obtained accounts for a substantial proportion of the variation in the frequency in which instructors need to yield their pedagogical preferences, giving a Nagelkerke pseudo R^2 of 40.3% (sig. = .001). However, the only independent variable that was significant was the average Constructivist preference. See table 5.7.

Table 5-7 Ordinal Model Results: Pedagogical Preference and Necessity to Yield Pedagogical Preferences

	B	Std. Error	Wald	df	Sig.
[Cons AVG = -.25]	-4.243	1.020	17.312	1	.000
[Cons AVG = .00]	-3.792	.883	18.423	1	.000
[Cons AVG = .25]	-3.724	.903	17.017	1	.000
[Cons AVG = .50]	-2.659	.767	12.007	1	.001
[Cons AVG = .75]	-1.579	.834	3.587	1	.048
[Cons AVG = 1.00]	0[a]	.	.	0	.

Cons AVG = 1 parameter is set to zero because it is redundant)

There is a negative relationship between the level of Constructivist average preference and the necessity to yield pedagogical preferences. The B coefficients for the average Constructivist preferences (Cons AVG = -1 to .75) are significant and negative, indicating that instructors with a positive Constructivist preference of .75 are almost 5 times (Exp (-1.579) = .206) less likely to express a need to yield their pedagogical Constructivist preference than instructors with a +1 (entirely positive preference); instructors with a .50 Constructivist preference are almost 9 times less likely to express a need to yield their pedagogical preferences (Exp (-2.659) = .070); instructors with a slightly positive Constructivist preference average of .25 are 41 times less likely to express a need to yield (Exp (-3.724) = .024); instructors with a neutral average position are also 44 times less likely to express a need to yield (Exp (-3.792) = .022); and instructors with a -.25 negative are almost 70 times less likely to yield (Exp (-4.243) =.014). The results of this ordinal regression confirmed the results of the previous Gamma test: the higher the positive preference toward Constructivist approaches, the higher the likelihood that instructors feel the need to yield one's pedagogical preference.

The results presented in this section have shown that instructors who have a higher preference towards the Constructivist pedagogical approach express a need to yield some of their pedagogical preferences (much) more often when teaching online than instructors who have a higher preference towards the Behaviorist and Cognitivist approaches. But are instructors' impressions a valid representation of what is actually

happening in their teaching practice? The following section presents the results of the analyses regarding the relationship between instructors' average pedagogical preferences and their self-reported online teaching practices.

5.3.2. **Teaching practices**

Study participants were asked to indicate how often their students have to do certain activities or actions in their online course, using a 5-point Likert-type scale ranging from very frequently to never. Responses were assigned a value from 4 to 0 to create a use-frequency score; "very frequently" received a value of 4, "frequently" a value of 3, "occasionally" a value of 2, "rarely" a value of 1 and "never" a value of 0. In this case, the statements were not directly related to language skills, cultural knowledge or assessments, but to specific practices—and these, in turn, to a pedagogical approach. There were in total thirteen different types of (teaching) practices represented in the survey. The teaching practices were described on the survey in very general terms, in order to accommodate different types of implementations and avoid the implication of any specific LMS tool.

Table 5-8 Relation between Pedagogical Statements and Teaching Practices or Actions

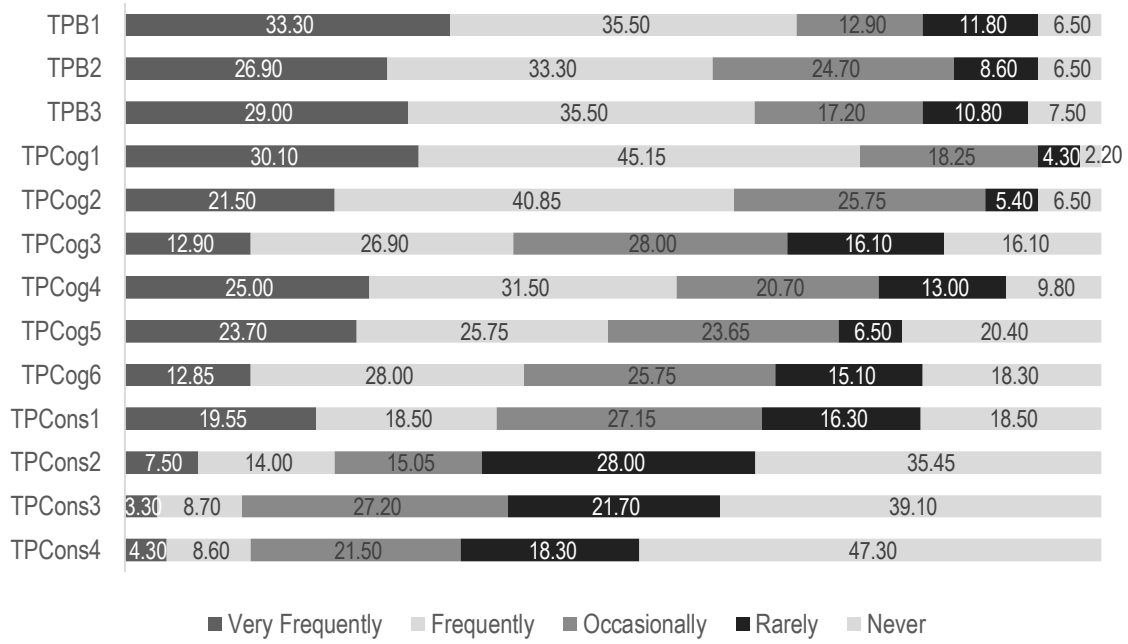
Behaviorist Statements	Teaching Practices/Actions
(Beh1) Grammar drills and information gap activities are necessary for students to learn a second language.	(TPB1) "Fill-in" activities where correct answers are pre-set. (TPB2) "Multiple choice" activities.
(Beh2) Repetition is a good technique for language learning.	(TPB3) Orally repeat audio or video recordings (words, sentences and/or dialogues) to practice pronunciation.
(Beh3) Language mistakes should be corrected promptly in order to avoid bad habits.	(TPB1) "Fill-in" activities where correct answers are pre-set. (TPB2) "Multiple choice" activities.
(Beh4) Dialogues are a good method to model correct language use.	(TPB3) Orally repeat audio or video recordings (words, sentences and/or dialogues) to practice pronunciation.
Cognitivist Statements	
(Cog1) Learning a second language implies the acquisition of diverse skills in order to be able to communicate effectively and efficiently.	(TPCog1) Respond to questions by writing about a reading. (TPCog2) Respond to questions by writing about a video clip. (TPCog3) Orally respond to questions about a reading.
(Cog2) Students should complete activities in order, moving from less difficult to most difficult.	(TPCog4) Assignments that require two or more subsequent activities to be completed.
(Cog3) Students should review the lesson tutorial first before engaging in activities.	(TpCog5) Read an explanation or watched or attended a tutorial before being allowed to access or complete an assignment.
(Cog4) The correct use of language forms is more important than language use.	(TPCog6) Re-do (correct) writing assignments (small paragraphs or compositions) to improve their mark.
Constructivist Statements	
(Cons1) The sequence of learning materials and activities should be flexible to respond to different learning styles.	(TPCons3) Submit activities without first doing reading or watching a tutorial.
(Cons2) Guidance should be provided to students only when they request it.	(TPCons3) Submit activities without first doing reading or watching a tutorial.
(Cons3) Ability to communicate ideas is more important than language correctness.	(TPCons1) Participate in debates or discussions (synchronous or asynchronous, chats or video-conferences) about different topics of interest.
(Cons4) By working collaboratively, students have the opportunity to realize the gaps in their language learning.	(TPCons2) Assignments in teams (3 or more students). (TPCons4) Work in groups to create a presentation to be shared with the rest of the class.

Table 5.8 presents the intended association between the pedagogical statements and their teaching practices

Table 5.8 also indicates the Teaching Practices codes used. “TP” refers to “Teaching Practice” and the subsequent letter(s) to the pedagogical approaches with which they would normally be associated; “B” for Behaviorist, “Cog” for “Cognitivist,” and “Cons” for “Constructivist”. Chart 5.4 presents the frequency distribution of each teaching practice among the participants.

The frequency distribution in Chart 5.5 shows that teaching practices associated with the Behaviorist approach are the most frequently used by all participants: 68.8% of instructors make use of “fill in” activities (TPB1) on a very frequent or frequent basis; 60.2%, “multiple choice” activities (TPB2); and 64.5%, oral repetition activities. The Cognitivist practices are also frequently used by all instructors; they have a very frequent use rate that ranges from 39.8% to 75.25%. However, except for TPCog1, all Cognitivist practices have a lower use frequency than any of the three Behaviorist practices. Finally, the Constructivist practices were the lowest reported by instructors in relation to their frequency of use. TPCons1 is implemented by 38.05% of instructors on a very frequent or frequent basis; but the percentage of instructors who make use of TPCons2, TPCons3 and TPCons4 on a frequent basis is very low: 21.5% for TPCons2, 12% for TPCons3 and 12.9% for TPCons4. In a general sense, it is possible to say that Behaviorist teaching practices are the most employed by instructors, followed closely by the Cognitive practices; and correspondingly, that the Constructivist practices are relatively rarely used.

Chart 5-4 Frequency Distribution of Teaching Practices



As presented in the previous section (see table 5.1), instructors demonstrated a favorable tendency towards the three pedagogical approaches, but slightly ranking Behaviorism in the first place (average rating = .54), Cognitivism in the second (average rating = .48) and Constructivism in the third place (average rating = .44)[9]; the same ranking order as the teaching practices.

5.3.3. Relation between pedagogical preferences and teaching practices

In order to measure the extent to which online teaching practices accord with instructors' pedagogical preferences, a series of Gamma association tests were performed between the average pedagogical preference of each one of the approaches and the teaching practices. The average pedagogical preference was considered as an ordinal variable with eight possible values ranking from -1 to 1 (-1, -.75, -.50. -.25, 0, .25, .50, .75, 1), where negative values express an unfavorable position and positive values

[9] Negative values ($-1 \geq X < 0$) indicate a unfavorable position toward the pedagogical approach, a value of 0 a neutral position, and positive values ($0 < X \leq 1$) a favorable position.

a favorable positon; the 0 rank designates a neutral. The Teaching Practice variables ranked from 4 (very frequently delivered to students) to 0 (never delivered to students). Table 5.9 presents the results obtained from association tests between approaches and practices.

Table 5-9 Gamma Association Tests Between Pedagogical Approach Average Preferences and Teaching Practices

		Pedagogical Approaches					
		Behaviorist Pedagogical Average Preference		Cognitivist Pedagogical Average Preference		Constructivist Pedagogical Average Preference	
		Value	Sig.	Value	Sig.	Value	Sig.
Teaching Practices	TPB1	.212	.041	.071	.530	-.002	.989
	TPB2	.213	.035	.064	.576	.014	.906
	TPB3	.397	.001	.360	.360	-.206	.042
	TPCog1	.216	.048	.180	.141	-.040	.716
	TPCog2	.059	.600	.110	.353	-.033	.779
	TPCog3	.074	.527	-.063	.577	-.013	.900
	TPCog4	-.101	.356	-.128	.212	-.078	.475
	TPCog5	.304	.001	.279	.006	.033	.765
	TPCog6	-.037	.739	-.045	.979	-.004	.968
	TPCons1	-.062	.551	-.028	.798	-.108	.361
	TPCons2	-.027	.816	-.185	.107	.023	.854
	TPCons3	-.141	.196	-.184	.124	.100	.370
	TPCons4	.025	.830	-.193	.110	.212	.046

As table 5.9 shows, the Behaviorist average preference is significantly associated with the Behaviorist Teaching Practices; however, the relation is weak. The strongest association is between Behaviorist preference and TPB3, “Orally repeat audio or video recordings (words, sentences and/or dialogues) to practice pronunciation.” The Behaviorist preference also proved to be associated with TPCog5, “Read an explanation or watched or attended a tutorial before being allowed to access or complete an assignment,” which is not surprising since the Behaviorist approach prompts for teacher-centered learning.

The Cognitivist average preference is not significantly associated with any of the Cognitivist practices nor other practices, so it is not possible to make any inference. Nevertheless, it calls attention to the fact that the strength of the relationship obtained between participants’ Cognitivist preferred approach and Cognitivist Practices is not only

very weak, but also negative for some practices. Finally, the Constructivist average preference showed a significant result only with TPCons4, “Work in groups to create a presentation to be shared with the rest of the class,” yet the relationship was weak. The Constructivist preference also was significantly negatively associated with TPB3. The strength of the associations in the sample between the Constructivist and Constructivist TPCons1, TPCons2 and TPCons3 are very low, and in the case of TPCons1, it is also negative.

The results of these Gamma tests indicate that self-reported teaching practices accord with instructors’ average pedagogical preferences as gauged from the survey only in the case of Behaviorist approach. The following section discusses whether or not there is a statistically significant association between each one of the pedagogical statements and their specifically related teaching practices.

a) Relation between Behaviorist Principles and Practices

A series of Gamma tests were run to measure the association between the Behaviorist pedagogical statements and the teaching practices related to them. In all cases, the results show a positive relation, which indicates that the more favorable instructor are to the statement, the higher the frequency with which instructors report using the corresponding teaching practice(s). This indicates that for the sample of instructors, the teaching practices generally accord with the pedagogical statements. Nevertheless, the strength of the relations was weak in four of the dyads, and moderate and moderate to strong in the other two. (See table 5.10)

Table 5-10 Relation between Behaviorist Pedagogical Statements and Teaching Practices or Action

	Gamma	Sig.
Beh1 – TPB1	.216	.114
Beh1 – TPB2	.455	.005
Beh2 – TPB3	.718	.002
Beh3 – TPB1	.189	.114
Beh3 – TPB2	.089	.463
Beh4 – TPB3	.028	.901

The Gamma test results were significant only in two of the dyads: between Beh1 and TPB2 the association is moderate (G = .455, p < .05), and between Beh2 and TPB3 the association is moderate-strong (G = .718, p < .05). For all other Behaviorist dyads, the relations are not significant. Because Gamma is a "Proportional Reduction Error" measure, it is possible to conclude that knowing an instructor's preference toward the statement that "grammar drills and information gap activities are necessary for students to learn a second language," will help improve the prediction of the frequency with which multiple-choice task are delivered by approximately 45.5%. In the same way, knowing the preference towards the idea that repetition is a good technique for language learning, will help improve the prediction of the frequency in which instructors implement oral repetition activities to practice pronunciation by approximately 71.8%.

b) Relation between Cognitivist Principles and Practices

The only dyad that obtained a significant result was Cog3 – TPCog5 (G = .643, p < .05). Consequently, it is possible to infer that in online language courses, the more positive the instructor is toward the idea that "students should review lesson tutorials first before engaging in activities," the more likely instructors are going to require students to "read an explanation or watched or attended a tutorial before being allowed to access or complete an assignment." In other words, favoring the idea that "students should review the lesson tutorial first before engaging in activities", will help to predict better the frequency with which online language instructors will ask their students to read an explanation, or watch or attend a tutorial before being allowed to access or complete an assignment by approximately 64.3%.

Table 5-11 Relation between Cognitivist Pedagogical Statements and Teaching Practices or Actions

	Gamma	Sig.
Cog1 – TPCog1	032,	.937
Cog1 – TPCog2	-.233	.422
Cog1 – TPCog3	.031	.922
Cog2 – TPCog4	-.121	.416
Cog3 – TPCog5	.643	.000
Cog4 – TPCog6	-.084	.540

c) Relation between Constructivist Principles and Practices

Two of five of the Gamma test associations indicate a positive but weak association between constructivist pedagogical statements and their related teaching practices. For the instructors who participated in this study, having a positive preference towards a statement means that the teaching practice related to it will be applied on a slightly more frequent basis. What draws attention is that three out of five dyads showed a negative and weak relation; that is, having a positive to the pedagogical statement would marginally reduce the frequency with which the teaching practice related to it is employed, and *vice versa*. The association Gamma tests were not only weak, but not significant; so no inference can be done outside the participant sample.

Table 5-12 Relation between Constructivist Pedagogical Statements and Teaching Practices or Actions

	Gamma	Sig.
Cons1 – TPCons3	-.253	.143
Cons2 – TPCons3	.213	.123
Cons3 – TPCons1	-.182	.198
Cons4 – TPCons2	-.245	.194
Cons4 – TPCons4	.022	.407

The fact that the relation between the pedagogical statements and the self-reported teaching practices were not strong suggests that instructors' teaching practices do not strongly accord with their stated pedagogical preferences. The Behaviorist teaching practices were all in accordance with their pedagogical statements, but three out of six of the Cognitivist dyads and three out of five of the Constructivist ones showed negative relations, which indicates that such pedagogical preferences are not supported by the instructors' teaching practices. In conclusion, it is possible to say that Behaviorist pedagogical stated preferences are clearly better supported by the participants' teaching practices than the Cognitivist and Constructivist stated preferences. In other words, regarding study participants, this section of the study found that there is evidence to suggest that when teaching online through a LMS, instructors´ self-reported teaching behaviors and design for student activities do not accord with the stated pedagogical approach preferences in relation to the Cognitivist and Constructivist approaches.

5.4. Perception of the major pedagogical sacrifices and gains when teaching online.

Research question 4 (Qualitative strand):

How is teaching online through a LMS related to language instructors' teaching practices and perceived ability to enact their pedagogical preferences?

- What do online language instructors perceive to be the major sacrifices they make pedagogically when teaching online?
- What do online language instructors perceive to be the major pedagogical gains when teaching online?

The purpose of this final section is to present what online language instructors perceive to be the major pedagogical sacrifices and gains when teaching online using a LMS. Up to now, the majority of the analysis has relied on quantitative analyses, but to fully describe how teaching online through a LMS relates to language instructors' enactment of their pedagogical preferences, open-ended questions on the survey probed their perceptions. In this section, qualitative data analysis was performed in order to reflect the detail, complexity and multiple perspectives that influence the practice of teaching languages online.

In the online questionnaire, participants were asked to indicate what they perceived to be the major pedagogical limitations and gains when teaching a language online through a LMS. They were asked to mention at least one issue and a maximum of three. Additionally, they were asked to indicate what they perceived to be the major challenges. All participants' open-ended responses were qualitatively analyzed using an inductive coding method.

The responses of 76 participants were analyzed[10]. Participants' responses were in general short and concrete, varying from a simple expression, such as "oral skill," to paragraphs of no more than six sentences.

[10] From the 97 participants, 76 answered these questions. 21 participants did not.

Code labels were assigned following a descriptive method by using phrases to summarize the basic topic of a phase or sentence (Saldaña, 2009; Miles et al., 2014). The codes that emerged from the data analysis were grouped into categories and then consolidated into broader themes (Saldaña, 2009). The coding and categorization of the pedagogical limitations and gains were conducted separately; however, after perceiving similar overall themes, a comprehensive thematic scheme was developed. At the end, six themes were assembled. The coding framework obtained from the data analysis is presented in Table 5.13. The Table also indicates the frequency of texts coded in each category and theme.

Table 5-13 Coding Framework Created from Instructors' Opinions About the Major Pedagogical Limitations and Gains when Teaching Online Trough a LMS

Theme	Sub-Theme	Category	Coding	Freq.
Theme A: Learning Community and socialization				17
		Limitation: Learning Community and socialization		15
			- Limits or doesn't allow building a learning community and socialization into it - Lack of face to face experience (because it impedes socialization) - Lack of or reduced interactions (contact/exchange) with peers	
		Gain: Learning Community and socialization		2
			- Promotes building a Learning Community and Socialization - Promotes interactions (contact/exchange) with peers	
Theme B. Language learning				
	Natural language and authentic materials			30
		Limitation: Natural language production		25
			Controlled answers and utterances Lack of or reduced meaningful interactions Spontaneous conversations	

	Gain: Exposure to authentic multimedia materials	5
	Access to cultural materials via web-links, internet search and web pages	
	Cultural enrichment	
	Exposure to multimedia	
	Practice more than one skill at a time	
Group and collaborative learning		9
	Limitation: Group or collaborative activities	8
	Makes it difficult to carry out group activities or collaborative language activities. This refers to both synchronous and asynchronous activities	
	Gain: Group or collaborative writing activities	1
	Facilitates collaborative writing activities.	
Oral skill production		20
	Limitation: Oral Skill production	20
	Obstructs activities such as oral repetition and reading aloud	
	Student pronunciation and fluency that can be supervised and or evaluated	
	Student-student or student-instructor oral activities.	
Feedback		15
	Limitation: Inappropriate feedback.	8
	No personalized/tailored feedback	
	Inadequate or insufficient feedback	
	Doesn't reach students (students don't view it)	
	Not quick (on time) feedback	
	Gain: Feedback	7
	Automated (instant) feedback	
	Written feedback useful for students (gets to students)	
	Tailored feedback	
	Higher amount of feedback than F2F	
Theme C. Course and activity administration		
Synchronous interaction arrangements		14
	Limitation: Synchronous interaction arrangements	14
	Students setting a time to work in pairs or groups	
	Organizing synchronous online class lectures (Virtual classrooms)	
Time for preparation and/or monitoring		10
	Limitation: Time for preparation and/or monitoring	6
	Requires a lot of time to prepare and deliver the class.	
	Requires a lot of time to monitor and grade students' activities.	

Gain: Facilitates and eases course administration	4
Saves time in course administration (course development, material preparation and grading)	
Eases course organization	
Provides all course info in one location (course platform)	
Theme D. The role of the instructor	
Instructor-student relation and exchanges	19
Limitation: Instructor-student relation and exchanges	14
Limits or reduces the quality of the relation and the amount of interactions. This refers to both the quality of the relation and the amount of interactions	
Gain: Instructor-student relation and exchanges	5
Allows personalized attention to students	
Exists more interaction (contact) with students	
Monitoring student actions	11
Limitation: Monitoring student actions	9
Gauging student reactions (facial)	
Monitoring student preparation and participation	
Supervising students “in action”	
Gain: Monitoring student actions and preferences	2
Monitoring student preparation and participation	
Supervising student needs	
Instructor control over course design and progress	7
Limitation: Control over course design and progress	7
Reduces instructor’s ability to make decisions over the structure and design of the course.	
Reduces instructor’s ability to modify it when already in progress.	
Theme E. Online learning in general	
Student profile and online media environment	40
Limitation: Student profile and online behaviour	33
Student low motivation and absenteeism	
Poor student time management	
Conflicts with students’ work/life duties and schedules	
Cheating	
Not all students “can handle” online learning	
Gain: Online media environment	7
Provides a low stress environment, it is motivational and enjoyable.	
Encourages student work and engagement	
Student centered	35
Limitation: No student differentiation	7
The use of same materials and learning process for all students	
No attention to varying learning styles	

	Instructor inability to respond to student-specific needs	
Gain: Student centered		17
	Work at one's own pace	
	Access activities when needed.	
	Spend time effectively (focused attention)	
Gain: Multiple accessibility		11
	Opportunity to practice (repetition)	
	Multiple access to learning materials	
Software and connectivity		43
Limitation: Software and connectivity		31
	Problems of connectivity and accessibility (Internet)	
	Lack of knowledge and/or familiarity with LMS tools	
	Tool restrictions	
	Tools not working smoothly	
	Special language characters (e.g. Oriental and Asian languages)	
Gain: Software and connectivity		12
	Convenience and practicality	
	Makes possible access to learning materials anywhere and anytime.	
Enrollment and Course offerings		13
Limitation: Student retention		3
	High level of dropouts	
Gain: Higher enrolment and offer of different courses		9
	Facilitates access by non-traditional students (broader audience)	
	Increases student enrolment	
	Cost effective	
Theme F. Differences between online and face-to-face modalities		
	Explicit comparisons between online and face-to-face modalities.	22

5.4.1. **Theme A. Learning Community and socialization**

The main difference between instructors who mentioned the online medium as a limitation for socialization and formation of a learning community, and instructors who saw it as gain, was the fact of physical contact among the members of the learning community. Some instructors mentioned that socialization was impeded not only

because “Students have less interaction with one another” (P97)[11] but also because of the “lack of face-to-face experience” (P58), “human contact” (P39) and “human interaction not as frequent as in the traditional classroom” (P72). The amount of individual work and asynchronous activities was also mentioned as a factor that obstructs building a learning community: “Students get too much of a feeling of being disconnected as a class when everything is asynchronous and individual” (P37). The lack of physical contact as an impediment of socialization was also noted from the instructor-student perspective: One of the limitations of teaching online is “not seeing the student and being able to create an emotional rapport with him or her” (P55). On the other hand, the two instructors who indicated the creation of a learning community as a gain of the online medium were very specific and did not mention any need for physical contact: “There are (or could be) more interaction among students, so the learning community is reinforced” (P43) and “I think the synchronous and asynchronous environments work together to create a very strong learning community” (P92).

5.4.2. **Theme B. Limitations and gains that refer to language learning**

The theme of limitations and gains that refer to language learning was divided into four sub-themes.

Natural language and authentic materials.

One common sub-theme that was derived from participants’ responses was the idea that online language courses do not favor the production of “meaningful” and/or “spontaneous” interactions, or what some participants literally described as “not getting enough exposure to ‘natural language’"(P77). Instructors mentioned that students “may learn the grammar but they cannot produce meaningful interactions with other students” (P30), or “do not get the opportunity for spontaneous speaking” (P10). The limitations were also directed to the role of the instructor as facilitator, since it was a challenge “giving students authentic speaking practice that is spontaneous” (P10). An instructor also expressed the view that online media restrict the production of natural language by using “questions that have a limited range or only one answer” (P71).

[11] All participants were assigned a random number. The “P” denotes “Participant”.

A central idea of the sub-theme of “natural language” referred to the issue that communications and/or activities in an online course are normally not carried out in real time. As participants expressed, one of the limitations of online language courses was “real-time oral communication” (P20), “speaking with others,” and that “students do not get ‘real life’ language interaction the way they would get it in the classroom.” One instructor acknowledges the existence of diverse LMS tools to carry out real-time exchanges, but sees them as very impractical, and even unfair: “the Real-time oral communication (I know chats are available and can be assigned, but they're hugely impractical and frankly unfair to assign when everything else in the course is asynchronous” (P37).

While some instructors found limitations to the production of a natural language in an online course, others saw online teaching as a means of exposing students to authentic materials, which are also an important part of language learning. As participants expressed, multimedia materials not only allow a “student to hear multiple voices in the language, and in multiple video contexts (which is not possible in a classroom)” (P18), but they also “…help to practice more than one skill at a time” (P43). Multimedia materials also are a means to provide “cultural content” (P81) and an “experience [that] can be very culturally-rich within the class room, even without the added En Vivo and YouTube 'realia' experiences” (P69).

It is interesting to note that the cons in this sub-theme essentially focused on speaking skill, while the pros focused on aural and visual reception.

Group and collaborative learning

Some instructors expressed the view that implementing activities which require “group work” (P36 and P46) or trying to make students work collaboratively in groups were limitations of the online medium. One of the instructors explained that the key problem was scheduling, “due to the varying schedules that students have” (P94), while another expressed that “even though we try to create synchronous group oral activities, it only works when students work in pairs” (P80). “Collaborating with another group when a group is done” (P96) was also mentioned as a limitation. In this sub-theme, only one participant mentioned collaborative work as a gain of the online medium, and this was restricted to “collaborative creative writing” (P37).

Oral Skill production

Some participants expressed the view that the online medium limited the practice of oral skill, or made it difficult. This category does not refer to oral production in order to promote communicative or natural language exchanges, but exclusively to the difficulty to implement, to carry out, and to supervise the practice of oral skill in the target language. Many instructors expressed their concern about the limitation for students to practice the oral skill in simple statements such as “lack of speaking” (P85) or “lack of oral production activities” (P87).

In this sub-theme, “pronunciation” or “practicing pronunciation” (P13, P35 and P69) was a specific concern. Some participants were more precise, indicating that one of the limitations was “not having a teacher to correct their [students’] mistakes or pronunciation” (P8), or simply not being able to “teach pronunciation” (P70). Finally, one of the instructor’s concerns was “how to make the students do oral activities to use the grammar and vocabulary in their conversations” (P11); that is, s(he) focused on the problem from a design perspective.

Feedback

The two categories of the feedback sub-theme directly contradict each other. On one side, participants explained the following limitations: the “lack of appropriate timely feedback on work” (P71), “giving the appropriate personalised feedback to each student, in over-50-student classes” (P1), providing “feedback that isn't tailored to the student's error [and…] appropriate timely feedback on work” (P71) or that the “types of feedback available [is] not always as nuanced as they could be” (P33).

On the other hand, other participants expressed exactly the opposite view; that is, they saw the online environment as a medium that provides “opportunities for automated instant-feedback activities” (P74), or “immediate feedback from targeted grammar focused activities” (P37). One of the participants also saw the online course as a better medium to provide personalized and more efficient feedback than in face-to-face courses: “Students are very attentive to all written feedback, even with regards to spoken activities. The ability to go through [an] assignment thoroughly and offer detailed feedback is a major advantage that is not necessarily possible when assessing live, interactive assignments in a normal classroom” (P24).

5.4.3. Theme C. Limitations that refer to course and activity administration

The theme of limitations and gains that refer to course and activity administration was divided into two sub-themes.

Synchronous interaction arrangements

In this sub-theme, instructors expressed problems with scheduling and carrying out real-time interactions. Most of the participants were very precise about the point that carrying out synchronous communications were very problematic because of students' profiles and different schedules; as one instructor expressed, "Interactive participation among students is difficult to manage partially because students taking online courses with my home university are generally also employed either part or full time and arranging live, interactive assignments on a regular basis cannot be done with conflicting schedules" (P24). Students' different schedules also bear upon the feasibility of setting synchronous classes or virtual sessions: "Scheduling Synchronous sessions to fit everyone's schedule" (P42), or as P60 expressed more extensively "One limitation would be the fact that our university does not schedule online synchronous classes for Online courses. So, I schedule my weekly online synchronous classes. Some students are not able to attend all classes due to clashes with other courses or clashes with their work schedules."

Time for preparation and/or monitoring and course administration

Another limitation that participants noted was how much time instructors required to prepare and deliver activities. Some of the reasons were indirectly referred to the LMS tools' operation. Participants expressed that in group activities, "regrouping them [students] is time consuming" (P96), and that it required time "to upload and download [content]" (P28). Another participant (P92) also expressed that it was time consuming preparing content for an asynchronous environment. The concern about the amount of time instructors spent in an online course was also directed to the grading issue:

> The courses vary greatly in real time on how much time the instructor needs to spend on the course: slow and methodical during completion of homework, but overwhelming time-wise during major testing (P18).

On the other hand, one of the positive aspects of online language course via LMS was “the course management aspect” (P66). For some participants, the LMS provided “flexibility in time management” (P12) and a “one-stop shop for all course details and work” (P7).

5.4.4. Theme D. Limitations and gains that refers to the role of the instructor

This theme was divided in three sub-themes.

Instructor-student relation and exchanges

The first sub-theme refers to the relation existing between the instructor and the students, and its categories directly contradict each other. Most of the comments conveyed the idea that not only was the amount of interactions between students and instructors lower in online courses, but the emotional and physical-contact factors were sacrificed. Instructors mentioned that limitations in online courses were that “instructors do not get to know the students as much as in a face-to-face class” (P12), “the relationships with individual students is missing” (P38), “not seeing the student and being able to create an emotional rapport with him or her” (P55), and “the lack of direct contact with students” (P89).

Other instructors expressed exactly the opposite view, that the relation between the instructors and the students was an advantage of the online format. Personalized attention to students was mentioned repeatedly: “individual attention” (P5 and P26), “dealing with a student one on one” (P46), and “students have a personal tutor […] with the ability to ask me questions while working through exercises” (P54). One of the participants expressed the view that the relation was even better than in face-to-face courses: “I get to know my students much better through my online writing courses. They also work on a more regular basis than in a face-to-face course. They complain they would like to have the face-to-face contact to be able to ask me questions any time. They don't realize I am more accessible on my online courses than in my regular ones, as they can always contact me through social media, for instance” (P91).

Monitoring student actions

For some participants, teaching via LMS does not allow supervising students "in action," that is, it impedes their ability to check what students are doing and how they are doing it. Concretely, participants mentioned that without the ability to be (physically) with students, it was not possible to gauge "facial and gesture expressions" (P84) and that it was "harder to tell who is shy, who is more outgoing, who needs to be helped more or less" (P38). Instructors were also concerned about the "difficulty in monitoring student participation and preparation" (P19), "not being there to foster meaningful discussion, clarifications, or further give information" (P43), or students "not having a teacher to correct their mistakes or pronunciation" (P8). In almost all comments, comparisons to what they can do in a face-to-face class was mentioned or implied. For example: "I can't be directly with the students to make corrections at the moment they are creating dialogues and using grammar when they are doing their assignments as we do in face-to-face classes" (P11)

Two participants who mentioned monitoring students' actions as a benefit of online courses did not focus on the real-time aspect, but rather on their monitoring and course designer role. One instructor expressed that "the teacher can follow very closely what the student is doing and when" (P18) and the other that "the course can constantly be improved and updated according to student feedback and tracking the exercises and topics which are most challenging to them" (P33).

Instructor control over course design and progress

According to some participants, teaching online via LMS impedes or reduces instructors' ability to make decisions over the structure and design of a course, as well as their ability to modify it when it is already in progress. One participant stated that a limitation of using a LMS was the "lack of flexibility in course design" (P87) or, as another stated, the LMS offers a "very rigid structure (modules, forums, difficulty of adding links, etc.)" (P91). The lack of instructor control is even clearer in pre-set courses:

> My college made the online courses 'state-wide' courses, so the instructors don't have any say in the activities, grading, etc. (P59)

One of the instructors was very explicit on this point:

> At our university the online courses are pre-set up by a member of the department and are the same for all instructors and students. Because of this, less of my personal teaching style comes through, as I am bound by the structure of the course. This saves a lot of preparation time on my part, but it does mean that I can't always teach exactly the way I might otherwise. (P38)

The same instructor indicated that (s)he can't change the structure or content of the course, but that (s)he "tr[ies] to give feedback to the creators of the course whenever [(s)he] come[s] across something that has proven to be difficult for students to understand or something that is incorrect (e.g., answers on an exam)" (P38).

5.4.5. Theme E. Limitations and gains that refer to online learning in general

In this theme, instructors' comments referred to online media in general, and not to the specifics or particularities of teaching languages. This theme was divided in four sub-themes.

Student profile and online media environment

The sub-theme refers to the profile and online behaviour that instructors perceive in their online students. Four main student characteristics were described as being associated with course development and delivery: busy schedules because of work, low motivation and high absenteeism, poor time management, and personal ethics.

A very common view among instructors was that many online students are working or have full time jobs that make the implementation and scheduling of interactive, pair, or group activities difficult. As some mentioned, "students have different schedules and it is hard to get together on line" (P72), and "interactive participation among students is difficult to manage partially because students taking online courses with my home university are generally also employed either part or full time and arranging live, interactive assignments on a regular basis cannot be done with conflicting schedules" (P24) or "some students are not able to attend all classes due to clashes with other courses or clashes with their work schedules" (P60).

The second concern mentioned by instructors was “keeping students' motivation high” (P21, also P8, P37 and P65) and maintaining “student engagement” (P29). Participants also stated that one of the problems was the “apathy on the part of some students who eventually drop out!” and, consequently, “the biggest challenge [was] keeping students from dropping out” (P68). One of the participants explained that the number of students who drop out was very high because “some students get discouraged and cannot find a way to overcome their problems. Some students feel isolated” (P80). One participant also stated that that the “lack of a visible instructor/authority figure leads to a high level of absenteeism” (P78) and the mixture of different levels of motivation and type of students was a challenge for the design of certain activities:

> Classes are heavily mixed with highly-motivated and very lowly-motivated learners, traditional and non-traditional learners, and all points in between, so it is hard to build materials that can cover such a large range of motivations and competencies. (P78.)

On the contrary, other participants saw online courses as a “low stress environment” (P39). As they expressed, it is “less stressful for students who have anxiety from talking to an instructor or in front of peers” (P52) or where “students can complete oral assignments with less stress because no one is there to hear them, and they don't have to submit until they are fully satisfied with it” (P59); in the online environment “speaking without eye contact engages the thinking process more, the student is more apt to think of his responses and not worry about negative reactions” (P28).

The third student profile which participants described as a limitation in online courses was “student time management” (P69). Some instructors felt that online students don’t “[keep] track of their time” (P39), or “think they don't have to do the work and/or wait for the day assignments are due!” (P68), so it was a challenge [to] “have students submit their work on time” (P48). Two participants explained that it was a limitation for students to keep “pace in the course because of infrequency of meetings (collaborate)” (P28) or because they “tend to have over-saturated scheduling and cannot invest the time needed” (P33).

In some cases, the working profile and time management were side-by-side problems:

> My students are often non-traditional, have a full-time job, a family and are carrying 2-4 courses per semester so that they spend little time on a weekly basis and "zoom in" to do the posted assignments, tests, or discussion board postings. (P69)

Again, there were participants who expressed the opposite view, explaining that "online students are more engaged on a sustained basis than […] face-to-face students" (P32) and that "they also work on a more regular basis than in a face-to-face course" (P91).

Finally, the issue of the ethics of online students was raised by some participants. Some specific limitations were "ensuring that the work students contribute is their own" (P86) and "verifying the true identity of the student" (P94). Cheating was also a concern: "I think that quizzes, tests, etc. are a challenge. We use Respondus Lockdown Browser to prohibit them from accessing other sites during their online tests, but there is no guarantee that they aren't using notes, assignments, etc. I do have them create an Honor Code Wiki" (P93).

Student centered

The 'student centered' sub-theme was the only one in which instructors mentioned more "gains" than "limitations." Some instructors expressed the belief that online courses were not "able to provide a learning experience based on the needs and characteristics of each individual student" (P1) or deal with "different learning styles and motivation" (P8). One of them mentioned that "in on-campus teaching I feel that I can tailor my teaching to fit different students' learning styles, but online it's more of a one-size-fits-all course" (P38). The fact that students were not in control of their own learning process was also indicated:

> The control of a LMS is always in the hand of the teacher (except for group work maybe). Student can't really take ownership of their learning. They just follow the structure, the path, the rules of the designer/teacher of the LMS based course. (P91)

While some instructors perceived their online courses as a general framework for all kinds of students, most of them saw them as a suitable medium for a 'student centered' style of learning because student needs and learning styles were recognized. Two of them concretely stated that in online courses "students gain the potential of personalizing their learning experience, by deciding how to interact with the material

provided. The learning process is truly "student-centric" (P1), and it “can offer more of a self-paced style of learning, so in a sense in can be more learner centered” (P6).

The fact that students can work at their own pace and access learning material when needed was commonly mentioned. Some participants were very brief in this aspect, stating that one of the gains was “independent learning that allows students to go to their own pace” (P89) or that “students decide their own way and time to access the material” (P43). Other participants describe this point in more detail:

> The students work at their own pace and can spend the time they want on one type of activities. if they have grammar difficulties, they can spend more time watching the tutorials and can do more exercises. Other students may simply skip the tutorials if they don't need them and concentrate on other skills. (P80)

And,

> My content contains sound files for all new vocabulary and students have access to these sound files during the entire semester. So, students can always go back to the online content and replay these files to assist them with correct pronunciation of words with which they have difficulty. (P60)

One of the participants also indicated the fact that “the course can constantly be improved and updated according to student feedback and tracking the exercises and topics which are most challenging to them” (P33), which also contributed to making courses more tailored to students’ needs each time.

The category of ‘multiple accessibility’ refers to the idea that the online system gives students the opportunity to access material multiple times (repetition) and in different ways according to their own needs and preferences. Participants explained that “students have the advantage to repeat the tutorials as many times as needed” (P51), which gives students “lots of chance for practice” (P49) and “better access to materials and hence more exposure to the L2” (P47). P60 explained that “students can always go back to the online content and replay these files to assist them with correct pronunciation of words with which they have difficulty.” In the same way, P82 states that the online course “encourages repetitious & frequent language exposure & use by having immediate connections to the content online.” Even more, “students gain communicative competence by doing numerous online activities and assignments” (P8).

Software and connectivity

Many participants expressed their concern about software and online connectivity problems, as well as their advantages. Basically, the advantages were directed to issues of convenience and practicality – that is, that having a platform makes access to learning materials anywhere and anytime possible. Participants indicated that online courses were good for "saving travel time" (P35) and offered "flexibility for students to take the course anywhere anytime" (P57). Although students' different schedules were perceived as something problematic to organize synchronous meeting or activities, some instructors mentioned that this was also a benefit for students since they "can complete the materials and work on the course whenever it is convenient for them" (P64). One participant felt that the online medium facilitates students' contact with the target language: "Students get a strong grasp of writing in a foreign language, which, considering the geographic distance between here and the target culture, presents the most likely medium through which they will encounter the language" (P78).

On the other hand, participants expressed many concerns about software or connectivity problems. One group of limitations was focused on LMSs in general, stating that they offer "limited options" and are "not very flexible or adjustable" (P95). One instructor explained that the "LMS is limiting in terms of how to present information (design and such of info), choices in assessment tools limited" (P6). Others mentioned that a limitation was the "integration of media (audio-video files) in content and students' activities due to limitations of Sakai to handle media files" (P66), or "…the amount of time required to create online content, due in part to clunky page creation tools (that often require html for proper formatting) and data loss during the creation of content" (P92).

Some participants were more specific, and directed their concern to tool restrictions such as "online quiz's recordings do not play properly sometimes" (P21), "to have more than one student record their dialogue" (P47), "the use of Video conferencing" (P22), "various segments of the LMS - such as the Grade Book" (P32) or "no captioning for the videos that I have made" (P93). Instructors of Asian and Oriental languages mentioned that handling non-western characters such as Chinese (P35) and right-to-left languages such as Hebrew (P46) were also limitations.

"User/Students' lack of computer skills" (P12) was also indicated as one of the limitations of online learning. Participants indicated that "students new to the university have difficulty navigating the Learning Management System" (P24) and expressed the need for "less tech-savvy students" (P7) to "get used to technology" (P8). As an example, one participant indicated that a limitation was "having students listen to audio feedback - after they submit recordings they can compare their answers w/native speakers, but I don't know how many actually do that" (P54).

Issues related to technology were also expressed, such as "connectivity" (P37) or "interconnectivity" (P69), "glitches on the system" (P36) and "technology issues [that] are common in the synchronous environment" (P92). As one participant simply expressed, "Sometimes technology fails" (P96).

Enrollment and Course offerings

In this category, participants noted that student retention is a challenge in online courses. Feelings of isolation, apathy and difficulty staying on schedule were noted by participants. With regard to feelings of isolation, one noted: "The number of students who drop is very high. Some students get discouraged and cannot find a way to overcome their problems. Some students feel isolated" (P80). With regard to apathy, another mentioned: "apathy on the part of some students who eventually drop out!" (P68). Another participant mentioned scheduling challenges: "the fact that students find it often challenging to stay on schedule compromising their chances of completing the course" (P64).

One of the pedagogical gains mentioned in this category "is the flexibility available to adult learners" (P48) and that "students have access to languages and levels not offered face-to-face" (P55). The possibility to target non-traditional students is also noted; "a wider range of students (40+ year-olds, veterans) get exposed to a liberal arts education" (P78) or "students who don't usually have access to higher ed due to their locations/situations (military overseas, rural area with no colleges, working people and parents that can't attend regular classes) have an opportunity to learn. Students who are very shy and introverted sometimes feel more comfortable online" (P77). Further, for some less sought-after languages, "like Portuguese which can be difficult to locate locally […] online course[s] can target a broader audience" (P58).

Last of all, participants mentioned as an advantage the fact that online courses are financially beneficial for academic institutions: “A gain is that more students are taking online classes than face-to-face” (P93) since this media “provide[s] access to those who otherwise would have no access” (P95) and they provide “cost effectiveness for the university” (P65).

5.4.6. Theme F. Differences between online and face-to-face modalities

In some of the previous categories, the limitations or gains that instructors mentioned in online courses involved (explicitly or implicitly) a comparison with face-to-face classes. Instructors compared what they can do, normally do or are used to doing in their face-to-face classes and explained what cannot transfer or be done in the same way in their online classes.

One limitation mentioned was not being able to be physically present either to correct students at the moment or be responsive to learning styles: to “make corrections at the moment [students] are creating dialogues and using grammar” (P11) and to “tailor my teaching to fit different students' learning styles” (P38). However, a common perceived limitation was the human emotional factor; as participants expressed, in their online courses “instructors do not get to know the students as much as in a face-to-face class” (P12) and there is a “lack of face-to-face experience” (P58). The lack of physical contact was also expressed as an issue for the students: “Students do not get ‘real life’ interaction the way they would get it in the classroom” (P64).

Instructors also saw gains in their online classes when comparing them to the face-to-face courses. Some participants explained what can be (better) done in the online environment and which is not practical or possible in a physical classroom. From the side of the instructor, some gains focused on better feedback and more responsiveness; for example, a participant explained that “the ability to go through assignment thoroughly and offer detailed feedback is a major advantage that is not necessarily possible when assessing live, interactive assignments in a normal classroom” (P21). Another instructor, as already mentioned (5.7.4.1.) stated that students “complain they would like to have the face-to-face contact to be able to ask me questions any time. They don't realize I am more accessible on my online courses than

in my regular ones, as they can always contact me through social media, for instance" (P91). Various gains for students were also mentioned: "The ability for the student to hear multiple voices in the language, and in multiple video contexts" (P18), "compared to F2F, students have better access to materials and hence more exposure to the L2" (P47), "online students are more engaged on a sustained basis than my face-to-face students" (P32) and "students have access to languages and levels not offered face-to-face" (P55).

5.5. Chapter summary

Chapter 4 centered on which LMS components were most used by instructors, and whether those components facilitated and/or constrained the development and implementation of different activities in fully online language teaching. This Chapter focused not only on the relationship between the reported use of different LMS components and the self-reported pedagogical approaches of online language instructors, but also presented a qualitative analysis of participants´ perceptions about how teaching online through a LMS influences their ability to enact their pedagogical principles.

At a first glance, this study showed that instructors have a favorable view of Behaviorist, Cognitivist and Constructivist approaches, but place Behaviorism slightly over the other two approaches, Cognitivism in the second place and Constructivism in the third. The study also revealed that no significant association between the stated pedagogical preferences of instructors and most of the LMS components frequently used, with the exception of Announcements, Document sharing, and the Whiteboard.

In relation to the language taught, the results showed a significantly positive association between the Constructivist approach and Spanish, but a negative association with Romance languages. This calls for attention given that both groups are strongly related in terms of linguistic similarities. Finally, in relation to the number of years of online teaching experience, the only group that showed a statistically significant association was instructors with 1 to 3 years of experience, who do not favor Behaviorist pedagogical statements.

The final step of this analysis was to examine whether or not there is a relationship between teaching online through a LMS and language instructors' ability to enact their pedagogical preferences. Analysis showed that Behaviorist teaching practices are the most frequently used by online language instructors using LMSs, followed by the Cognitivist, and finally, Constructivist practices. The results also showed that the type of teaching practices that instructors reported implementing are in agreement with their pedagogical preference only in the case of instructors with an orientation toward the Behaviorist approach.

Finally, regarding instructors´ perceptions, the results indicated that instructors with a stronger preference towards Behaviorist and Cognitivist approaches express less of a necessity to yield their pedagogical preferences when teaching online. Conversely, instructors with a stronger preference towards the Constructivist approach express a stronger necessity to yield their pedagogical preferences when teaching online. Therefore, even though there is no evidence to clearly address the research question, it is possible to see a tendency towards the implementation of Behaviorist practices when teaching online through a LMS.

The qualitative research findings presented in the second part of the Chapter provided a deeper insight into online teaching practice, and more specifically, the role that LMSs play in online language teaching. After reviewing what instructors perceived to be the major limitations and gains of the online medium, six major themes were compiled: 1) the formation of a learning community and socialization, 2) language learning, 3) course and activity administration, 4) the role of the instructor, 5) online learning in general, and 6) differences between online and face-to-face modalities. In general, the major limitation that instructors indicated when teaching online were the lack of physical contact among students and between students and the instructor, the difficulty to organize and successfully carry out synchronous communications or group-based activities, implement and supervise activities focused on the oral skill production, the time instructors require to prepare and deliver activities as well as to give personalized feedback to students, instructors´ lack of control over course progress, instructor perceptions over students´ profile and online behavior, LMS software restrictions and connectivity issues, and the large percentage of student drop offs. On the other hand, the major gains of the online medium that participants expressed focused on flexibility and the authentic learning materials that the online medium

provides, as well as on the idea that online courses can promote student-centered learning based on student characteristics and styles. The convenience in relation to time flexibility and accessibility was also stressed as a gain.

The qualitative findings provided deeper understanding and appreciation of the role that LMSs play in online language teaching and in many aspects, corroborated the quantitative findings which will be discussed in the next chapter. The following and last Chapter provides a summary of all findings related to the research questions, and discusses the major implications in detail. It also provides the author´s vision from her own experience as an online language instructor, states the limitations of the present study, and offers some general suggestions for further research.

Chapter 6.

Discussion of Research Findings, Conclusions and Implications

This study adopted an Educational Technology perspective in which the use of LMSs for foreign language learning was regarded as a question of learning design. The assumption of the research was that a well-designed LMS for language learning, and a well-planned use of the tools and capabilities of existing and commonly used LMSs, could flexibly support varying theory-based conditions for learning and teaching languages. Therefore, it concretely pursued two research objectives: 1) to analyze whether LMS components facilitate and/or constrain some language learning activities and pedagogical approaches, and 2) to examine the extent to which language instructors can exercise their pedagogical preferences when teaching in existing LMS environments. Then, four research questions were set to guide the study. The first three questions address the first objective, and the fourth explores the second objective.

Research Question 1:

What are the LMS components most used by online language instructors?

Research Question 2:

What is the relationship between the use of different LMS components and the learning activities provided for students?

Research Question 3:

What is the relationship between the use of different LMS components and pedagogical approaches?

Research Question 4:

How is teaching online through a LMS related to language instructors' teaching practices and perceived ability to enact their pedagogical preferences?

Chapter 4 focused on the use of LMSs and their component tools, presenting the statistical findings relevant to research questions 1 and 2; in Chapter 5 focused on the learning activities instructors reported using and the pedagogical approaches they aligned with, presenting the statistical findings relevant to question 3 and analysis of quantitative and qualitative data relevant to research question 4. The following sections will first summarize the significant findings; they will examine the implications of these findings for the online language teaching practice, and then they will discuss the limitations of this study and propose some directions for future research. Finally, some concluding thoughts will be offered.

6.1. Summary of Research findings

This section provides an integrated picture of the findings within the context of the research questions.

6.1.1. The LMS components most used by online language instructors

In order to analyze how different LMS components may facilitate and/or constrain learning activities and pedagogical approaches in fully online language teaching, the first step was to find the frequency with which LMS were used by language online instructors, and whether the specific characteristics and design of each LMS were influencing the use of such tools. It was considered that the language taught could be a factor affecting the use and selection of tools, not only because each language has its own characteristics (syntax, grammar, character set, etc.), but also because of different preferences in teaching methodology that may be characteristic to each language. For example, it could be the case that Oriental colleagues may have some preference for the direct method instead of a student-centered method which is generally adopted in Western European language courses. The third factor that was introduced was

instructors' experience in online teaching. In much of the literature reviewed, instructor training and knowledge of the online medium was suggested by researchers as a predictor of success for online language instruction (Compton, 2009; Hampel and Stickler, 2005; Shelley *et al.*, 2006; Yun, 2011), so instructor´s experience was examined with a view to discovering differences among the different levels of teaching experience (quantified as years of instruction).

The data analysis showed that the LMS components most used by the participants were the reporting, asynchronous communication, and informational tools; specifically, the grade book, email, announcement area, course content modules and the links and files tools. These results indicated that LMSs are largely used to communicate course requirements to students and let them know how well they have met these requirements, which is an essential part of a credit-based course. On the other hand, the least used components were, surprisingly, the synchronous and collaborative tools, that is, chat rooms, whiteboards, multimedia rooms; peer review, whiteboards, Wikis, and document sharing. The low scores of those tools stand out because they are tools that can facilitate social-constructivist learning.

The nonparametric statistical tests used to analyze to which extent the LMS used, the language taught or the online experience of instructors affected the reported use of LMS components indicated significant associations only for a few of the tools: email, the announcement area and the document sharing capability. According to the results, the LMS used only affected how frequently instructors used email with students. The logistic regressions showed that instructors using a publisher's LMS tend to use email less than instructors who use Blackboard, but instructors who use Angel Learning tend to use it more. The fact that instructors who are using a publisher's LMS tend to use email less is not surprising since in all cases such LMSs are not the same as the ones selected by the institution or department, and using a third-party email for academic purposes would not be practical (or possibly not permitted). Among the reasons provided by Angel Learning instructors as to why all of them use this LMS email was its connection with other LMS features like chatrooms and the drop-box; but this, as was also mentioned, is not an exclusive asset of Angel Learning. Furthermore, it has to be considered that 60% of the instructors who reported using Angel Learning were from the same university, which may be an indication of the way they are trained to use that tool (formally or informally).

The language taught also showed some relationship with the frequency with which email and the announcement area were used. It was found that Spanish instructors tended to use email more than Romance (French, Italian and Portuguese) and other European language instructors. It was also found that Spanish Instructors are much more likely to use the announcements component than Romance instructors. These results are not what I expected, since Spanish is a Romance language as well, and the language differences between these two categories are not as big as among other languages as for example, Oriental or Asian languages. Finally, in relation to online teaching experience, it was found that more experienced instructors tended to use email and announcements tools less often than less experienced instructors, but the document sharing tool more often.

The results relating to the first research question indicated which tools were most used by instructors, and although some patterns were found, it was not possible to make any general conclusion or sketch general trends about the use of LMS tools according to the particular LMS used, language taught, or instructor experience. In general, the differences among LMSs in relation to how the different tools are specifically designed and work hardly seem to be related to the use frequency of these tools; neither did the language taught or the instructors' years of online teaching relate significantly. In general, however, the data show a surprisingly low frequency of use of synchronous and communicative tools. This is far from optimal either from the perspective of the Constructivist pedagogy that survey respondents favored, or the communicative language teaching methodology.

6.1.2. Relationship between the use of different LMS components and the learning activities provided for students

Having determined which tools were the most used by instructors, the next step was to find out whether online language instructors tend to use LMS tools for specific learning activities. The objective was to deduce from reported instructor practices some guidelines that might help current or future language instructors in planning, developing, implementing and/or reviewing online courses. The analysis focused again on the LMS used in order to find out if differing design (accessibility and functionally) of the tools has some impact on the use instructors make of it and, therefore, if there were some platforms more suitable for online language courses than others. Again, analysis

examined whether the language taught and the experience of instructors had detectable influences on how tools were being used.

The targeted activities included lexical and grammar activities (tutorials and practice exercises), activities designed to practice one or more of the four language skills (speaking, listening, writing and reading), activities focused on promoting student-student interactions, activities to promote cultural awareness, and finally, assessments. As indicated in Chapter 4, many of the learning activities were implemented by most online instructors, although the percentage of them which were offered through the LMS was considerably lower. An interesting finding was the low percentage of instructors who indicated that they implemented oral and writing activities or assignments in pairs or groups (50% and 30.4%, respectively), and an even lower percentage (less than 22%) of those who indicated doing so through the LMS. Later on, when analyzing the qualitative data for Research Question 4, these low scores were explained by the logistical difficulties that online instructors described experiencing when trying to implement oral activities – especially due to students' schedules.

The results of Chapter 4 were complex, because it was necessary to construct many series of contingency tables and likelihood tests, and some associations emerged. In relation to the different LMSs, it was found that some of the components of Angel Learning, Blackboard, Canvas, Moodle and Publisher platforms were related to the delivery of some learning activities. It was found that instructors who used a Publisher platform tended to make use of email to deliver pair or group writing activities, while Angel Learning instructors used it more to deliver cultural awareness activities. These results corroborate the results of the previous research question, and helped to understand them better. The use of email to deliver pair or group activities in publisher platforms may be explained by the fact that many of these platforms are designed primarily to handle one-to-one interactions rather than interactions between and among students. Therefore, instructors need to draw upon the email to implement activities that require students to work in pairs and/or groups. The higher use of the Angel Learning email to deliver cultural activities may be associated with its accessibility within other tools (as chatrooms and drop-boxes), and which was mentioned by the Angel Learning instructors as one of the features they appreciate in that LMS.

Statistical tests also showed an association between the use of Canvas and Blackboard discussion boards and individual recording activities. In both LMSs, the recording and uploading of audio files is very simple and intuitive, but what is distinctive is the way these systems display audio or video files on the discussion thread. Instead of an attachment or link at the bottom of the message, both systems display it to the side, or as a part of the main message, and in both cases, the recording box is very visible. Tests also indicated that while Angel learning instructors tended to use chatrooms to implement or deliver grammar activities, Blackboard instructors did not. Finally, there was an association between the use of the links and files component and the implementation of vocabulary activities in the Moodle, Canvas and Blackboard.

Statistical tests showed more associations between tools and activities when the language factor was taken into consideration. Spanish, Romance, German, other European and Oriental and Asian languages showed some relationship between LMS tools and activities. The results showed, for example, that Spanish instructors tend to use content modules to deliver or implement grammar activities, but that Asian language instructors tend to use email for the same activities. The results also indicated negative associations in the sense that some language categories tend not to use a certain tool to deliver a type of learning activity, as was the case with Oriental language instructors who do not use links and files to deliver grammar or listening comprehension activities (the way other language categories do), or Spanish instructors who tend to use the file storage component for reading comprehension activities but not for cultural awareness activities.

The number of years of experience that instructors had teaching online also proved to be associated to some degree with LMS tools used and learning activities implemented. In general, tests showed that the least experienced instructors tended to use some tools less than more experienced instructors did -- for example, discussion boards used to deliver vocabulary activities or content modules used to deliver reading comprehension and video-watching activities. Instructors with an intermediate level of experience tended to use content modules to deliver video activities, while the most experienced instructors use discussion boards to implement oral recording activities, which may not be so straightforward for less experienced instructors.

The associations found in this second research question were very diverse, and some general uses might be drawn; but from my own perspective what they mainly indicate is the range of activities that some tools can deliver (not always the most obvious), which in turn also indicates their teaching affordances. For example: emails for pair or group writing activities and cultural awareness activities, discussion boards for individual oral recording and vocabulary activities, chatrooms for grammar activities, links and files for vocabulary activities, or content modules for reading comprehension and watching videos.

6.1.3. Relationship between the use of different LMS components and pedagogical approaches

The third research question centered on the pedagogical preferences of instructors. The objective of the related analyses was to examine whether there was a relationship between instructors´ pedagogical preferences and the LMS components they use, and (again) if the language taught and years of experience have a significant influence over that selection. The pedagogical preferences of instructors were examined by asking participants to indicate their level of agreement with twelve statements regarding teaching methodologies, so as to determine their orientation toward three major pedagogical approaches in language teaching: Behaviorist, Cognitivist and Constructivist.

In the first section of Chapter 5, it was shown that according to the data, the participants in this study had a favorable view of all three pedagogical orientations – Behaviorist, Cognitivist *and* Constructivist — but placing Behaviorist statements in the first place, Cognitivist in the second place and Constructivist in the third place. Regarding the relationship between pedagogical preferences and the selection and use of LMS components to deliver certain activities, no inferences could be drawn in most cases. The statistical tests showed significant results only in the selection and use of three LMS components: Announcements, Whiteboard and Document Sharing. The higher the level of acceptance that instructors had for Behaviorist teaching statements, the higher the likelihood that they would frequently use the Announcements and the Whiteboard tools, and the lower the likelihood that they would frequently use the Document Sharing tool. In the same way, the results indicated that the higher an instructor's preference towards the Cognitive statements, the higher the likelihood of

frequently using the Whiteboard and Document-Sharing tools. These results, although limited, indicate that an instructor's pedagogical preference is associated to some extent with the type of tools they will choose to use during courses, and therefore, the kinds of activities and the ways that students will interact with the LMS system, the instructor and among themselves.

6.1.4. LMSs and instructors' ability to enact their pedagogical principles

The second research objective of this study, "to examine the extent to which language instructors exercise their pedagogical preferences when teaching in existing LMS environments", was targeted by Research Question 4. The data analysis for this question employed both quantitative and qualitative approaches; a quantitative examination was carried out to examine the relationship between online teaching practices and instructors' pedagogical preferences, and a qualitative examination was performed to reflect the detail, complexity and multiple perspectives that influence online language teaching practice. Specifically, I conducted the qualitative analysis to find out what instructors perceived to be the major gains and limitations when teaching online through a LMS.

The quantitative results indicated that the great majority of the participants expressed a need to yield their pedagogical preferences to some degree while teaching online with a LMS, and that such necessity was stronger when instructors professed a higher preference for the Constructivist approach. As presented in Section 5.3.1, "the stronger an instructor's positive preference towards the Behaviorist and Cognitivist approaches, the lower the expressed necessity to relax pedagogical preferences in online language courses, and in an opposite way, the stronger the positive preference toward Constructivist approaches, the higher the expressed necessity to relax one's pedagogical principles." This was an important finding, although not very promising for online language teaching since the Constructivist approach is currently leading the SLA field. Thus, in order to ascertain if instructors' impressions about their necessity to yield their pedagogical preferences when teaching through a LMS was a valid representation, the relationship between instructors' average pedagogical preferences and their self-reported online teaching practices was also analyzed.

In relation to self-reported teaching practices, this study showed that the teaching practices associated with the Behaviorist approach were, on average, the most frequently used by participants, followed by the Cognitivist and then by the Constructivist practices, which instructors indicated rarely making use of. Statistical tests also indicated that only the Behaviorist pedagogical preferences were supported by the participants' teaching practices. On the other hand, the results also indicated that Cognitivist and Constructivist pedagogical preferences were not in accordance with instructors' teaching practices. However, it is not possible to know if this at least partial mismatch between pedagogical preference and teaching practices was specific to the online environment or if this situation also existed in the instructor's teaching practice more generally, for example in their face-to-face teaching; therefore, further research is needed.

The qualitative analysis of the open-ended survey questions provided a deeper understanding of the role that LMSs play in online language teaching. By reviewing what instructors considered to be the major limitations and the major gains when teaching online via a LMS, and perceiving similar overall themes between the limitations and the gains, six comprehensive themes were formed: 1) the formation of a learning community and socialization, 2) language learning, 3) course and activity administration, 4) the role of the instructor, 5) online learning in general, and 6) differences between online and face-to-face modalities. Specifically, among the major limitations that instructors mentioned experiencing when teaching online were the lack of physical contact among students and between students and the instructor, the difficulty to organize and successfully carry out synchronous communications or group-based activities, implement and supervise activities focused on oral skill production, the time instructors require to prepare and deliver activities as well as to give personalized feedback to students, and instructors´ lack of control over course progress. The qualitative analysis also provided important information about what instructors perceived to be the profile of their online students and the differences they perceived between online and the face-to-face teaching. Some instructors mentioned difficulties related to students´ busy work schedules, low motivation and high absenteeism, poor time management and personal ethics. Other instructors discussed what they could do in their face-to-face classes but could not transfer to their online classes.

The main advantages when teaching through a LMS, on the other hand, centered on the flexibility and convenience that the online medium provides for students.

Participants mentioned that students were able to access the learning materials that they consider necessary in the order they want, which helps to promote student-centered learning, at the time and place they need it.

The results regarding each of the four research questions on this study provided interesting new information, but they were numerous and in some way disconnected. In the following section, I will connect the major findings and compare them to previous research findings presented in the literature review. I will also outline their major implications for online language teaching.

6.2. Discussion of findings and implications for online language teaching practice

This research has revealed how current online language instructors are using different LMS components in postsecondary credit-based courses. Many of the findings corroborate and support what researchers have previously reported, but it has also provided empirical evidence of teaching practices that contribute to the scholarly discourse. Unlike previous studies, this study adopted a broader perspective considering instructors´ experiences when teaching a whole course online, instead of focusing on concrete activities or LMS-specific components. It has considered the experiences of instructors of many different languages and levels of expertise, and who are using different LMSs. Based on the results derived from the quantitative and qualitative analyses, some noteworthy findings and offer comment on their implications for online language teaching practice are presented next.

6.2.1. Low use of synchronous and collaboration tools

This research provided an overall view of the use of LMS components for online language teaching. Consistent with other research, one of the findings was that the tools related to course administration were those used most by language instructors (Zhou & Xu, 2007, Steel and Levy, 2009). The high frequency of use of administrative tools such as gradebooks, email, announcements is not surprising, since it is a necessity that every academic course has. What stood out was that the least used components were the synchronous and the collaboration tools, which can facilitate cognitivist and constructivist types of learning activities. The frequent use of administrative tools along with the

comparatively low use of collaboration tools may be an indication of the main purpose of LMSs: they are employed primarily as course administrative platforms rather than a medium to carry on teaching and learning. Therefore, the full potential of LMSs is not fully exploited. Although not very encouraging, this finding echoes findings from other research (Lonn & Teasley, 2009, McGill, 2011, Schoonenboom, 20014). Woods *et al.* (2004, p. 287) explicitly found that the usage of various instructional applications of Blackboard, for example, was decidedly lower than the usage of the administrative tools, and that the usage of the more interactive course management features was even lower.

6.2.2. **Behaviorist teaching preferences and activities**

The low use of synchronous and collaborative tools was also reflected in the kinds of activities that online instructors frequently implement.

The results of the second research question indicated that only a very low percentage of online instructors implemented oral and writing pair or group activities through the LMS, which in most of the cases would require the use of the collaborative and/or synchronous communications tools. Even considering that collaborative writing activities could be implemented through asynchronous communications tools, the results showed that these kinds of activities were rarely implemented through the LMS.

Findings addressing Research Question 3 indicated that online instructors had a favorable view of all three pedagogical approaches, but placed Behaviorism in the first place, Cognitivism in second and Constructivism in third. The analysis also indicated that the higher their stated preference for Behaviorist statements, the higher the likelihood that instructors will use the Announcement component (an informational tool), and the lower the likelihood that they will frequently use the document sharing tool (collaboration tool). On the other hand, a higher preference for the Behaviorist approach will also increase the odds of an instructor using Whiteboards (a synchronous communication tool).

The above results indicated that online instructors make frequent use of asynchronous and informational tools, but rarely use the asynchronous and collaborative tools, rarely implement pair or group learning activities and, despite expressing a favorable impression of all three pedagogical methodological statements, they slightly

favor behaviorist practices. Since the least used LMS tools were the collaboration tools, and the Behaviorist statements were the most favored by instructors, it was not surprising that the self-stated teaching practices associated with the Behaviorist approach were, on average, the most frequently implemented by participants, followed by the Cognitivist practices and then, by the Constructivist practices, which instructors reported using rarely.

These results are coherent with those of research conducted over the last decade. As mentioned in Chapter 2, a large number of scholars have been concerned with how different LMS tools and functions are being used in F2F and Hybrid language courses and, in many cases, they have found that LMSs were being used to deliver a structural grammar-based type of teaching-learning, which in the second language field would be considered far from desirable today (Sun, Tsai, Finger, Chen, & Yeh, 2008).

Some scholars have argued (for example, Stockwell, 2007; Hampel and Stickler, 2005; Compton, 2009; Yun, 2011; S.Y.H. Sun, 2011, Shelley *et al.*, 2006), that one of the primary reasons why many instructors may not be making use of all the affordances of LMSs (and therefore, are not delivering learning activities in accordance with cognitivist and/or constructivist approaches) stems primarily from instructors´ technical competence with the software, familiarity with the constraints and possibilities of the medium, and knowledge of language pedagogy. Concretely, they would recommend that instructors acquire specific technical competences for the software, as well as be familiarized with diverse theoretical and methodological principles, in order to make appropriate pedagogical choices. The present findings provide empirical evidence that it is not simply the knowledge or use of LMS components, but also pedagogical preference that drives or limits the choice of learning activities and thus LMS components used.

As mentioned by the scholars, the instructors' level of expertise is an influencing factor of the tools they choose to use for specific types of activities; but apparently, the number of years that instructors have been teaching online was not a good indicator of their level of technical and pedagogical expertise. In this study, the level of online teaching expertise was measured by the years of online teaching, but the data analyses showed that this factor was not a decisive one, since in many cases the most experienced instructors didn´t use the LMS tools much differently from the other, less experienced instructors. It could be the case that instructors with less years of

experience are new enough that they are prepared to experiment, and/or have more recent training in contemporary pedagogical approaches as well as a higher exposure to different technologies than instructors with more years of online teaching. In the same way, longer-term instructors may come from more traditional educational backgrounds. Knowing more about the participants' level of technical expertise and also how long they have been teaching languages altogether could have provided more insight. Thus, for later studies, instructors' level of experience should be better operationalized; for example, by more direct measures of the level of technical competence and theoretical knowledge.

On the other hand, the qualitative strand of this study revealed that there are other factors influencing the frequency and types of use that language instructors make of LMSs, such as online students' behavior, or how time and labor-intensive constructivist teaching practices are in comparison with other types of activities. I will discuss this issue in more detail in section 6.2.4.

6.2.3. Expressed pedagogical preferences are not predictive of tool use within LMSs, but are predictive of the discomfort they feel teaching within the environment

Evidence from this study not only confirmed what previous studies have reported regarding instructors use and adaptability of LMS in the language teaching field (Doughty and Long, 2003; Long, 1988, Byrne, 2007; W.-K. Yu *et al.,* 2010, Jager, 2009) or in other educational contexts (Woods, 2009, Schoonenboom, 2014, Oliver, 2005, Weaver *et al*., 2008), but also provided additional information that contributes to the scholarly discourse. By analyzing how teaching through an LMS is associated with language instructors' enactment of their pedagogical preferences, it was found that the pedagogical preferences of instructors were only supported by their teaching practices in the case of Behaviorist preferences, but not in the case of Cognitivist and Constructivist preferences. Therefore, what online instructors expressed as their teaching philosophy mostly did not accord with how they reported actually teaching.

The quantitative results for Research Question 4 provided additional information regarding the dissociation between pedagogical preferences and teaching practices. The great majority of the participants expressed a need to yield their pedagogical

preferences to some degree while teaching online through an LMS. This necessity was even stronger when having a higher stated preference for the Constructivist approach. So, even though the expressed pedagogical preferences were not predictive of the teaching practices that instructors used in online courses, they were predictive, to some extent, of the discomfort they felt teaching within the environment.

6.2.4. **An issue of learning design**

The qualitative analysis provided practical information about the current state of online language teaching practice. Concretely, it presented what online instructors perceived to be the major pedagogical limitations and gains when teaching a language online through an LMS. Many of the limitations that instructors indicated could be traced back to three factors: the lack of real-time contact among students and between students and the instructor, the lack of control over course design and development, and the time required to arrange, carry out and monitor oral and group activities.

The lack of real-time contact implies that many instructors are planning their courses based on the expectation that students will access the course at regular intervals in order to meet with other students or the instructor, and/or to attend tutorials or carry out group activities. When this expectation is not met, the implementation of synchronous oral, communicative and group activities is problematic, the opportunities to offer in-time feedback are reduced, and the construction of a learning community based on synchronous encounters is obstructed. “Online absenteeism” is perceived by many instructors as a result of the profile of the online student, who has low motivation, poor time management, a busy schedule due to work or family duties, and/or inability to handle online learning.

Many of the limitations expressed by the participants due to “online absenteeism” could be avoided if from the outset of a course design it were considered that students would mainly access the network when they choose to do so. One of the points that attract students to take courses online is, precisely, time flexibility (Palloff & Pratt, 2003; Chenovetth *et.al*., 2006; McLoughlin & Lee, 2010). Some participants mentioned as “gains” of the online medium that students can work at their own pace, access activities when needed and spend time effectively. Participants also mentioned as limitations their inability to transfer successful face-to-face teaching practices into the online medium.

However, as other authors have discussed, it is problematic for online instructors to attempt to draw direct parallels between online teaching practices and face-to-face ones. (Davis & Rose, 2007; Wood, 2005).

Interestingly, many of the limitations and gains that participants mentioned parallel one another. What some instructors perceived as a limitation, others perceived as a gain. I think that these opposite views and perceptions can be explained not only as a consequence of the level of technological and pedagogical preparation and/or experience of instructors, but also and primarily as an issue of learning design. This does not mean that synchronous communication and activities should be avoided in online courses – far from it. Real-time interactions are essential for a natural language and a communicative type of teaching/learning, so totally removing those from online courses would not be the "best option." If online attendance on a specific time and day is a requirement of a course, students have to be notified about this at the time of registration, and such requirements should be clearly stated in the course outline and description. Additionally, asynchronous meetings should be flexible and accommodate each student´s requirements throughout the semester. For example, more than one synchronous participation time could be offered to students.

As discussed in Chapter 5, many of the limitations (and frustrations) that instructors described experiencing when teaching online were based on what they felt they could do, normally do or are used to doing in F2F classes. These activities cannot be carried out in the same way in their online classes. Overall, instructors' expressed concerns about online teaching suggest either a need for them to engage further with the extensive research about online education before engaging in online teaching, greater support from technicians and distance education experts, and/or further professional development activities in relation to online teaching. As S. Y. H. Sun (2011) mentioned, online instructors should be prepared to develop a completely new set of skills (technological, methodological and pedagogical) in order to respond to the needs and characteristics of online students. Language and distance education administrators should inform current and future online instructors of the unique nature of online students' behaviour and characteristics. From the perspective of learning design, the design and implementation of course materials should not only pursue the learning objectives, but also acknowledge who the learners are. One of the main elements when

planning a course is to take the characteristics and needs of online students into consideration – and the flexibility of scheduling is one such need.

Instructors' lack of control over course design and development. The second major factor that I deduced to be limiting the practice of language online teaching through LMSs is the lack of control that participants mentioned having when teaching online. This lack of control appears at two different levels: one operational (referring directly to the LMS), and the other institutional.

The number of participant comments about limitations related to "Software and connectivity" were the most numerous (31 comments), but considering what many authors have found in previous studies regarding technical issues (Coverdale-Jones, 2000; Wang, 2004; S. Y. H. Sun, 2011), this finding was not surprising. Putting aside the connectivity problems, most of the limitations shared by participants referred to the reduced or inflexible options that LMSs offer. Some constraints referred specifically to tool restrictions, such as limited choices in assessment tools, pair-recordings, file size limits or use of non-western characters; but others expressed discomfort with the lack of control over the way LMS tools work and how teaching materials are presented.

In most LMSs, there is flexibility to modify how information is displayed and handled, but this might require special scripts and/or plugins that normally only the technical support personnel are aware of. Even with more advanced training and years of experience, some of the more advanced capabilities of LMSs are beyond the technical knowledge of instructors. Researching the technical support that instructors actually receive when teaching online, in planning, implementing, delivering and reviewing, was not part of the scope of this study, but it is a topic worth focusing on in future research.

Lack of control over courses was also mentioned by some participants. This was not a result of the use of an LMS *per s*e, but a result of having to teach pre-set courses that were embodied in the LMS. From an institutional and managerial perspective, the creation of pre-set courses is a way to control, regulate and standardize teaching. At first glance this could be considered a gain (especially in beginner courses), but from a pedagogical perspective it may not be. Institutional control over the design of language courses (or any course) has important consequences and might help to explain the

dissociation between teaching practices and pedagogical preferences found in this study.

LMSs are able to support an extensive range of activities and enable access to different kinds of resources that can support different pedagogical preferences; but from an educational technology perspective, they are not a neutral technology. Rather, in the way content is presented and learning activities are designed, LMSS influence the way courses can be designed and learning supported (Coates, James and Baldwin, 2005). Pre-set courses obstruct instructors' ability to enact their pedagogical preferences, which in turn will be reflected in the quality of learning.

In the current Era of Knowledge, online language education has experienced an important growth thanks to the adoption and spread of LMSs, but several scholars who have researched the impact of technology over education (Brown & Duguid, 2002; Collins & Halverson, 2009; Franklin, 1999; Noble, 2002, Parrish, 2004;) have also expressed their concern with respect to the quality of education that students may receive within these online environments. They have largely wondered about the desirability and feasibility of developing context-free, reusable learning objects such as pre-set courses. Consequently, instructor teaching flexibility and nuance are essential for effective teaching, and that both teaching and learning can be compromised if pedagogy is controlled and imposed in pre-set ways.

Time required. The third general factor that it was deduced from the qualitative analysis, and which helps to explain some of the limitations mentioned by participants, is their concern about the time they must spend to prepare, deliver and monitor online course activities, particularly oral and group activities. This finding helps explain the lower use of collaborative and synchronous tools in the findings from Research Question 1, and it also confirms West, Waddoups and Graham´s (2007) claim that instructors avoid using a broader variety of tools that would require them to devote a greater amount of time to a course. In the same way, the frequent use of reporting, asynchronous and informational tools is explained by their ease of use and relative time efficiency.

Knowing the characteristics and expectations of students is important, but so is knowing and familiarizing oneself as an instructor with the array of components that an

LMS provides, as well as with the way each tool processes and displays information. This returns to the root of the scholarly discussion about the skills needed when teaching language online courses. As McPherson & Nunes (2004) note, the proper selection and use of tools (according to the match between learning objectives and tool affordances) is central for successful language courses. The selection and use of tools due to their ease of use shows as well that technical and pedagogical training and support are crucial for online language teaching, as Sticker and Hampel (2005) and Compton (2009) suggested a decade ago.

Designing and implementing a course is not a solo enterprise, or shouldn't be. It should rather be a form of teamwork, and all language departments should promote this view when planning to offer online courses. Ideally, instructors who are going to deliver online courses should be part of the design process. In the case where they are taking over pre-set courses (which is common in beginner courses), instructors should be able to adapt them to their own pedagogical preferences and teaching styles. The standardization of first year courses is arguably necessary, since these are the core of language programs – because a large number of students take them, and because they need to follow the norms set by the two major guiding frameworks for learning, teaching, and assessing foreign language skills: the ACTFL (American Council on the Teaching of Foreign Languages) and the CEFRL (Common European Framework of Reference for Language). In my view, however, the standardization should refer to curriculum development, learning goals and educational standards, rather than to pedagogical preferences or styles.

6.3. Limitations of the study and future directions

One of the limitations of this study stems from its conception. Since the objective of my research was to study the use of LMS platforms from a general perspective, not from a case study perspective or a few examples, the first task was to locate and contact foreign language instructors who were currently teaching credit-based courses fully online in institutions of post-secondary education. The main obstacle was, however, that there was not a database (or group of databases) containing such information. Therefore, it was necessary to manually search for the information by accessing (one by one) the web pages of a large number of universities and colleges in Canada and the United States. Due to this labour-intensive search, the selection of participants was

restricted to those instructors whose courses were accessible to the entire public on the web. Searching and creating the list of potential participants took about six months, yet was far from being exhaustive. As a result, the sample of participants, although accepted as a *convenience sample*, was not optimal.

The uneven distribution of participants across categories was another important limitation that restricted the types of statistical tests. The great majority of participants delivered their courses using Blackboard (44.3%) and taught Spanish (48.6%). Specifically, the association found between Angel Learning and the frequent use of email, more frequent than in other LMSs, has to be interpreted with caution since 60% of the instructors using Angel Learning belong to the same university. Participants were evenly distributed across categories only in the case of years of online teaching experience.

The uneven distribution of participants across most variables meant that the expected frequency requirements in contingency tables in order to run Chi Square analysis were not met. Therefore, other less common tests, such as the Likelihood Ratio test, were used. Perhaps future studies can replicate this research with a larger sample and create categories with equal or more similar numbers of instructors per category. Even though inferential statistical tests showed some significant results, a larger sample and/or response rate and a better distribution among the different categories will help further studies to construct a more robust model that may yield more significant results.

The quantitative analyses were based on categorical measures, that is the different LMSs, languages taught and levels of experience. LMS categories were straightforward to define, but further analyses may benefit if the language and experience categories were better specified. Instead of considering years of online teaching as a measure of experience, level of expertise could potentially be gauged according to technical competence or theoretical knowledge of language pedagogies – although this measure would be more challenging to construct. In relation to the language category, different groupings could provide a deeper insight of how language specific requirements may or may not affect the use of LMS by the instructors. Future analyses could apply classifications based on types of alphabets and/or writing systems

used with a given language, for example, Roman-based and non-Roman based alphabets.

The analyses of instructors' pedagogical preferences and practices in section 5.3 also faced some setbacks. Even though the formulation of the statements on the survey aimed to accommodate different interpretations in order to avoid any linkage to a specific LMS tool (section 5.3.2.), a single statement could be interpreted in different ways due to the design and organization of activities in the class. Furthermore, two teaching practices that appear similar could be inspired by different pedagogical beliefs or approaches. Future research should include consideration of the specifics and dynamics of teaching practices, and if possible carry out direct observations of those practices.

With regard to the qualitative strand of the research, the original design of the study contemplated follow-up interviews with participants. After receiving participants' survey responses and analysing them, the idea was to conduct follow-up interviews with selected participants in order to better comprehend their comments and/or elicit further detail on their opinions. However, the time required to obtain a minimum adequate number of survey responses and the number of participants who stated that they did not wish to be further contacted made the follow-up interviews infeasible.

This study revealed which were the most used LMSs in relation to some learning activities, and although the associations were not as clear as might have been expected, the data analysis also furnished some surprising findings that future studies can further investigate. On the basis of the quantitative strand of analysis, the relationship between pedagogical preferences and the level of discomfort (or acceptance) that instructors felt teaching online appears to deserve more in-depth research. Further studies should also more directly measure instructors' technical and pedagogical expertise (rather than using number of years of online teaching as a proxy) in order to determine how teaching expertise is affecting (or not) the selection and use of LMS tools and learning activities.

Based on instructors' comments and the qualitative strand of analysis, the level and kind of support (technical and pedagogical) that instructors receive when planning, developing and implementing an online course should be further explored, as well as its relationship with the level of discomfort or comfort instructors experience with online language teaching.

Finally, this study focused on the perspective of the instructors, but important questions from the perspective of students should be addressed as well in future studies, such as what their own perceptions are of synchronous tutorials or activities.

6.4. Concluding thoughts

This study has contributed to the scholarly literature reviewed in Chapter 2 in several ways, including the scope of participants involved, and the goals and methods employed. This study included a variety of language instructors from different languages and years of experience, who were teaching online courses through an LMS. The number of participants required non-parametric quantitative tests in order to analyze the use frequency and purposes that instructors gave to LMS tools and capabilities, but it also allowed the researcher to analyze whether online teaching was affected in some ways by delivering a course through an LMS.

This study showed that in online language instruction through LMSs, the majority of instructors would have preferred to use more familiar and intuitive tools and maintain outdated methods of teaching (such as Behaviorist methodologies), even though this choice is “out of step” with the current and dominant constructivist and communicative language views of language learning.

Even though it seems that online language teaching is facing a sort of unintentional eclecticism (both theoretically and methodologically speaking), or what some may consider to be theoretical and technological regression, I have also noticed encouraging developments in LMS software for facilitating constructivist types of learning: a greater linkage among tools, interactive asynchronous and synchronous tools that can provide more authentic and communicative task-based activities, and more technological friendly platform designs that can better support the theoretical and pedagogical views of a Constructivist learning/teaching design.

Even though some participants in this study stated that LMSs do have the tools to facilitate communicative language teaching/learning, and support better monitoring to support of students’ needs, it seems that most online instructors are not adopting and using the range of LMS affordances in accordance with current theoretical paradigms and teaching methodologies. Constructivism and task-based learning demand a wider

use of the current technologies and tools provided by LMSs in order to effectively promote what we now know of as effective language learning, and, at the same time, allow instructors to exercise their own pedagogical preferences. The data from this study suggest that in most cases, the overall use of LMSs by language instructors is not in accordance with the prevailing pedagogical trend in foreign language teaching.

The field of online language learning is currently experiencing a difficult moment of readjustment and adaptation to new LMS advances and affordances. The language distance education field was traditionally favorable towards technological innovations, but now is facing a major setback: so long as the most basic and traditional LMS tools are the ones most used by instructors, foreign language teaching and learning will tend to bend to previous theoretical views and methodologies. It is therefore necessary that instructors and researchers develop and implement online language courses that are in accordance with their beliefs about teaching and learning and, therefore, make greater and more varied use of the available tools. As an educational technologist, I am convinced that the choice of LMS tools should be shaped by their affordances; but it is ultimately the instructor's perception of those affordances that determines their use (Norman, 1998). As Steel and Levy (2009, p. 1020) pointed out, "If a teacher does not perceive the technology to be supportive of their pedagogical and disciplinary approach they may choose not to use it or even use it in ways that are incongruent with their pedagogical beliefs."

It is my own perception that in other educational fields, educational technologists and instructional designers are already very focused on studying and evaluating the use of technologies, including all of the components that LMSs offer, in accordance with constructivist ideas such as collaborative learning and knowledge building communities. However, in the field of online language learning, researchers and instructors are still struggling to introduce constructivist teaching/learning into the classroom.

Current technologies afford tremendous possibilities for constructivist language teaching, which has become the favoured approach in the twenty-first century. Central to this approach is the notion that language is a tool for social communication and interaction (Richards, 2006, Wang & Chen, 2009). Concretely, the new advances and capabilities of LMSs can support "integrative" language courses for students, not only from the technological perspective – that is, courses that combine multimedia with the

Internet, allowing language learners to communicate with other learners, instructors and learning materials at any time and place. The use of LMSs clearly can also support "integrative" learning from the socio-cultural perspective, in which students are integrated into the learning process (Bax, 2003). From the constructivist paradigm and learning design perspective, LMSs are learning environments which provide opportunities for students to use, practice, interact and reflect on language use and learning (Richards, 2006).

The limiting factor to truly dynamic foreign language learning online is no longer access to capable computers and fast networks. Rather, I believe based on this study that institutional practices have become the major limitation. Decisions about course offerings should not be informed solely by organizational and administrative factors. It is important to maintain the educational perspective, and respect the expertise and preferences of instructors rather than promote pre-set course offerings for administrative purposes only. Beginner and intermediate language courses are the core of language programs, and do need to comply with some standards and general learning objectives; however, their educational success in the online medium will depend on instructors' teaching flexibility, understanding of their design and processes, and their level of comfort with the online medium. The use of LMSs for teaching should not homogenize the creation, style and ownership of pedagogical knowledge. Discussion about design, implementation and review of online courses delivered by LMSs should involve ongoing iterative dialogues among managers, administrators and academics. I see great potential for online language teaching has yet to be exploited. LMSs provide many resources that constantly are improved and expanded, so the design and delivery of online language courses present an ongoing challenge to language professionals and educational technologists. It is in their hands, our hands, to provide guidance to online instructors in the process or designing and delivering language courses, in the selection and usage of LMS components, and their suitability to particular learning goals.

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Appendix A.

Informed Consent Form

INFORMED CONSENT FORM

Online language teaching: The convergence of learning management systems, teaching practices and strategies

Study Number: **2015s0010**

(February 16, 2015)

Principal Investigator:

M. Isabel Mayo-Harp

Doctoral candidate in Educational Technology

Simon Fraser University

(British Columbia)

Faculty of Education

Invitation and Study Purpose:

You have been invited to take part in a research project whose goal is to explore the challenges of teaching credit-bearing online language courses using the current generation of learning management systems available in North America (such as Blackboard, Moodle, Canvas, etc.). You have been asked to volunteer because you are teaching or have taught a foreign language course online at a postsecondary institution.

Voluntary participation and withdrawal:

Participation in this research is voluntary. You have the right to refuse to be part of this study. If you decide to participate in the study and then decide to withdraw at a later time, all data collected about you will be deleted. Refusal to participate, or withdrawal after agreeing to participate, will have no adverse effects for you.

Study Procedures:

If you consent to take part in this research study, an online questionnaire will start automatically. The time required to complete the questionnaire should be about 35-40 minutes. (The questionnaire has a “save and continue” option that will allow you to save your responses and come back to continue later.) You may stop participating at any time if you are made uncomfortable by any of the questions.

Risks or discomfort:

We do not anticipate that the research will cause discomfort.

Benefits of this study:

Your participation will help to identify the challenges associated with offering credit-bearing online language courses through the current generation of LMSs. The findings of this research may also help to document how LMSs´ capabilities can be adequately used for online language learning.

Confidentiality:

Your participation in this study will be completely confidential. Your identity as a participant and your individual answers will not be shared or presented in any way that

could identify you. Your name will be substituted with an identification number once all data have been collected. The unique participant number only will identify participants. A single master list will be kept on a password-protected computer that will not leave the principal investigator's office (M. Isabel Mayo-Harp's).

All digital data (language instructors' research permissions, questionnaire responses) will be kept in a locked environment by the principal investigator (M. Isabel Mayo-Harp) and will not be disclosed to parties other than her thesis committee members. All data files will be passcode protected.

Data collection and storage:

The online questionnaire will be conducted using "Simple Survey" (http://www.simplesurvey.com), an online data collection and analysis software hosted and supported in Montreal, Canada. Canada's privacy laws protect all data and information stored in Simple Survey's servers, so the information you provide in the online questionnaire will not be subject to access under the US Patriot Act.

When this research study is finished, all information will be transferred to a physical storage unit (USB) and deleted from Simple Survey's servers.

All digital data (language instructors' research permissions, questionnaire responses) will be kept in a locked environment by the investigator (M. Isabel Mayo-Harp) and will not be disclosed to parties other than her thesis committee members. All data files will be passcode protected.

Data disposal

Data from this study will be disposed of in the following manner: within seven years after the completion of the research, the electronic records of data will be erased and overwritten, and all paper records of data will be shredded confidentially.

Rights and Complaints:

If you have any concerns about your rights as a research participant and/or your experiences while participating in this study, you may contact Dr. Jeff Toward, Director, SFU Office of Research Ethics.

Research results:

The results of this study will be reported in a graduate thesis and may also be published in journal articles and books. Participants' confidentiality will be preserved in all publications.

You can obtain a copy of the research results and/or final study at the end of this study contacting M. Isabel Mayo-Harp. At the end of the online questionnaire, you will also be asked whether or not you want to receive the completed research study results.

Future use of participant data:

Subject to the commitments made above regarding data disposal, data collected in this study may be used in future studies, publications and/or for educational purposes by the Investigator, M. Isabel Mayo-Harp. Participants' confidentiality will be preserved in all publications.

Consent statement:

By choosing "Yes, I wish to participate in this research" you are consenting to participate in this research study being conducted by M. Isabel Mayo-Harp, doctoral candidate in Educational Technology at Simon Fraser University. This statement certifies that you have read the consent form above.

☐ Yes, I wish to participate. (Online questionnaire starts.)

☐ No, I don´t wish to participate. ("Thank you" statement. -→ TERMINATE)

For future contact for additional information: (if necessary)

Would you agree to be contacted (or not) again by email in case the investigator, M. Isabel Mayo-Harp would need to follow up with you about some of your questionnaire responses and/or get further information? If you decline, you will not be contacted again. If you accept, you will be also able to stop participating at any time.

☐ Yes, I can be contacted for further information.

☐ No, I cannot be contacted later on.

For future publication projects: (if applicable):

☐ I agree that my data may be used in future publications and/or for educational purposes by the Investigator, M. Isabel Mayo-Harp.

Appendix B.

Questionnaire

1) INFORMED CONSENT FORM (See appendix A)

2) BACKGROUND INFORMATION

2.1) Select your current teaching position from the following options:

○ Faculty (Professor)	○ Faculty (Instructor)	○ Limited term lecturer
○ Faculty (Associate)	○ Senior lecturer	○ Sessional instructor
○ Faculty (Assistance)	○ Lecturer	○ Other

If you selected “other”, please explain:

2.2) How many years have you been teaching online language courses?

○ Less than one year	○ Between 4 and 6 years	○ 10 or more years
○ Between 1 and 3 years	○ Between 7 and 9 years	

2.3) How many years have you been teaching face-to-face courses?

○ Less than one year	○ Between 4 and 6 years	○ 10 or more years
○ Between 1 and 3 years	○ Between 7 and 9 years	○ I have not taught face-to-face

2.4) Select the language(s) you are teaching (or have taught) online.

○ Arabic	○ German	○ Korean	○ Spanish
○ Chinese	○ Hebrew	○ Modern Greek	○ Swedish
○ Danish	○ Hindi/Urdu	○ Polish	○ Ukrainian
○ Dutch	○ Indonesian	○ Portuguese	○ Other(s)
○ Farsi/Persian	○ Italian	○ Punjabi	
○ French	○ Japanese	○ Russian	

If you selected "other(s)", please indicate which languages you are teaching.

2.5) Select the level of the language course(s) you are teaching (or have taught) online. You can select more than one option.

- ○ First year courses (Beginners / Levels A1 and A2)
- ○ Second year courses (Intermediate / Levels B1 and B2)
- ○ Third and fourth year courses (Advance / Levels C1 and C2)

2.6) If you teach different level courses, please respond to survey questions according to the level of the course(s) you teach (or have taught) more often. Choose one of the following options:

- ○ I will respond to survey questions according to my first year level course(s).
- ○ I will respond to survey questions according to my second year level course(s).
- ○ I will respond to survey questions according to my third and/or fourth year level course(s).

3) LEARNING MANAGEMENT SYSTEM

3.1) Select the Learning Management System(s) your department and/or university is/are using. You can select more than one.

- ○ Adrenna
- ○ Angel Learning
- ○ Blackboard
- ○ Canvas
- ○ Cengage Learning / MindTap
- ○ Connect
- ○ Desire2Learn
- ○ eCollege
- ○ Jenzabar
- ○ LoudCloud
- ○ McGrawHill
- ○ Moodle Other(s):
- ○ Pearson LearningStudio / eCollege
- ○ Sakai
- ○ WebCt
- ○ Other(s)

If you selected “other(s)”, please indicate which Learning Management System you are using. _____

3.2) Are you using a different Learning Management System than the one provided by your institution to deliver your online course(s)?

- ○ I am using a different Learning Management System
- ○ I am using a Learning Management System provided by my institution

Please provide the name of the Learning Management System you are using. _____

3.3) Please, indicate how often you use the following tools of the Learning Management System you are using in your online course(s):

	Very frequently	**Frequently**	**Occasionally**	**Rarely**	**Never**
Course content modules	○	○	○	○	○
Announcements	○	○	○	○	○
Email	○	○	○	○	○
Discussion Boards	○	○	○	○	○
Chat rooms	○	○	○	○	○
Whiteboards	○	○	○	○	○
Multimedia rooms (e.g. Bb Collaborate, Elluminate, Wimba, etc.)	○	○	○	○	○
Calendar	○	○	○	○	○
Assessments (test creators)	○	○	○	○	○
Gradebook	○	○	○	○	○
Links and files	○	○	○	○	○
Student file storage	○	○	○	○	○
Collaboration tools	○	○	○	○	○
Peer-review	○	○	○	○	○
tools	○	○	○	○	○
Wikis	○	○	○	○	○
Document Sharing	○	○	○	○	○
Other(s):	○	○	○	○	○

If you selected “other(s)”, please indicate which other(s) tool(s) you are using. _____

3.4) List at least one feature, but no more than three features, you like best about the Learning Management System you are using for your online course(s).

3.5) List at least one feature, but no more than three features, you like least about the Learning Management System you are using for your online course(s).

3.6) Overall, how satisfied are you with the Learning Management System you are using in your online courses?

Completely satisfied	Mostly Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Mostly Dissatisfied	Completely Dissatisfied
○	○	○	○	○	○

Do you have other reasons for being satisfied and/or dissatisfied with the Learning Management System you are using BESIDES its features and/or tools? _____

3.7) In your online course(s), do students have to consult/study grammar explanations?**

- Yes
- No

** (If “yes” the system continues to 3.8, if “no”, it skips to next type of activity. Questions 3.10 to 3.40 follow the same “skip” logic.)

3.8) In your online course(s), how do students have access to grammar explanations? You can check more than one option.

- From the Learning Management System (previously uploaded)
- From a printed textbook
- From an online textbook
- From a printed student activities manual
- From an online student activities manual
- From other web resources
- From other printed resources
- Other

If you selected “other”, please indicate how your students can access grammar explanations. _____

3.9) Please, indicate which of the following Learning Management System tools you use to create and/or deliver grammar explanations to your students.

- Course content modules (or course pages)
- Discussion Boards
- Whiteboards
- Assessments
- (test creator)
- Links and files
- Peer review tools
- Announcements Area
- Chat rooms
- Multimedia rooms
- (e.g. Bb Collaborate, Elluminate, Wimba, etc.)
- Wikis
- File storage (uploads and downloads)
- Document Sharing
- Email
- Assignments area
- Collaboration tools
- Other(s)

If you selected “other(s)”, please indicate which other tool(s) you use. _____

3.10) In your online course(s), do students have to do grammar activities?
3.13) In your online course(s), do students have to do activities to practice new vocabulary?
3.16) In your online course(s), do students have to do listening comprehension activities?
3.19) In your online course(s), do students have to do reading comprehension activities?
3.22) In your online course(s), do students have to do individual writing activities?
3.25) In your online course(s), do students have to do individual oral (voice) recordings?
3.28) In your online course(s), do students have to do writing activities in pairs or groups?
3.31) In your online course(s), do students have to do oral activities in pairs or groups?
3.34) In your online course(s), do students have to read cultural information?
3.37) In your online course(s), do students have to watch videos?
3.40) In your online course(s), do students have to do lesson tests (examinations)?

4) PEDAGOGICAL APPROACHES

4.1) Indicate if you agree or disagree with each of the following statements. Check one for each statement.

	Agree	Neither agree or disagree	Disagree
The correct use of language forms is more important than language use (fluency)	○	○	○
Repetition is a good technique for language learning.	○	○	○
Dialogues are a good method to model correct language use.	○	○	○
Ability to communicate ideas is more important than language correctness.	○	○	○
Learning a second language implies the acquisition of diverse skills in order to be able to communicate effectively and efficiently.	○	○	○
The sequence of learning materials and activities should be flexible to respond to different learning styles.	○	○	○
Students should do activities in order, moving from less difficult to most difficult.	○	○	○
Grammar drills are necessary for students to learn a second language.	○	○	○
By working collaboratively, students have the opportunity to realize the gaps in their language learning, which they would subsequently seek to fill.	○	○	○
Students should review the lesson tutorial first before engaging in activities.	○	○	○
Guidance should be provided to students only when they request it.	○	○	○
Language mistakes should be corrected promptly in order to avoid bad habits.	○	○	○

4.2) Indicate how often your online students do the following types of activities or actions:

	Very frequently	Frequently	Occasionally	Rarely	Never
"Fill-in" activities where correct answers are preset)	○	○	○	○	○
"Multiple choice" activities	○	○	○	○	○
Orally repeat audio or video recordings (words, sentences and/or dialogues) to practice pronunciation	○	○	○	○	○
Respond to questions by writing about a reading	○	○	○	○	○
Respond to questions by writing about a video	○	○	○	○	○
Orally respond to questions about a reading	○	○	○	○	○
Assignments that require two or more subsequent activities to be completed	○	○	○	○	○
Participate in debates or discussions (synchronous or asynchronous, chats or video conferences) about different topics of interest	○	○	○	○	○
Assignments in teams (3 or more students)	○	○	○	○	○
Read an explanation or watch or attend a tutorial before being allowed to access or complete an assignment	○	○	○	○	○
Submit activities without first doing reading or watching a tutorial	○	○	○	○	○
Re-do (correct) writing assignments (small paragraphs or compositions) to improve their mark	○	○	○	○	○
Work in groups to create a presentation to be shared with the rest of the class	○	○	○	○	○

4.3) In your opinion and in accordance with your experience, what are the most effective learning activities for online courses? Mention at least one activity, but no more than three activities.

4.4) In general, what do you perceive to be the major language-learning pedagogical limitations when teaching online through a Learning Management System? Mention at least one limitation, but no more than three limitations.

4.5) In your own experience, how often have you had to “yield” or “relax” some of your pedagogical preferences when teaching online through a Learning Management System.

Very frequently	Frequently	Occasionally	Rarely	Never
○	○	○	○	○

4.6) In general, what do you perceive to be the major language-learning pedagogical gains when teaching online through a Learning Management System? Mention at least one gain, but no more than three gains.

5) LEARNING MATERIALS

5.1) In your online course(s), which of the following materials do you require your students to purchase? You can select more than one option.

- ○ A textbook and/or a student activities manual (paper versions)
- ○ An online textbook and or an online student activities manual (web version)
- ○ None
- ○ Other*

*If you selected “other”, please, indicate which other materials you require your students to purchase.

5.2) Select the sites where students can access the online textbook and/or the online student activities manual. Choose all that apply.

- ○ From a specific page/area of the Learning Management System. (Students don´t need to leave the Learning Management System to access the online textbook. The online textbook is embedded on the Learning Management System.)
- ○ From a web-link they can find on a page/area of the Learning Management System (The online textbook opens in a new window outside the LMS.)
- ○ Directly from the online-textbook webpage.
- ○ Other*.

*If you selected “other”, please indicate where students can access the online textbook and/or the online Student activities manual.

5.3) Select the sites/areas where students can get information about the following online textbook´s items. Choose all that apply. If an item is not part of your course, select "Not applicable".

	From the Learning Management System that delivers the course (i.e. Canvas, Blackboard, Moodle, eCollege, etc.)	From the Online-textbook website	From the publisher´s learning platform. (i.e. iLrn, Quia, VHL Central, WileyPlus, McGrawHill Connect, etc.)	From the course syllabus and/or calendar sent by email	Not Applicable
Lessons they should access	○	○	○	○	○
Readings (lesson sections) they should read	○	○	○	○	○
Assignments they should do individually	○	○	○	○	○
Assignments they should do in pairs or groups	○	○	○	○	○
Assignment grades	○	○	○	○	○
Assignment due dates	○	○	○	○	○
Instructor´s feedback on assignments	○	○	○	○	○

5.4) List at least one thing, but no more than three things, you like best about the online textbook(s) you are using in your online course(s).

5.5) List at least one thing, but no more than three things, you like least about the online textbook(s) you are using in your online course(s).

5.6) Select the sites/areas where students can get information about the following printed (hard copy) textbook´s items? Choose all that apply. If an item is not part of your course, select "Not applicable".

	From the Learning Management System that delivers the course (i.e. Canvas, Blackboard, Moodle, eCollege, etc.)	From the publisher´s learning platform. (i.e. iLrn, Quia, VHL Central, WileyPlus, McGrawHill Connect, etc.)	From the course syllabus and/or calendar sent by email	Not Applicable
Lessons they should access	○	○	○	○
Readings (lesson sections) they should read	○	○	○	○

Assignments they should do individually	○	○	○	○
Assignments they should do in pairs or groups	○	○	○	○
Assignment grades	○	○	○	○
Assignment due dates	○	○	○	○
Instructor´s feedback on assignments	○	○	○	○

5.7) When your students buy the course textbook, online textbook and/or activities manual, do they have access to the publisher´s Learning Management System (i.e. iLrn, Quia, VHL Central, WileyPlus, McGrawHill Connect, etc.) as well?

○ Yes

○ No

○ I don´t know.

5.8) Please select how often do you use the following components of the publisher´s Learning Management System in your online course(s).

	Very frequently	**Frequently**	**Occasionally**	**Rarely**	**Never**
Email	○	○	○	○	○
Voicemail	○	○	○	○	○
Announcements	○	○	○	○	○
Voice boards	○	○	○	○	○
Gradebook	○	○	○	○	○
Discussion boards	○	○	○	○	○
Discussion boards	○	○	○	○	○
Other*	○	○	○	○	○

**If you selected “other”, please indicate which other components you use. _____

5.9) List at least one thing, but no more than three things, you like best about the publishers Learning Management System you use in your online course(s).

5.10) List at least one thing, but no more than three things, you like least about the publishers Learning Management System you use in your online course(s).

6) CHALLENGES OF TEACHING ONLINE FOREIGN LANGUAGES

6.1) In your experience, what are the major challenges of online language courses that are administered through a Learning Management System? List at least one challenge, but no more than three challenges.

6.2) Please, explain briefly how you have overcome (or not) those challenges?

7) AGREEMENT TO PROVIDE FURTHER INFORMATION

I am very grateful for your time and participation. Many thanks for making an important contribution to this project.

7.1) Please, indicate if I (M. Isabel Mayo-Harp) can contact you by email in case I need further information about your responses.*

- ○ Yes, I can be contacted for further information.
- ○ No, I cannot be contacted later on.

7.2) Do you want to receive a copy of the final study?

- ○ Yes, I want to receive a copy of the final study.
- ○ No, I don't want to receive a copy of the final study.

Appendix C.

Statistical Analyses

C.1. Binary Logistic Regression Results

Tables C-1.1 EMAIL (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	28.217	15	.020
	Block	28.217	15	.020
	Model	28.217	15	.020

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	52.146	.274	.458

Hosmer and Lemeshow Test

Step 1	Chi-square	df	Sig.
	3.209	7	.865

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			2.463	6	.063	
Canvas	.522	1.096	.227	1	.633	1.686
D2L	1.603	1.513	1.122	1	.289	4.970
Moodle	-.654	1.193	.301	1	.583	.520
Angel Learning	2.424	12.237	.000	1	.059	6.039
Sakai	2.990	11.912	.000	1	.999	91.769
Publishers´	-1.256	1.405	.799	1	.049	.285
Language taught			8.654	5	.052	
Romance	-2.174	.989	4.834	1	.028	.214
Oriental	-1.554	1.453	1.144	1	.285	.211
Asian	7.519	6.221	.000	1	1.000	4.260
Germanic	-1.264	1.587	.634	1	.426	.282
Other European	-5.566	2.081	7.156	1	.007	.004
Years of online teaching			8.660	4	.049	
Less than 1 year	-1.965	1.341	2.145	1	.053	.140
From 1 to 3 years	2.098	1.253	2.802	1	.056	6.146
From 4 to 6 years	1.080	1.103	.679	1	.089	4.403
From 7 to 9 years	1.999	1.395	2.053	1	.052	3.382
Constant	2.291	.995	5.300	1	.021	9.884

**Reference categories: Blackboard, Spanish, 10 or more years of online experience

Tables C-1.2 ANNOUNCEMENTS (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	22.517	15	.085
	Block	22.517	15	.085
	Model	22.517	15	.085

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	54.599	.226	.387

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	2.230	8	.973

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			5.949	6	.429	
Canvas	.901	1.110	.658	1	.417	2.461
D2L	.545	1.430	.145	1	.703	1.725
Moodle	19.893	14631.913	.000	1	.999	435966097.083
Angel Learning	-2.199	1.359	2.616	1	.106	.111
Sakai	19.292	17795.353	.000	1	.999	239081954.054
Publishers´	-2.189	1.310	2.794	1	.095	.112
Language taught			8.108	5	.089	
Romance	-2.829	1.038	7.422	1	.006	.059
Oriental	-1.394	1.357	1.056	1	.304	.248
Asian	-23.794	14631.914	.000	1	.999	.000
Germanic	.427	1.545	.076	1	.782	1.533
Other European	-1.790	1.600	1.251	1	.263	.167
Years of online teaching			4.586	4	.078	
Less than 1 year	22.298	2502.758	.000	1	.999	19034.554
From 1 to 3 years	1.282	.972	1.739	1	.187	3.604
From 4 to 6 years	.423	1.162	.132	1	.716	2.526
From 7 to 9 years	2.611	1.282	4.151	1	.042	2.612
Constant	1.954	1.007	3.769	1	.052	7.058

**Reference categories: Blackboard, Spanish, 10 or more years of online experience

Tables C-1.3 CONTENT MODULES (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	19.428	15	.195
	Block	19.428	15	.195
	Model	19.428	15	.195

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	50.674[a]	.198	.361

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	1.937	8	.983

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			5.648	6	.464	
Canvas	-.788	.918	.737	1	.391	.455
D2L	18.194	12678.625	.000	1	.999	79699538.375
Moodle	18.967	16005.064	.000	1	.999	172652383.494
Angel Learning	.114	1.692	.005	1	.946	1.121
Sakai	-4.013	1.698	5.586	1	.018	.018
Publishers´	18.792	15103.797	.000	1	.999	145010474.788
Language taught			.303	5	.998	
Romance	-.440	.932	.223	1	.637	.644
Oriental	-.210	1.236	.029	1	.865	.811
Asian	.042	31372.232	.000	1	1.000	1.043
Germanic	-.650	1.725	.142	1	.706	.522
Other European	17.876	15395.533	.000	1	.999	57983749.487
Years of online teaching			2.615	4	.624	
Less than 1 year	.610	1.784	.117	1	.732	1.841
From 1 to 3 years	-1.115	1.067	1.091	1	.296	.328
From 4 to 6 years	-.608	1.290	.222	1	.637	.544
From 7 to 9 years	1.039	1.598	.423	1	.516	2.826
Constant	2.621	1.085	5.835	1	.016	13.750

Tables C-1.4 LINKS AND FILES (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	15.065	15	.447
	Block	15.065	15	.447
	Model	15.065	15	.447

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	65.298[a]	.157	.263

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	10.822	7	.147

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			4.668	6	.587	
Canvas	.768	1.196	.412	1	.521	2.154
D2L	-1.615	1.164	1.925	1	.165	.199
Moodle	-1.736	1.153	2.267	1	.132	.176
Angel Learning	-.465	1.550	.090	1	.764	.628
Sakai	19.921	18799.636	.000	1	.999	448090449.573
Publishers´	-1.072	1.484	.522	1	.470	.342
Language taught			1.881	5	.865	
Romance	.483	.838	.332	1	.565	1.621
Oriental	-1.178	1.102	1.142	1	.285	.308
Asian	.345	1.867	.034	1	.853	1.412
Germanic	.845	1.702	.247	1	.619	2.329
Other European	20.852	16914.387	.000	1	.999	1137358461.643
Years of online teaching			5.097	4	.277	
Less than 1 year	-1.983	1.744	1.293	1	.256	.138
From 1 to 3 years	-2.768	1.445	3.671	1	.055	.063
From 4 to 6 years	-1.098	1.464	.562	1	.453	.334
From 7 to 9 years	-1.404	1.399	1.008	1	.315	.246
Constant	3.478	1.408	6.105	1	.013	32.390

Tables C-1.5 STUDENT FILE STORAGE (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	13.098	15	.595
	Block	13.098	15	.595
	Model	13.098	15	.595

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	83.614[a]	.138	.207

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5.953	8	.653

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			3.524	6	.741	
Canvas	-.523	.844	.384	1	.535	.593
D2L	-.933	1.084	.741	1	.389	.393
Moodle	-.303	1.220	.062	1	.804	.738
Angel Learning	1.896	1.321	2.060	1	.151	6.657
Sakai	-.798	1.475	.293	1	.588	.450
Publishers´	-.623	1.312	.225	1	.635	.536
Language taught			3.158	5	.676	
Romance	-.602	.769	.611	1	.434	.548
Oriental	.602	.896	.452	1	.501	1.826
Asian	-19.856	28392.488	.000	1	.999	.000
Germanic	-1.699	1.568	1.173	1	.279	.183
Other European	.870	1.317	.436	1	.509	2.387
Years of online teaching			2.617	4	.624	
Less than 1 year	-21.210	14267.911	.000	1	.999	.000
From 1 to 3 years	-1.146	.816	1.973	1	.160	.318
From 4 to 6 years	-1.218	.903	1.820	1	.177	.296
From 7 to 9 years	-.928	.829	1.256	1	.263	.395
Constant	-.010	.720	.000	1	.989	.990

Tables C-1.6 TEST CREATOR TOOLS (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	21.911	15	.110
	Block	21.911	15	.110
	Model	21.911	15	.067

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	93.454[a]	.220	.202

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	2.455	7	.930

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			4.959	6	.549	
Canvas	-.598	.725	.680	1	.410	.550
D2L	1.168	1.090	1.149	1	.284	3.217
Moodle	21.697	15341.807	.000	1	.999	2646557993.035
Angel Learning	.948	1.111	.727	1	.394	2.579
Sakai	-2.356	1.507	2.444	1	.118	.095
Publishers´	-.076	1.070	.005	1	.943	.926
Language taught			5.932	5	.313	
Romance	-.277	.659	.177	1	.674	.758
Oriental	1.600	1.184	1.828	1	.176	4.955
Asian	-22.570	15341.807	.000	1	.999	.000
Germanic	.909	1.287	.499	1	.480	2.483
Other European	-1.967	1.190	2.731	1	.058	.140
Years of online teaching			7.382	4	.117	
Less than 1 year	.201	1.094	.034	1	.854	1.223
From 1 to 3 years	-.557	.742	.563	1	.453	.573
From 4 to 6 years	-1.880	.870	4.665	1	.031	.153
From 7 to 9 years	.344	.826	.174	1	.677	1.411
Constant	.980	.695	1.988	1	.159	2.663

Tables C-1.7 CHAT-ROOM TOOL (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	23.756	15	.069
	Block	23.756	15	.069
	Model	23.756	15	.069

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	59.692[a]	.237	.386

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	1.751	8	.988

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			3.772	6	.707	
Canvas	-.219	.869	.063	1	.801	.804
D2L	-.900	1.282	.493	1	.483	.407
Moodle	-19.673	15985.339	.000	1	.999	.000
Angel Learning	2.801	1.527	3.363	1	.067	16.453
Sakai	-20.598	18769.301	.000	1	.999	.000
Publishers´	-20.077	14919.753	.000	1	.999	.000
Language taught			1.602	5	.901	
Romance	-.865	.896	.932	1	.334	.421
Oriental	.526	.995	.280	1	.597	1.693
Asian	-.641	32408.087	.000	1	1.000	.527
Germanic	.400	1.597	.063	1	.802	1.493
Other European	-21.477	14620.283	.000	1	.999	.000
Years of online teaching			1.718	4	.787	
Less than 1 year	-20.708	12909.009	.000	1	.999	.000
From 1 to 3 years	-.759	.931	.664	1	.415	.468
From 4 to 6 years	-1.247	1.105	1.273	1	.259	.287
From 7 to 9 years	-.012	.943	.000	1	.990	.988
Constant	-.556	.817	.463	1	.496	.574

Tables C-1.8 WHITEBOARD TOOL (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	10.079	15	.815
	Block	10.079	15	.815
	Model	10.079	15	.815

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	48.010[a]	.108	.224

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	1.689	8	.989

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			.197	6	1.000	
Canvas	-.190	1.012	.035	1	.851	.827
D2L	-.313	1.340	.054	1	.816	.731
Moodle	-19.056	16401.400	.000	1	.999	.000
Angel Learning	.607	1.649	.135	1	.713	1.834
Sakai	-19.767	18747.024	.000	1	.999	.000
Publishers´	-19.480	15153.827	.000	1	.999	.000
Language taught			.059	5	1.000	
Romance	-.106	.975	.012	1	.913	.899
Oriental	.125	1.265	.010	1	.922	1.133
Asian	.073	32809.237	.000	1	1.000	1.076
Germanic	.269	1.659	.026	1	.871	1.309
Other European	-19.095	16526.513	.000	1	.999	.000
Years of online teaching			2.638	4	.620	
Less than 1 year	-19.978	13949.478	.000	1	.999	.000
From 1 to 3 years	-1.475	1.047	1.987	1	.159	.229
From 4 to 6 years	-1.290	1.162	1.233	1	.267	.275
From 7 to 9 years	-1.380	1.222	1.275	1	.259	.252
Constant	-.793	.870	.830	1	.362	.452

Tables C-1.9 MULTIMEDIA-ROOM TOOL (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	21.162	15	.132
	Block	21.162	15	.132
	Model	21.162	15	.132

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	75.550[a]	.214	.321

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5.853	8	.664

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			1.683	6	.946	
Canvas	-.672	.823	.665	1	.415	.511
D2L	-1.186	1.050	1.275	1	.259	.305
Moodle	-.660	1.277	.267	1	.605	.517
Angel Learning	-.054	1.441	.001	1	.970	.947
Sakai	-21.790	18621.321	.000	1	.999	.000
Publishers´	-21.067	15533.468	.000	1	.999	.000
Language taught			2.527	5	.772	
Romance	-.615	.745	.682	1	.409	.541
Oriental	.896	.939	.911	1	.340	2.450
Asian	-20.268	27413.737	.000	1	.999	.000
Germanic	.959	1.616	.352	1	.553	2.609
Other European	-.285	1.446	.039	1	.844	.752
Years of online teaching			6.881	4	.142	
Less than 1 year	-20.840	13689.192	.000	1	.999	.000
From 1 to 3 years	-1.551	.848	3.340	1	.068	.212
From 4 to 6 years	-2.036	.984	4.276	1	.039	.131
From 7 to 9 years	-.128	.836	.023	1	.879	.880
Constant	.402	.761	.279	1	.598	1.495

Tables C-1.10 DOCUMENT SHARING TOOL (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	26.125	15	.037
	Block	26.125	15	.037
	Model	26.125	15	.037

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	63.043[a]	.257	.403

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	2.940	8	.938

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			2.349	6	.885	
Canvas	-.715	.850	.706	1	.401	.489
D2L	-21.257	11978.936	.000	1	.999	.000
Moodle	-1.045	1.209	.748	1	.387	.352
Angel Learning	-18.886	12638.495	.000	1	.999	.000
Sakai	-1.937	1.618	1.434	1	.231	.144
Publishers´	-20.510	14849.520	.000	1	.999	.000
Language taught			3.225	5	.665	
Romance	.323	.745	.187	1	.665	1.381
Oriental	1.854	1.033	3.224	1	.173	6.388
Asian	-19.017	27714.403	.000	1	.999	.000
Germanic	-19.156	13138.899	.000	1	.999	.000
Other European	-17.229	14263.516	.000	1	.999	.000
Years of online teaching			4.587	4	.052	
Less than 1 year	-20.219	13082.413	.000	1	.999	.000
From 1 to 3 years	-2.092	.986	4.502	1	.034	.123
From 4 to 6 years	-.886	.965	.843	1	.058	.312
From 7 to 9 years	-.837	.912	.842	1	.062	.483
Constant	.189	.812	.054	1	.816	1.209

Tables C-1.11 PEER-REVIEW TOOL (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	13.458	15	.567
	Block	13.458	15	.567
	Model	13.458	15	.567

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	60.241[a]	.142	.250

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	1.731	7	.973

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			1.301	6	.972	
Canvas	-.883	.958	.850	1	.357	.413
D2L	-21.001	12629.152	.000	1	.999	.000
Moodle	.411	1.359	.091	1	.762	1.508
Angel Learning	-19.736	12757.778	.000	1	.999	.000
Sakai	-.660	1.536	.185	1	.667	.517
Publishers´	-.890	1.400	.404	1	.525	.411
Language taught			1.592	5	.902	
Romance	.389	.772	.254	1	.614	1.475
Oriental	.717	1.111	.417	1	.519	2.048
Asian	-20.202	28403.687	.000	1	.999	.000
Germanic	-18.782	14124.422	.000	1	.999	.000
Other European	1.911	1.733	1.216	1	.270	6.759
Years of online teaching			2.965	4	.564	
Less than 1 year	-.775	1.473	.277	1	.599	.461
From 1 to 3 years	-.882	.938	.885	1	.347	.414
From 4 to 6 years	-2.270	1.342	2.860	1	.091	.103
From 7 to 9 years	-.675	.958	.497	1	.481	.509
Constant	-.637	.799	.636	1	.425	.529

Tables C-1.12 WIKI TOOL (Binary Logistic Regression)

Case Processing Summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	88	90.7
	Missing Cases	9	9.3
	Total	97	100.0
Unselected Cases		0	.0
Total		97	100.0

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	13.439	15	.568
	Block	13.439	15	.568
	Model	13.439	15	.568

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	35.429[a]	.142	.332

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	1.348	8	.995

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
LMS use for teaching			1.121	6	.981	
Canvas	.341	1.085	.099	1	.753	1.407
D2L	-18.617	12009.240	.000	1	.999	.000
Moodle	-19.014	15198.893	.000	1	.999	.000
Angel Learning	-17.832	12886.056	.000	1	.999	.000
Sakai	-18.989	18275.812	.000	1	.999	.000
Publishers´	1.911	1.805	1.121	1	.290	6.762
Language taught			.568	5	.989	
Romance	.525	1.092	.231	1	.631	1.690
Oriental	.946	1.343	.496	1	.481	2.574
Asian	1.212	29736.185	.000	1	1.000	3.359
Germanic	-18.761	14112.122	.000	1	.999	.000
Other European	-16.648	14348.777	.000	1	.999	.000
Years of online teaching			.460	4	.977	
Less than 1 year	-17.694	12787.835	.000	1	.999	.000
From 1 to 3 years	-.583	1.145	.259	1	.610	.558
From 4 to 6 years	.122	1.267	.009	1	.923	1.130
From 7 to 9 years	-19.660	8450.387	.000	1	.998	.000
Constant	-1.911	1.122	2.904	1	.088	.148

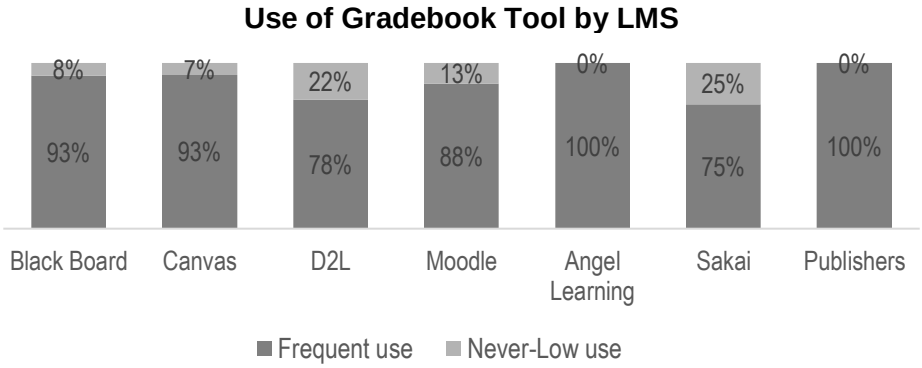
C.2. Distribution Charts of the Percentage of Instructions Who Make Use of Each Tool to Deliver or Implement Learning Activities by LMS, Language Taught and Years of Online Teaching Experience

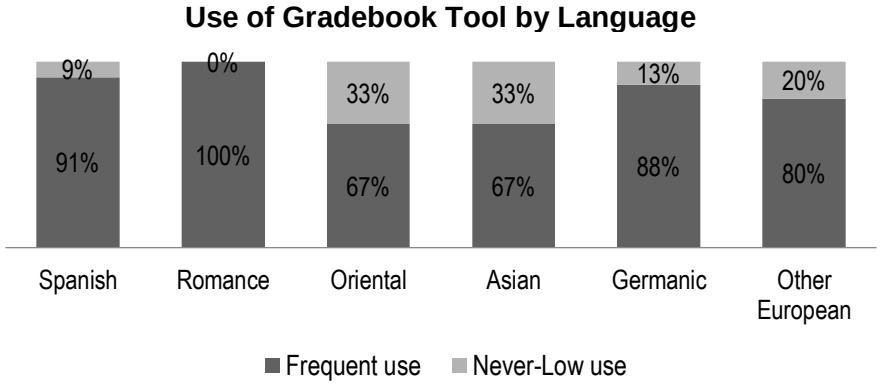
Chart 4.4 in lesson 4 showed the percentage of online instructors who reported implementing each of the different language activities in their courses and the percentage of instructors who made use of a LMS tool to deliver those activities. The following table shows the numbers from which those percentages were calculated.

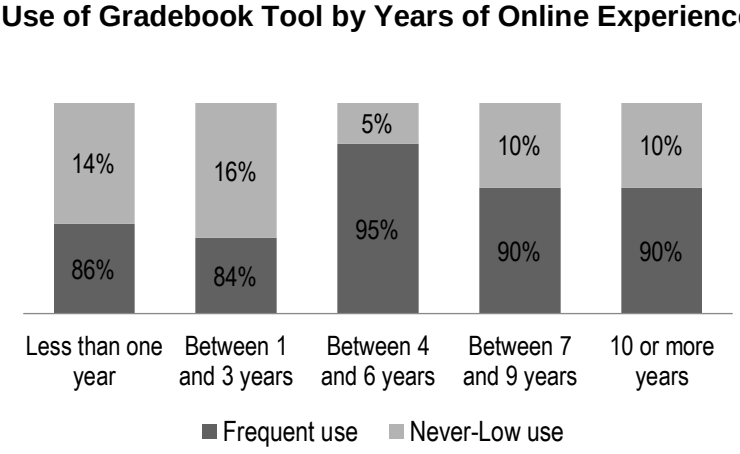
Table C-2.1 Number of Online Instructors Who Implement Different Learning Activities and the Number who do it via LMS tool(s)

	Learning Activities											
LMS Tools	Grammar Tutorials	Grammar Activities	Vocabulary Activities	Listening Comprehension	Reading Comprehension	Writing	Speaking (Individual Oral	Pair Writing Activities	Pair Oral Activities	Cultural Awareness	Watch Videos	Lesson Assessments
Yes	85	90	90	88	89	90	79	28	46	87	83	88
No	7	2	2	4	3	2	13	64	46	5	9	4
Through LMS	50	47	47	47	50	60	31	20	19	48	42	58
Gradebook	0	0	0	0		0	0	0	0	0	0	3
Email	18	11	7	4	6	14	1	5	0	6	1	1
Announcements	15	10	8	4	7	8	1	1	3	8	4	1
Course content modules	39	32	40	36	43	44	17	9	9	46	35	24
Links and files	30	22	23	24	31	2	7	5	3	27	22	8
Discussion boards	22	15	25	10	21	15	9	14	6	25	5	2
Assessments / Test Creators	16	19	25	15	24	13	10	1	2	11	3	41
Calendar	0	0	0	0		0	0	0	0	0	0	2
Student file storage	17	13	16	11	17	14	10	4	3	10	9	3
Multimedia rooms	7	9	9	14	7	9	11	4	10	8	6	3
Document sharing	7	7	5	2	10	5	1	2	3	10	4	1
Chat rooms	3	4	4	1	5	4	1	2	2	4	0	1
Peer review tools	2	2	4	1	4	2	2	1	2	2	1	0
Whiteboards	5	1	6	2	4	1	2	2	3	2	0	0
Wikis	3	3	1	0	1	4	1	2	0	1	0	0
Other	8	8	5	4	2	5	4	1	2	2	2	5

Charts C-2.1 Gradebook

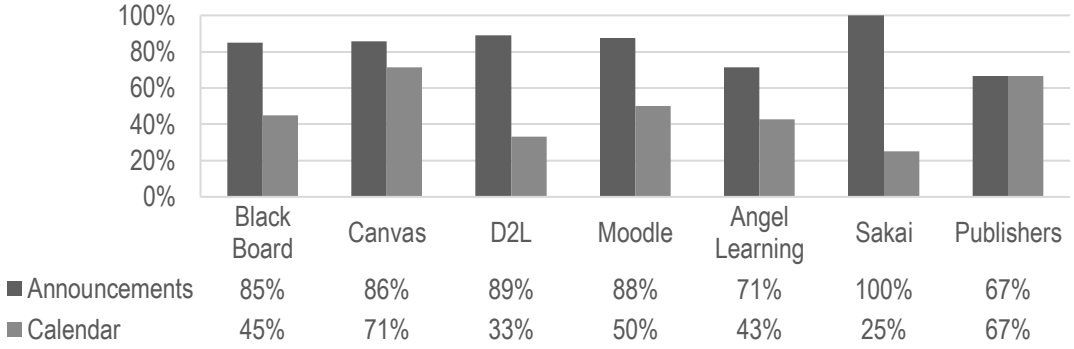






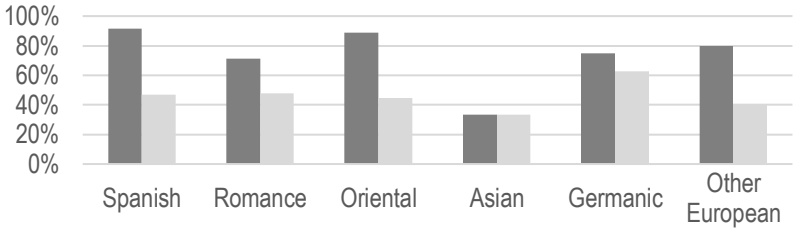
Charts C-2.2 Announcements and Calendar

Use of Announcements and Calendar Tools by LMS



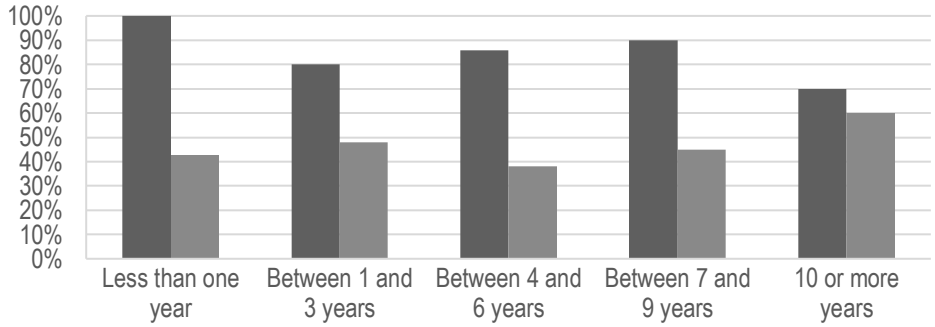
	Black Board	Canvas	D2L	Moodle	Angel Learning	Sakai	Publishers
Announcements	85%	86%	89%	88%	71%	100%	67%
Calendar	45%	71%	33%	50%	43%	25%	67%

Use of Announcements and Calendar Tools by Language



	Spanish	Romance	Oriental	Asian	Germanic	Other European
Announcements	91%	71%	89%	33%	75%	80%
Calendar	47%	48%	44%	33%	63%	40%

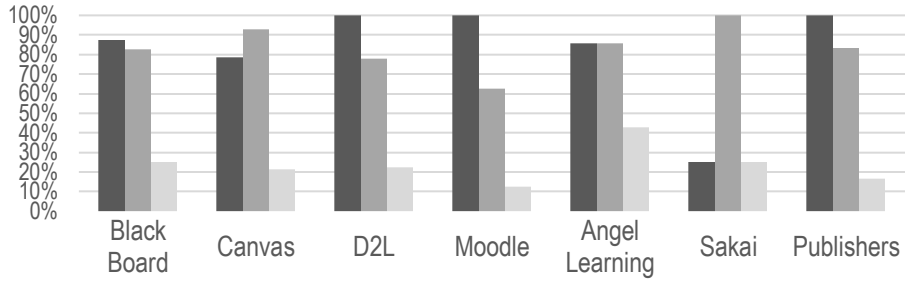
Use of Announcements and Calendar Tools by Years of Experience



	Less than one year	Between 1 and 3 years	Between 4 and 6 years	Between 7 and 9 years	10 or more years
Announcements	100%	80%	86%	90%	70%
Calendar	43%	48%	38%	45%	60%

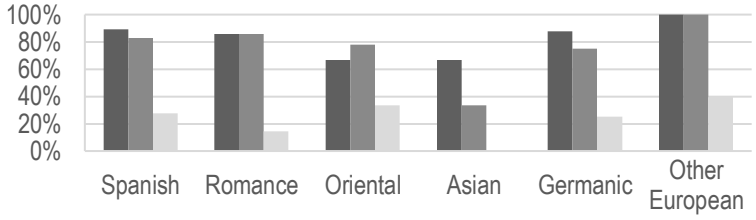
Charts C.2.3 Content Modules, Links and Files and File Storage Tools

Use of Content Modules, Links and Files and Student File Storage tools by LMS



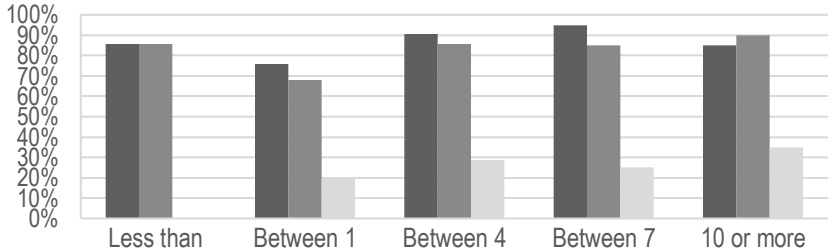
	Black Board	Canvas	D2L	Moodle	Angel Learning	Sakai	Publishers
Content Modules	88%	79%	100%	100%	86%	25%	100%
Links & Files	83%	93%	78%	63%	86%	100%	83%
Student File Storage	25%	21%	22%	13%	43%	25%	17%

Use of Content Modules, Links and Files and Student File Storage tools by Language



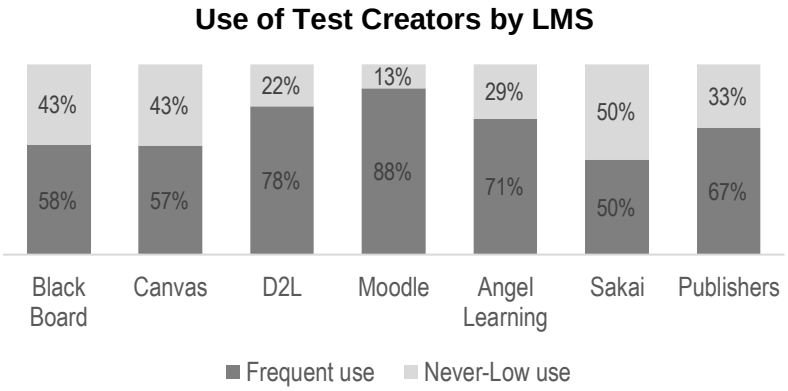
	Spanish	Romance	Oriental	Asian	Germanic	Other European
Content Modules	89%	86%	67%	67%	88%	100%
Links & Files	83%	86%	78%	33%	75%	100%
Student File Storage	28%	14%	33%	0%	25%	40%

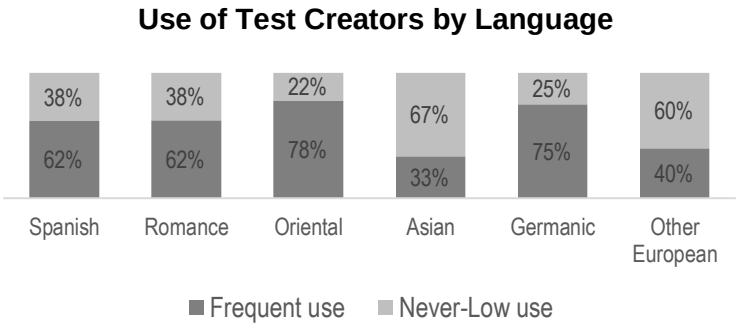
Use of Content Modules, Links and Files and Student File Storage tools by Years of Experience

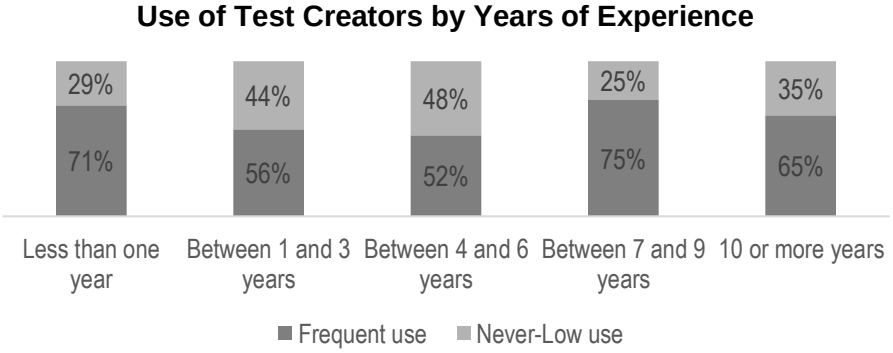


	Less than one year	Between 1 and 3 years	Between 4 and 6 years	Between 7 and 9 years	10 or more years
Content Modules	86%	76%	90%	95%	85%
Links & Files	86%	68%	86%	85%	90%
Student File Storage	0%	20%	29%	25%	35%

Charts C-2.4 Test Creators

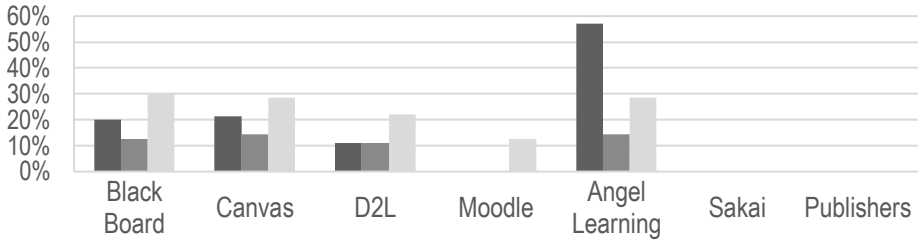






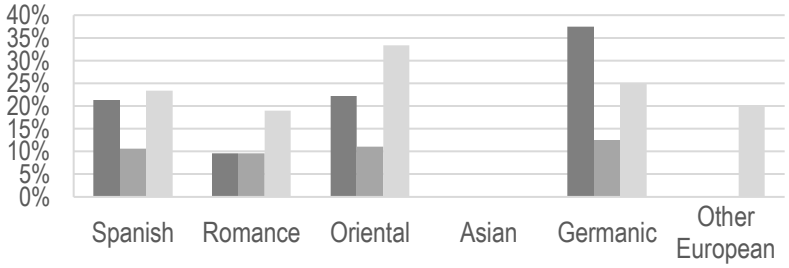
Charts C-2.5 Chat-rooms, Whiteboards and Multimedia rooms

Average Percentage of Instructors Who Frequently use Chat-rooms, Whiteboards and Multimedia-rooms by LMS



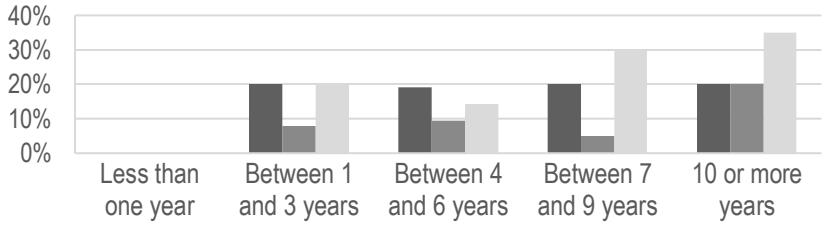
	Black Board	Canvas	D2L	Moodle	Angel Learning	Sakai	Publishers
Chat-rooms	20%	21%	11%	0%	57%	0%	0%
Whiteboards	13%	14%	11%	0%	14%	0%	0%
Multimedia rooms	30%	29%	22%	13%	29%	0%	0%

Average Percentage of Instructors Who Frequently use Chat-rooms, Whiteboards and Multimedia-rooms by Language



	Spanish	Romance	Oriental	Asian	Germanic	Other European
Chat-rooms	21%	10%	22%	0%	38%	0%
Whiteboards	11%	10%	11%	0%	13%	0%
Multimedia-rooms	23%	19%	33%	0%	25%	20%

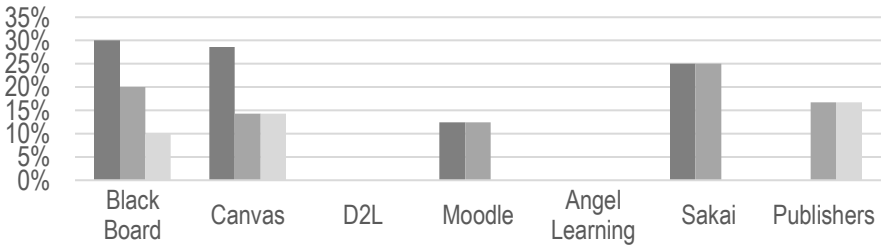
Average Percentage of Instructors Who Frequently use Chat-rooms, Whiteboards and Multimedia-rooms by Years of Experience



	Less than one year	Between 1 and 3 years	Between 4 and 6 years	Between 7 and 9 years	10 or more years
Chat-rooms	0%	20%	19%	20%	20%
Whiteboards	0%	8%	10%	5%	20%
Multimedia-rooms	0%	20%	14%	30%	35%

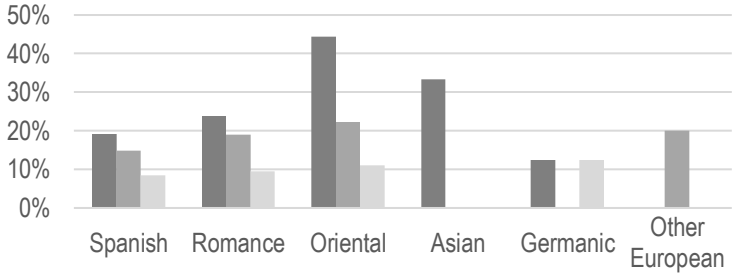
Charts C-2.6 Document Sharing, Peer-Review and Wikis

Average Percentage of Instructors Who Frequently Use Document Sharing, Peer-review and Wikis by LMS



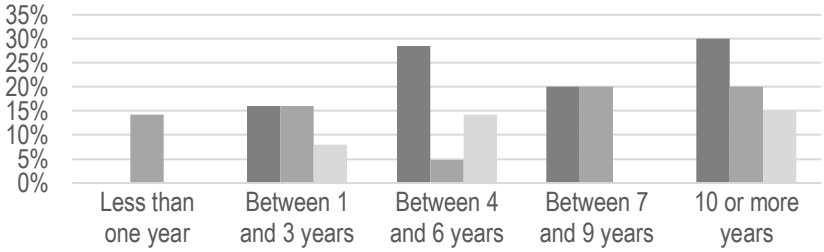
	Black Board	Canvas	D2L	Moodle	Angel Learning	Sakai	Publishers
Document sharing	30%	29%	0%	13%	0%	25%	0%
Peer-review	20%	14%	0%	13%	0%	25%	17%
Wikis	10%	14%	0%	0%	0%	0%	17%

Average Percentage of Instructors Who Frequently use Document Sharing, Peer-review and Wikis by Language



	Spanish	Romance	Oriental	Asian	Germanic	Other European
Document sharing	19%	24%	44%	33%	13%	0%
Peer-review	15%	19%	22%	0%	0%	20%
Wikis	9%	10%	11%	0%	13%	0%

Average Percentage of Instructors Who Frequently use Document Sharing, Peer-review and Wikis by Years of Experience



	Less than one year	Between 1 and 3 years	Between 4 and 6 years	Between 7 and 9 years	10 or more years
Document sharing	0%	16%	29%	20%	30%
Peer-review	14%	16%	5%	20%	20%
Wikis	0%	8%	14%	0%	15%