USE OF SYNCHRONOUS VIDEO TO DELIVER A LEARNER-CENTERED FOREIGN LANGUAGE COURSE AT A DISTANCE: A MIXED METHODS APPROACH

A Record of Study

by

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ABSTRACT

Foreign language courses that are delivered at a distance using synchronous video tend to be more instructor centered than learner centered. Based on literature indicating that foreign language learning occurs when learners are actively engaged, an instructor delivered an online college Spanish course with synchronous video sessions and flipped classroom methods. The same instructor also implemented flipped classroom methods for learners in a face-to-face class environment. A content analysis of weekly reflections by learners and the instructor revealed that both groups experienced qualities of learner-centered classes. The online group experienced more technical problems and the face-to-face group had more time to speak Spanish with classmates and the instructor. Learners also performed spoken Spanish language tasks before and after the treatment period, and face-to-face learners scored significantly higher on post-treatment scores compared to pre-treatment scores for the outcome of content, purpose, and organization. There was no statistically significant difference between the groups in gain scores from pre- to post-assessment. Online learners gave higher ratings for the scale of student autonomy on the Distance Education Learning Environments Survey, the only statistically significant difference from the survey results. Overall, the data support the use of flipped classroom methods to engage online learners and an orientation to online learning to reduce learners' problems with technology. Conducting online foreign language courses in a hybrid format would promote learners' regular participation in synchronous video sessions. Instructors might improve the quality of classes delivered by synchronous video by reading about best practices for learner-centered teaching, by embracing target values for synchronous video sessions, and by reflecting regularly on how well they fostered those qualities in their teaching.

DEDICATION

I happily dedicate this record of study to my family; to Jennie, my wife, and to Darcie, Christian, Josie, and Lillian, our children. I love you all.

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Contributors

Professors Radhika Viruru and Robin Rackley of the Department of Teaching, Learning, and Culture led the committee for this record of study as chair and co-chair, respectively. Professor Trina Davis of the Department of Teaching, Learning, and Culture and Professor Larry Dooley of the Department of Educational Administration and Human Resource Development served as committee members. Professor Karen Smith of the Department of Educational Administration and Human Resource Development also served as a committee member until her retirement. Professor Shaun Hutchins of the Department of Teaching, Learning, and Culture gave input for the analysis of quantitative data used in the study. All work for the record of study was completed by the student with guidance from the committee and Professor Hutchins. The field-based mentors for the record of study were administrators at the target institution. Field data was collected with the assistance of an instructor at the target institution. Colleagues in the student's doctoral program contributed to the study through peer reviews during the proposal stage of the study.

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1. INTRODUCTION TO THE ROS PROBLEM

1.1 The Problem Space

Instructors are able to promote interactive foreign language classes at a distance when learners have regular opportunities to converse with each other and their instructor. For this reason, foreign language educators often view synchronous audio and video as important components of delivering college courses at a distance. Interactive television (ITV) and internet-based conferencing software are two types of technology that have been used to facilitate live interaction between an instructor and learners in different locations. In ITV classrooms, an instructor communicates with one or more locations using a camera and microphone, and classrooms at remote sites are similarly equipped so that learners can also see and talk to the instructor. Instructors have relied on ITV technology to provide courses to students in high schools and at rural class sites because it used existing telephone lines. Until recent improvements in infrastructure, some rural areas did not have the capacity to support connections by internet. Over the past decade, rural schools have begun to replace ITV technology with internet-based conferencing tools. However, regardless of whether classes with synchronous video are delivered through ITV or over the internet, educators and learners may regard certain limitations of such classes as undermining the quality of the learning experience. For instance, since there is typically only one camera and one microphone at each connected site, ITV instructors maintain a high degree of control over the discourse between the sites, and learners are restricted in their capacity to talk to learners at other sites. This arrangement tends to result in classes that are more instructor centered than learner centered. In contrast, when classes are delivered though internet-based conferencing tools each learner is typically able to interact with

the instructor and their peers using their own microphone and camera. Nevertheless, the added capacity for learners to speak directly to other learners and their instructor does not guarantee that the instructor will promote engaging, learner-centered classes. The results of numerous studies indicate that problem-based, student-centered learning is generally more effective than traditional, instructor-centered learning (Strobel & Van Barneveld, 2009).

1.2 The Problem of Practice

1.2.1 Context. The current study took place at a public, two-year community college in Texas. The main campus of the college is located in a city with approximately 30,000 residents, and the service area of the college extends to the surrounding region comprised of twelve primarily rural counties. The college conducts most off-campus classes in area high schools and at a teaching center located approximately fifty miles from the main campus. The college offers associate degrees and transfer programs through four school, including Arts and Education, Business and Technology, Health Careers, and Science and Mathematics. In addition, the college offers a variety of short-term, noncredit vocational training programs and an adult education and literacy program that prepares learners to achieve a high school equivalency to enter workforce education or degree programs. Of the thirteen counties in the service area, only residents of the county where the main campus is located are included in the taxing district of the college. Apart from grant funding, the college is funded by tuition, state reimbursement for delivery of contact hours, and revenue collected from the taxing district. Residents of the taxing district pay lower in-district tuition rates to attend the college, while learners in the other counties pay higher out-of-district tuition rates. The college offers dual credit instruction to high school students at independent school district campuses throughout the service area. The college is governed by an elected board of trustees. The current college president is the third executive to

hold the position since the college opened in 1968. The executive council also includes the vice president of academic affairs, the vice president of business affairs, the vice president of workforce and continuing education, the executive director of institutional advancement, and the executive director of marketing and recruitment. An associate vice president supervises the director of learning resources and the senior director of distance education. The senior director of distance learning supervises the coordinator of the teaching center.

1.2.2 Initial understanding. Based on the researcher's experience as an instructor in distance education classes taught by ITV, he believed that the ITV class format often resulted in an instructor-centered learning environment that did not actively engage all learners. As the director of a teaching center of the college for four years, he witnessed other instructors dealing with the challenges of ITV, including occasional interruptions of service and the need to develop instructional strategies for teaching in the environment. Part of his job responsibilities as a director included academic advising, and he often spoke to students who expressed frustration about the limited communication between students and instructors in ITV classrooms. Some students tolerated the challenges of the format to avoid driving an hour or more to a traditional class on the main campus, while others avoided ITV classes altogether. The researcher taught Spanish classes through ITV for five years, and the problem of fostering a collaborative, engaging setting for learners led him to try a variety of teaching strategies. He often relied on proctors at different sites to distribute to learners various prompts and instructions for collaborative activities. For example, in an information gap activity, learners received partial information about a topic and they were required to speak to learners at other sites using the target language to obtain the information that they lacked. During his time as an instructor, the researcher would set up this activity by sending an email with instructions to proctors at the

different class sites. The proctors would print the activity, make copies for learners, and subsequently guide the in-class activity from their locations. Since each class site had one microphone and one camera, the instructor's role was to moderate the activity to ensure that learners at each site participated. He also monitored learners' utterances so that later in class he could provide general feedback on their strengths and areas for improvement. While this example demonstrates that it is possible to promote learner engagement in the ITV environment, it also highlights the fact that a single channel for communication limits the scope of collaboration that can be planned for an ITV class. The researcher eventually realized that a more collaborative, learner-driven ITV class environment would only be possible if other channels for communication were added to the classroom.

1.2.3 Relevant history of the problem. The college offered distance education classes through ITV for over fifteen years. According to the senior director for distance education, most high schools in the service area of the college have offered dual credit courses through ITV. In the fall of 2016, the college purchased access to Blackboard Collaborate, a learning management system tool that enables instructors to provide online class meetings with integrated video, chat, and desktop sharing capabilities. A year later, the college began to offer synchronous video instruction through Blackboard Collaborate instead of ITV. The researcher believed that the availability of a tool to foster synchronous communication would not necessarily result in classes that were learner centered. Therefore, the current study focused on the implementation of Blackboard Collaborate as a tool to promote learner-centered pedagogy in a distance education class. Instructors at the college who teach classes online participate in formal training offered through Quality Matters, a peer review program that provides standards of quality for online courses. Access to the training program is provided to the college free of charge through its

membership in a statewide consortium of community colleges. According to the director of learning resources, the training does not specifically address how instructors can promote active learning and interaction through synchronous video.

1.2.4 Stakeholder groups and values. Stakeholder groups include learners who are served by ITV classes, instructors of ITV classes, and administrators in high schools and at the college who are responsible for providing access to quality instruction. As a former teaching center administrator and instructor in the ITV environment, the researcher is familiar with the values of stakeholders in those groups. He has also spoken to instructors and administrators over a period of several years and has heard their views regarding problems with the ITV format. First, instructors and administrators widely acknowledge that distance education is necessary to provide courses to students in high schools and in rural locations, and the synchronous video format is a better option than asynchronous online courses for some learners. Also, instructors and administrators recognize the challenges of dealing with technical problems that can occur in ITV classes as well as the difficulty of engaging learners those settings. The stakeholders also recognize the challenge of engaging learners in ITV classes. Some instructors recognize the tendency for ITV classes to be instructor centered rather than learner centered, although not all stakeholders in these groups view this as a liability of the delivery format. In his former role as an academic advisor, the researcher encountered many students who recognized the challenges of learning in ITV classes. They often observed that their interactions with the course instructor were limited when they were receiving the class at a different site. They also noted problems that sometimes occurred with the ITV technology, such as occasional difficulty in reading the notes that instructors posted on the screen or distortion of the signal from another site.

1.3 Roles and Personal Histories

1.3.1 Background of the researcher. As a former instructor in ITV classes at the college, the researcher is aware of the difficulty of providing learner-centered instruction through this format. Also, as a former academic advisor at the college, he has spoken to many learners and instructors who expressed frustration with the ITV format. Resulting from this problem of practice, he decided to focus attention on the problem by conducting a research study. The researcher decided to conduct the intervention study in a Spanish classroom since he was aware of the pedagogies and challenges involved in offering a foreign language course though ITV. He has completed two master's degree programs related to Spanish and second language acquisition, and his experiences in these degree programs included extensive training in providing learner-centered instruction in a foreign language classroom. The researcher was a Spanish instructor in high schools and post-secondary environments for eighteen years, so he has extensive experience as a practitioner as well. Finally, his training in quantitative analysis includes two courses taken at another university and one course taken in the current graduate program. He has also taken one course on qualitative analysis and another course on mixed methods analysis. In summary, the researcher has extensive experience as a foreign language instructor and as a consumer of second language acquisition research and he possesses sufficient knowledge of qualitative and quantitative methods to undertake the current research project.

1.3.2 Field-based mentor. The vice president of academic affairs at the college was the researcher's field-based mentor for the second internship. She has held similar administrative positions at other community colleges and currently provides leadership for delivery of distance education at the college.

2. REVIEW OF THE LITERATURE

2.1 Limitations of Synchronous Video Classes

The use of synchronous video through the ITV format has enabled post-secondary institutions to provide courses to students in rural areas and high schools. The synchronous video format permits live interaction between instructors and learners and more closely resembles a traditional face-to-face learning environment than asynchronous online courses. The limitations of the synchronous video format, however, may undermine the goal of providing access to quality courses for all learners. Communication between participants at different sites of an ITV course is likely to occur less often than communication among participants in face-to-face settings, and learners and instructors connected by ITV technology are often unable to read the facial expressions of learners at other sites (Hoyt, Howell, Lindeman, & Smith, 2013). In addition, the traditional ITV class setup limits an instructor's ability to informally observe and interact with learners at remote locations when they collaborate in small groups (Hoyt et al.). Thus, instructors who normally conduct more learner-centered classes in face-to-face environments may tend to adopt more instructor-centered teaching practices (Bernard, Abrami, Lou, Borokhovski, Wade, Wozney, & Huang, 2004; Holloway & Chowdhury, 2008). Due to the benefits of interaction for second language learners, an instructor of a beginning Spanish course offered through ITV might be especially motivated to avoid this outcome.

2.2 Sociocultural Theory and Second Language Acquisition

According to constructivist viewpoints of learning, learners build their understanding of concepts through interaction with their surroundings and from prior experiences. In a classroom setting, this means that they should be actively engaged in the learning process. Jaramillo (1996)

related constructivist approaches to learning to Vygotsky's Sociocultural Theory. Vygotsky regarded language as a cultural "artifact" that individuals encounter through social interaction (Cole & Wertsch, 1996, p. 252). According to his worldview, language learning is an active process that depends upon the engagement of learners. However, instructor-centered teaching practices and limited communication between learners in the ITV format decrease learners' opportunities to use the target language during class meetings. Scholars in the field of second language acquisition have explored the usefulness of Vygotsky's framework in developing pedagogy for foreign language classrooms.

Lantolf and Beckett (2009) provide a timeline of studies published between 1985 and 2009 that relate aspects of Vygotsky's Sociocultural Theory to second language acquisition (SLA). Specifically regarding foreign language education, some of these studies investigate how social interaction promotes language acquisition or how individuals incorporate into their thought processes the concepts that they learn from such social interaction. Other studies deal with the "locus of mediation," the components of instruction that prompt learners to change their thought processes (p. 460). According to Turuk (2008), task-based, collaborative settings can provide the interaction with peers that second language learners need to acquire language skills. Regarding instructors, Anton (2009) describes a process of dynamic assessment that allows instructors to provide feedback to second language learners in speaking and writing tasks. In keeping with Sociocultural Theory, instructors who use this type of activity can provide learners with feedback that is tailored to their specific learning needs. Jang and Jimenez (2011) also cite Vygotsky's Sociocultural Theory as the basis for providing a collaborative environment for learners in which they can develop their own strategies for learning. Through such studies, pedagogy of foreign language education for the ITV classroom can be developed and supported.

Studies of second language acquisition rooted in sociocultural theory may provide a framework for an ITV pedagogy that is practically realized through aspects of flipped classroom pedagogy, best practices in ITV classrooms, and studies of active learning. Figure 1 is a graphic representation of how Sociocultural Theory may be regarded as a framework for the study.

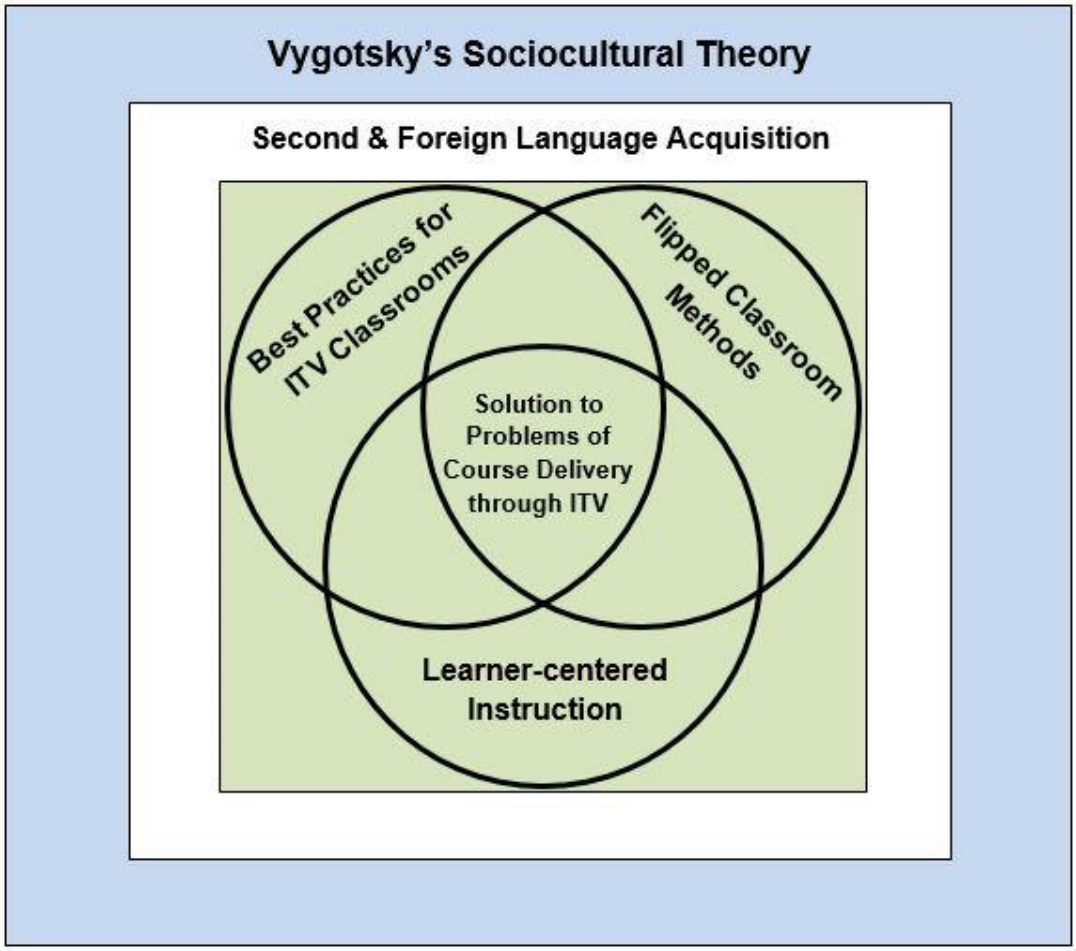

Figure 1. Vygotsky's Sociocultural Theory is shown as a framework for areas of literature that could collectively provide a solution to the challenges of delivering a beginning college Spanish course through ITV.

2.3 Relevant Literature

2.3.1 Best practices in synchronous video classroom environments. In a review of studies of ITV classes completed in the 1990s, Anderson & Kent (2002) found that learners located at a remote site of an ITV course were less satisfied with the course than learners who

were located at the instructor's site. Limitations of the ITV format led Bernard et al. (2004) to observe that "synchronous DE [distance education] is a poorer quality replication of classroom instruction" (p. 408). Nevertheless, researchers have found that certain behaviors by instructors optimize the learning experience for learners in ITV classrooms (Anderson & Garrison, 1995; Anderson & Kent, 2002; Bohnstedt, Kinas, Lojkovic, Brigham, & Behrmann, 2013). Anderson and Kent (2002) found that learners were more satisfied with ITV courses when instructors used more interactive teaching techniques and when learner-centered activities were incorporated. Bohnstedt et al. (2013) found that learners at remote sites participated more when instructors praised learners, called them by name, and looked into the camera. Hoyt et al. (2013) recommended that instructors in ITV classrooms adopt a pedagogy that prompts learners to work in groups, to ask questions, to solve problems, and to give presentations, among other suggestions. Bernard et al.'s (2004) meta-analysis of distance education studies found that most of the statistical variation in measures of achievement for learners in synchronous distance education classes was accounted for by study methodology, pedagogy, and use of media (technological tools). They conclude that successful pedagogy in distance education courses generally involves interactive, problem-based learning, "with the material leading to learner engagement, deep processing, and understanding" (p. 413).

More recent literature highlights the importance of careful planning by instructors to promote learner-centered experiences in synchronous video environments. Teel and Cordie (2017) recommend that instructors plan brief tasks for learners to complete during live sessions and that they conduct lengthy tasks offline. Some instructors assign readings to learners to complete before joining live video sessions. Learners prepare discussion points or questions for peers that they either post on a discussion board prior to the live sessions or that they bring to the

group sessions (Piotrowski & Robertson, 2017; Teel & Cordie, 2017). Other literature addresses instructor behaviors that promote rapport between learners and instructors. Rehn, Maor, & McConney (2016) found that instructors promoted better relationships and rapport between them and their students when they stood during class, spoke directly into the camera, used humor, and referred to students by name. Learners also benefitted from attending at least one meeting per semester in which they engaged in face-to-face contact with their instructor and their peers (Rehn, Maor, & McConney, 2016; Teel & Cordie, 2017).

Overall, the studies cited suggest that active learning—and not instructor-centered lecturing—is an important ingredient for successful synchronous video courses. Studies reveal that active learning is facilitated by highly organized courses that promote interaction among learners and between learners and instructors (Cuseo, 2002; Haak, Hille Ris Lambers, Pitre, & Freeman, 2011; Lammers & Murphy, 2002). A potential solution to the problem of ineffective synchronous video courses, then, would incorporate active learning pedagogies while still providing instructor-guided content. Recent research related to "flipped" classrooms may provide a framework for including both of these features in ITV courses.

2.3.2 Flipped classroom models. In the last decade, as the availability of learning technology in schools and private homes has increased, it has become more common for instructors of traditional, face-to-face classes to "flip" their classrooms. "Flipped" classrooms are conducted so that learners access basic course information through independent study rather than through presentations by an instructor in class. Instructors provide access to videos, readings, and other materials that learners can access outside of class. Class meetings are then adapted to serve as environments for active learning. Proponents of flipped classes find that learners can be challenged in class through activities that require higher order thinking processes

and higher levels of engagement compared to traditional instructor-centered classes (Ash, 2012; Fulton, 2012; Jamaludin & Osman, 2014). Learners in such classes conduct experiments, solve problems with other learners, present summaries of what they have learned, and field questions from their peers, among other activities (Cuseo, 1992; Fulton, 2012; Herreid, 2013; Lage, Platt, & Treglia, 2000; Lasry, Dugdale, & Charles, 2014; McLaughlin et al., 2014; Strayer, 2012). Some instructors modify the format of a flipped classroom by first guiding learners through a period of inductive learning followed by class meetings where hands-on tasks are completed (Ash, 2012). Other instructors give short or occasional in-class lectures after assessing students' comprehension of course material (Forsey et al., 2013; Lasry et al., 2014; McLaughlin et al., 2014). At any point during a flipped class, the instructor is available to step in and assist the learners. As a result, learners have frequent access to instructors during times when they are applying the new principles that they have learned.

Some studies have reported improved exam scores for students in flipped classrooms (Marcey & Brint, 2012; McLaughlin et al., 2014; Pierce & Fox, 2012). In surveys, learners have reported positive attitudes toward flipped classrooms. Learners reported that they were more engaged by activities in a flipped class than in a traditional class (Jamaludin & Osman, 2014), and that a flipped class better prepared them for a final exam than a traditional class would have done (Pierce & Fox, 2012). McLaughlin et al. (2014) report that over 90% of learners believed that flipped teaching methods promoted their understanding of course materials. A survey by Lage et al. (2000) of students in a flipped class revealed that a majority of learners believed that they learned more than they would have learned in a traditional class and that they preferred the flipped class format to a traditional format. A study of the use of flipped classroom methods could offer a solution to the problem of ineffective, instructor-centered distance education

environments. Such an approach could enable instructors to incorporate principles of sociocultural theory in synchronous video classes—such as mediation through social interaction—and help them overcome limitations of the delivery format.

2.3.3 Learner-centered instruction. Jonassen, Davidson, Collins, and Campbell (1995) wrote about the importance of the learner's environment in constructivist approaches to distance education. They supported the design of learning environments that would allow learners to use their existing knowledge as they worked collaboratively with other learners to solve problems. Bransford, Brown, and Cocking (2000) linked principles of learning to practical application. Specifically, they noted that active learning involves "sense-making, self-assessment, and reflection on what worked and what needs improvement" (Bransford et al., p. 12). Jonassen et al. (1995) contrasted the constructivist view of the learning environment to an objectivist view, noting that the latter involved providing learners with an external standard of knowledge and that an instructor's role was to guide learners to achieve that standard. Over the last two decades, a shift toward constructivist approaches to learning has coincided with increased attention to distance education environments. Chang and Hannafin (2015) cautioned that collaboration among learners in a distance education environment should involve the co-construction of ideas, and not merely cooperation in turning in assignments online. Wagner and McCombs (1995) cited learner-centered principles in their recommendations for designing distance education environments, including the importance of learners' individual traits, their attitudes toward learning, and their developing processes for learning.

2.4 Most Significant Research Studies

Table 1 is a summary of the research studies that provided the basis for the solution to the problem of instructor-centered synchronous video classes.

Table 1

Most Significant Research Studies

Citation	Background	Research Design	Findings
		Flipped Classrooms	
Asef-Vaziri, A. (2015). The flipped classroom of operations management: A not-for-cost-reduction platform. *Decision Sciences Journal of Innovative Education*, *13*(1), 71-89.	The researcher conducted a pilot study to gauge the effectiveness of flipped classroom learning materials and processes and to compare learning outcomes of students in a traditional classroom to learning outcomes of students in a flipped classroom.	Qualitative surveys and quantitative analysis of mid-term exam scores	Flipped classrooms with a highly structured online component can be more successful than traditional classrooms as measured by students' achievement on mid-term exams. Learning materials and processes that are emphasized in flipped classrooms are rated highly by students.
Davies, R. S., Dean, D. L., & Ball, N. (2013). Flipping the classroom and instructional technology integration in a college-level information systems spreadsheet course. *Educational Technology Research and Development*,61(4), 563-580.	Data were collected from students taking the same Excel software skills course in three different formats: traditional large-group lectures, independent study with lab videos and software simulation, and independent study through videos plus classroom support.	Pretest/posttest quasi-experimental mixed methods	Students perceptions of their learning outcomes were higher for the methods that offered time in class (flipped or traditional) than for the all computer-based, simulated approach.
Hung, H. T. (2015). Flipping the classroom for English language learners to foster active learning. *Computer Assisted Language Learning*, 28(1), 81-96.	The study compares the perceptions and learning outcomes of students in two types of flipped classrooms and a traditional classroom of the same course.	Post-test, quasi-experimental mixed methods design	Overall, the students in the flipped class with webquests performed better than the other two groups. Qualitative data revealed that students in flipped class with webquests were more involved in out-of-class study and had higher levels of satisfaction with learning experiences than students in the other classes.
Strayer, J. F. (2012). How learning in an inverted classroom influences cooperation, innovation and task orientation. *Learning Environments Research*,15(2), 171-193.	Researchers compared students' feedback on traditional and inverted formats of a beginning college statistics course.	Case studies were combined with qualitative analysis and quantitative surveys	The ability of the instructor of an inverted classroom to link at-home content with in-class practice may be a key to the success of an inverted classroom. Students may resist the demands of active learning.

Table 1 (continued)

Citation	Background	Research Design	Findings
Kim, M. K., Kim, S. M., Khera, O., & Getman, J. (2014). The experience of three flipped classrooms in an urban university: An exploration of design principles. *The Internet and Higher Education*, 22, 37-50.	The purpose of the study was to observe flipped classrooms from different disciplines to determine whether there are common instructional design principles that should be implemented to optimize student experiences.	Mixed methods: quantitative surveys and qualitative surveys and reflections	The authors extracted nine design principles for flipped classrooms: (1) providing incentives to students to complete assignments; (2) giving low-stakes graded assignments to assess learners' understanding of course content; (3) facilitating a learning community; (4) giving in-class assignments and homework that are connected; (5) providing structure; (6) providing feedback; (7) providing enough time for assignments; (8) providing opportunities to learn about concepts prior to attending class; and (9) providing technologies that are user-friendly.
		ITV Classrooms	
Carmel, A., & Gold, S. S. (2008) An analysis of factors impacting student satisfaction and retention in on-site and hybrid courses. *International Journal of Instructional Technology and Distance Learning*, 5(1), 25-34. Retrieved from http://www.itdl.org/Journal/Jan_08/index.htm.	In spite of rise in popularity of online course delivery, some institutions of higher education still rely on course delivery by ITV. This is especially the case in certain vocational training programs. The authors survey instructors who have taught in this learning environment to learn their recommendations for best practices.	Thirty-three ITV instructors representing thirteen different instructional disciplines completed a survey consisting of 46 questions. The authors designed the survey questions based on areas of concern related to ITV instruction that emerged in the literature review: use of technology, communication challenges, workload, and student evaluations.	Instructors' responses highlighted concerns related to hardware, reliability and quality of connections between sites, and sufficient training to use technology. Slightly more than half of instructors reported using a blend of traditional and active learning. Most instructors indicated that they spent more time preparing to teach in ITV classes than in traditional classes. Some instructors received lower student ratings in their ITV classes compared to traditional classes.

Table 1 (continued)

Citation	Background	Research Design	Findings
McCall, M., Dunham, M., & Lyons, R. (2013). A comparison of student ratings in traditional and interactive television courses. *Educational Research Quarterly*, *37*(2), 61.	No study has collected longitudinal data on students' ratings of interactive television courses. Previous studies have considered small samples of students' ratings of individual courses in a variety of subject areas.	Group means for survey items were calculated and compared. The three independent variables were the course delivery methods: traditional classroom, ITV sending site, and ITV receiving site.	Students gave better ratings to instructors in traditional courses and at ITV sending sites compared to instructors at ITV receiving sites. The author suggests that the ITV sending site be rotated, that best practices for highly rated instructors be studied, and that students be informed in advance about the limitations of ITV courses.
Rosen, L. B., Maeda, M., & Roberts, N. (2017). Gain time and differentiate to meet student needs in university learning environments: A flipped learning approach. In J.P. Loucky & J.L. Ware (Eds.), Flipped Instruction Methods and Digital Technologies in the Language Learning Classroom (pp. 159-182). Hershey, PA: IGI Global.	Flipped learning involves more than allowing students to do homework in class and self-paced study on their own. The authors highlight the potential for flipped learning to promote higher order thinking in class. They acknowledge that many instructors of foreign languages already do this to some extent, and they cite researchers in second language acquisition who believe that communication in the target language is necessary for learning to occur. For the authors, ITV classrooms potentially provide an environment where this can occur, in spite of the challenges of distance education.	Students completed surveys at the conclusion of the course to evaluate their perceptions of components of the flipped classroom. One group of students included a class of six students of Russian who were led by an ITV instructor at another site. Another group of students consisted of twelve students of Japanese who were taught locally, and four students at one distance site and nine students at another. The instructors of the two courses also kept journals to provide reflections on their teaching experiences.	In keeping with results of previous studies, the authors noted that learners were more engaged when they were quizzed on course material. They also cited the need for immediate feedback on quizzes that are given to check understanding of concepts. They found that instructors undermined the importance of assignments given as class preparation when they covered all of the pre-assigned material in class. Instructors found that the flipped ITV format allowed them to make up for time that they lost due to technical problems. Overall, the class design allowed instructors to limit instructional time to addressing students' misperceptions, and gave them more time to direct their own learning.

Table 1 (continued)

Citation	Background	Research Design	Findings
		Learner-Centered Instruction	
Bransford, J. D., Brown, A., & Cocking, R. (2000). How people learn: Mind, brain, experience and school, expanded edition. Washington, DC: National Academy Press, Washington.	The authors present the latest findings about human learning, the implications of these findings for learning environments, and research that can help individuals reach their potential.	The authors want to link science of learning to pedagogical practice.	Active learning involves meta-cognitive processes of "sense-making, self-assessment, and reflection on what worked and what needs improving" (p. 12). Learning versus transfer/understanding versus memorizing: "providing students with opportunities to first grapple with specific information relevant to a topic" can enable them to make more sense of a subsequent lecture (p. 58).
Chang, Y. & Hannafin, M. (2015). The uses (and misuses) of collaborative distance education technologies: Implications for the debate on transience in technology. *Quarterly Review of Distance Education*, 16(2), 77.	The design of collaborative learning environments has not always been based on research related to learning environments.	The authors give examples of effective and ineffective uses of collaborative learning technology in higher education. They also review design principles that integrate collaborative learning in distance education contexts, and they discuss the related consideration of "technological transience" (p. 77).	Instructors should be able to defend their choice of technology based on how it promotes collaborations. Adequate instructor support is required so that students engage in critical thinking and not solely in fulfillment of grade requirements. Higher cognitive level of engagement in online discussions associated with higher exam grades.
Jonassen, D., Davidson, M., Collins, M., Campbell, J., & Haag, B. B. (1995). Constructivism and computer-mediated communication in distance education. American Journal of Distance Education, 9(2), 7-26.	The authors describe a change that was ongoing in learning theory and instructional design at the time of the article's publication. Objectivist theories were giving way to constructivist theories. In constructivists' views, learning is context-dependent and socially, collaboratively acquired.	The authors believe that computers should be used to promote problem solving in the distance education environment. They believe that real life should be the basis for in-class problem solving, including the types of problems that students are asked to solve and the resources that they are given to solve them.	Distance learning should not simply be a vehicle for transmission of knowledge from instructors to students; rather, it should promote collaborative, learner-centered learning. Finally, the authors believe that students should be required to use knowledge learned previously as they solve problems.

Table 1 (continued)

Citation	Background	Research Design	Findings
Wagner, E. D., & McCombs, B. L. (1995). Learner centered psychological principles in practice: Designs for distance education. *Educational Technology*, 35(2), 32-35.	During a time when academic literature was beginning to focus on learning rather than teaching, the authors wrote about the ideal pairing of learner-centered practices and distance education. Distance education was considered ideal for learner centered practices since students learning at a distance were regarded as likely to be highly self-driven.	The authors encourage educators in distance learning to use learner centered psychological principles outlined by the American Psychological Association in 1993	Twelve learner centered principles identified by the APA were reduced to three broad themes. First, learners bring a wide variety of traits to the learning process. Second, the way that learners regard learning affects their success. Third, learners are developing in their processes for learning.
Walker, S. L., & Fraser, B. J. (2005). Development and validation of an instrument for assessing distance education learning environments in higher education: The Distance Education Learning Environments Survey (DELES). *Learning Environments Research*, *8*(3), 289-308.	The authors observed that many distance education courses are designed to transfer instructor-centered practices from a place-based environment to online. To promote learning, the distance education course must be designed to promote effective interactions among participants.	The authors developed a research-based survey for learners in distance education environments that included the following scales: Student Interaction and Collaboration, Instructor Support, Personal Relevance, Authentic Learning, Student Autonomy, and Active Larning.	The authors developed and validated a survey instrument for use in post-secondary distance education environments.
	Vygotsky		
Turuk, M. C. (2008). The relevance and implications of Vygotsky's sociocultural theory in the second language classroom. *Arecls*, 5, 244-262.	According to Vygotsky, humans interact with their environment through the use of tools, such as language.	Turuk cites writers who believe that Sociocultural Theory is relevant to second language acquisition.	Turuk suggests that task-based, collaborative learning can provide the interaction with the environment that second language learners need to learn. Also, Turuk describes Vygostsky's Zone of Proximal Development (ZPD) as the opportunity to learn that is created by the interaction of teachers and students. Instruction is based on the ZPD that is beyond the learner's current stage of development.

Table 1 (continued)

Citation	Background	Research Design	Findings
Cole, M., & Wertsch, J. V. (1996). Beyond the individual-social antinomy in discussions of Piaget and Vygotsky. *Human Development*, 39(5), 250-256.	The authors cite Piaget and Vygotsky to argue that they both acknowledged the validity of the views associated with the other—that learning comes from active child (associated with Piaget) and active environment (associated with Vygotsky).	The authors suggest that an important distinction between the ideas of Piaget and Vygotsky is how they view the role of mediation of human action by "cultural artifacts" (p. 250).	Vygotsky spoke of the special quality of humans to need to leave culture behind them (especially language). "Artifacts shape and transform mental processes," (p. 252.) "All psychological functions begin and to a large extent remain culturally, historically, institutionally situated," (p.252).
Gredler, M. E. (2012). Understanding Vygotsky for the classroom: Is it too late? *Educational Psychology Review*, *24*(1), 113-131.	Vygotsky's views of role of subject matter related to issue of school curricula in developing thinking; proposing a role for V's thinking in content standards	The author highlights discrepancies between Vygotsky's descriptions of the Zone of Proximal Distance (ZPD) and the ZPD as described by later authors.	Gredler also distinguishes between theories of learning and theories of cognitive development. She cites Vygotsky's claim that the latter involve "internal transformations of intellectual processes" that are not simply "a continuation of elementary functions" (p. 121). Regarding collaboration between students, she notes Vygotsky's belief that it can promote learning if the teacher "explains, informs, inquires, corrects, and forces the child to explain" (p. 125).
Jaramillo, J. A. (1996). Vygotsky's sociocultural theory and contributions to the development of constructivist curricula. *Education*, 117(1), 133.	Vygotsky presented concepts that were in keeping with constructivist frameworks developed later.	Jaramillo identified concepts of constructivism that were previously identified by Vygotsky, including socially negotiated construction of meaning, adults and more competent peers as facilitators of learning, problem solving and active learning participation.	Language is internalized as students engage in dialogue with more experienced partners. Language has a social component and a psychological component. Learners negotiate meaning in social interactions and teachers provide opportunities for active learning.

Table 1 (continued)

Citation	Background	Research Design	Findings
	Foreign Language Education/Second Language Acquisition		
Lantolf, J. P., & Beckett, T. G. (2009). Sociocultural theory and second language acquisition. *Language Teaching*, 42(04), 459-475.	SLA research informed by sociocultural theory began in the 1980s.	Several themes emerge in the research. Dynamic assessment describes how instruction and assessment are integrated. Internalization describes what happens when individuals take what they learn from social mediation and use it to regulate their own mental activity. Activity Theory involves the idea that cognitive development is promoted by social, purpose-driven activities.	Vygotsky's idea that theory relates to practical activity is a common thread through the research. Another implication of the studies cited is that all mental activity is symbolically mediated.
Anton, M. (2009). Dynamic assessment of advanced second language learners. *Foreign Language Annals*, 42(3), 576-598.	Language instructors need ways to assess abilities of their students that promote learning. In keeping with Dynamic assessment methods based in Vygotsky's Sociocultural Theory, Anton uses a formative method of assessing speaking and writing abilities that involves the instructor as a provider of mediation.	Anton described a process of dynamic assessment developed for foreign language learners.	An assessment process that includes diagnosis and follow-up allows a learner to demonstrate their full potential. The instructor can provide feedback that is relevant to individual learners.
Jang, E. Y., & Jiménez, R. T. (2011). A sociocultural perspective on second language learner strategies: Focus on the impact of social context. *Theory into Practice*, 50(2), 141-148.	Studies of learner strategies often focus on individual learners' traits. Based on Vygotsky's Sociocultural Theory, the authors propose that the social context of the class also affects learners' use of language.	Jang & Jiménez gave an example of a classroom activity, a working portfolio, that resulted in learners developing their own strategies for learning while they collaborated with other learners. They also gave an example of how racial tensions in a classroom undermined social cohesion and affected learning.	The social context of learning is important, as well as individual learner strategies.

3. FRAMING THE PROBLEM

3.1 The Problem Situation

3.1.1 Learning more. The researcher initially assumed that other instructors would also acknowledge the same limitations and benefits of the ITV classroom and that they would welcome ideas to improve the delivery format. To verify the validity of this assumption, he interviewed six instructors who had taught in both ITV and face-to-face classes. The researcher interviewed at least one instructor from each of the four academic schools of the college: Business and Technology, Arts and Education, Health Careers, and Science and Mathematics. All of the instructors reported certain challenges presented by the ITV class environment, and they offered a variety of examples to demonstrate how they have dealt with these challenges. One instructor reported that she has adapted to the physical separation from students in ITV classes by posting class documents in Blackboard, the learning management system, prior to class meetings. Another instructor reported that she relies on proctors at distant sites of an ITV class to maintain order in the class and to keep learners on task. A third instructor has adapted to downtime related to connection problems by delaying the delivery of planned content in such cases and by improvising until all sites are connected. To improve communication between learners at different sites, one instructor calls on learners at each site and checks to make sure that all learners can hear the students at other sites. Another instructor implemented flipped classroom strategies after learning new teaching techniques at a conference. In a typical flipped class session, the instructor begins by giving learners a quiz over a reading assigned prior to class meetings. Next, in class, the instructor gives students a group quiz that requires students at each site to work through different scenarios together. Students at distant sites are guided by instructors at their own locations who teach classes in the same vocational program. These

students are part of a cohort program that makes it possible for instructors to work together to implement flipped classroom teaching. Rather than modify the technology of the ITV classroom, these instructors have taken advantage of the cohort setting to implement a learner-centered instructional model.

Table 2 summarizes values that emerged during interviews with instructors who have taught ITV classes at the college. The researcher asked each instructor whether they regarded one of the delivery formats, either face-to-face or ITV classes, as better for promoting students' success. He also asked whether they promoted collaborative learning in their classrooms, whether the ITV environment could be improved, and if they taught differently in face-to-face classes compared to ITV classes. These questions provided a basis for establishing whether or not instructors had made previous attempts to improve the ITV class format and for understanding instructors' values related to the delivery of ITV classes. Several instructors highlighted their concern for students' level of comfort or feelings of connectedness to others in the ITV class environment, and others referred to social values, such as the access to education afforded by the ITV delivery format. Another instructor believes in the value of assigning service projects to all students, regardless of whether they are enrolled in an ITV or face-to-face class. Most instructors spoke about professional values, such as their knowledge of instructional techniques used in the ITV environment and the extra effort that is required to teach a distance education course. Other instructors noted that they received lower ratings from students in their ITV classes and that they are frustrated by downtime caused by technology problems. Several instructors talked about organizational values, including a need for administrators to devote sufficient resources to support ITV classes and for support staff to be trained to effectively assist students and instructors in ITV classes.

Table 2

Summary of Values of ITV Instructors and Statements Representing Different Values

Categories of values	Illustrative statements
1. BASIC HUMAN VALUES	
Belonging/feeling connected	ITV students experience the distance. There's not as strong a connection between them.
Comfort level of students	Students in face-to-face classes may feel more at ease asking questions than students in ITV classes.
2. SOCIAL AND POLITICAL VALUES	
Equality	I don't teach differently in ITV and face-to-face classes because I want to treat students equally.
Access to educational opportunity	Some students choose ITV for access reasons.
Students' personal situations	I don't do a lot of teamwork because of students' schedules away from class.
Community involvement by students	Students in my ITV class will do service projects just like my face-to-face students.
3. PROFESSIONAL VALUES	
Instructor's knowledge of instructional techniques	ITV requires adlibbing when all sites don't connect.
Instructor's willingness to adapt	There's always room for improvement.
Dedication/workload of ITV instructors	Instructors in our division proctor remote sites for no additional pay because they believe in flipped classes.
Instructor's concern about receiving low ratings	Evaluations from students at distant sites tend to be lower.
Frustration with ITV technology	ITV has downtime because of technology issues.

Table 2 (continued)

Categories of values	Illustrative statements
Level of engagement of students	ITV may not engage them as it should.
Instructor's consideration of students' prior knowledge	Students don't have enough background knowledge for us to do group work.
4. ORGANIZATIONAL VALUES	
Meeting curricular requirements	There is too much material that we are required to cover, so collaborative work is not possible.
Administrative support for improving instruction with technology	Fortunately, my boss had been to the same teaching workshop and supported flipped classes.
Institutional resources for improving technology	The fiber optic technology has to be up-to-date for ITV classes.
Institutional support of ITV instruction	Proctors need to be trained. They have a big role in keeping students engaged.
Students' access to resources	If we use Blackboard Collaborate to deliver classes, we will need more places for students to access computers.

The conversations that the researcher had with the instructors confirmed many of his existing views regarding the problems and benefits associated with ITV classes. For example, while instructors often indicated that teaching by ITV presents a variety of challenges, they also recognized that ITV classes allow a level of communication between instructors and students that many online classes do not provide. Most of the instructors also indicated that they had adapted their teaching methods in some way to better serve the needs of students in their ITV classes. This apparent resourcefulness, along with a frequently expressed hope that institutional resources would be devoted to improving ITV courses, supported the researcher's original belief that an improvement project focused on ITV classes would be worthwhile. Finally, some of the

instructors indicated that they would like to include more student collaboration and interaction in their classes. The researcher considers this to be the most important value associated with the ITV problem. He was surprised that some instructors indicated a preference for more instructor-centered classes. Their reasons for preferring instructor-centered classes varied, and included a belief that collaboration would keep them from teaching all required course content and a desire to avoid the difficulty of fostering student collaboration in the ITV class. This project could also be framed as an improvement project that demonstrated techniques and benefits of collaborative learning in ITV classes. Such a focus might encourage more instructors to include collaborative learning activities in their classes.

3.1.2 Problem or dilemma. The challenges of the ITV class format represent a problem within a dilemma. The central issue is the restricted communication between students and instructors in ITV classes. However, the broader dilemma is that not all instructors value learner-centered approaches to teaching. Therefore, even if a solution could offer more direct contact between learners and instructors in ITV classes, there is no guarantee that instructors would use the solution to improve learner engagement in a meaningful way. A way to manage this dilemma would be to demonstrate benefits of a learner-centered approach to instruction through a solution that improved direct communication between instructors and students in ITV classes. Such a demonstration could help to start a conversation at the institution about benefits and methods of adopting learner-centered instruction.

3.2 Further Defining the Problem Space

3.2.1 Considering alternative viewpoints. Cuban (2001) suggested that educators could reframe problems or dilemmas by viewing them through four different perspectives: psychological, organizational, political, or cultural. The focus of the current project is to present

a solution to a problem of practice involving interactive television (ITV) as a mode of distance education. In particular, the researcher's experience as an instructor in ITV classes and as an academic advisor of students who participated in ITV classes led him to believe that the technology used to deliver the classes promoted instructor-centered teaching environments. Also, students in an ITV class sometimes did not communicate with their instructor or with students at their site or at other sites. Originally, the researcher viewed this problem of practice as an organizational issue related to the type of technology that the institution provided to instructors to use to deliver the classes. In particular, since each ITV site was equipped with a single camera and microphone, it was difficult for a class of individuals at several sites to engage collaboratively participate in class activities. This setting could be changed by providing multiple access points to communication through the use of learners' own cameras and microphones with Blackboard Collaborate.

The ITV problem can also be viewed through the psychological framework that Cuban (2001) discussed. In the psychological framework, "individuals' values, attitudes, traits, and background cause problems" (Cuban, 2001, p. 27). Several ITV instructors said that they attempted to incorporate some type of student-centered learning in their ITV classes. In contrast, other instructors indicated that they used instructor-centered teaching methods exclusively because they believed that students were not ready to take a more active role in directing their learning or because they needed to make sure that all of the required course material was presented to students. These attitudes toward teaching methodologies do not relate directly to challenges presented by the ITV format. However, a solution to the ITV problem that included a demonstration of learner-centered teaching methods could help start conversations about the value of learner-centered instruction in all class delivery formats. Instructional leaders could use

the opportunity of such discussions to survey instructors' beliefs about learner-centered versus instructor-centered teaching, and professional development could be planned accordingly.

3.2.2 Arriving at a description of the problem space. Based on the researcher's experience as a former community college instructor of classes taught by interactive television (ITV), he believed that the ITV environment promoted an instructor-centered learning environment that did not actively engage all students. As a former academic advisor at a teaching center in a rural area, he has spoken to many learners who were frustrated by the restricted communication that often occurs between students and instructors in ITV classrooms. The researcher also recognized that the ITV format had advantages over many online courses, since, unlike typical online classes at the college, it provided opportunities for regular live contact between students and their instructors. In the current study, he sought to implement and test a solution to problems with the synchronous video format for a foreign language course at a distance. The solution would potentially be useful to instructors of any teaching discipline for promoting learner-centered classes at a distance. In light of these considerations, the researcher decided that a potential solution might employ methods of the flipped classroom model to engage all students in a synchronous video class. The solution would also rely on the use of additional instructional technology through Blackboard Collaborate to provide each learner with direct contact with other learners and the instructor.

4. PROBLEM STATEMENT

4.1 Audience

This study is designed for administrators and faculty at the college who have responsibility for instruction that is delivered by synchronous video. Through the results of this study, the researcher intended to demonstrate to this audience how a flipped course design could lead to learners' success and satisfaction in a synchronous video course at a distance. He also hoped that the study might foster a discussion about the benefits of learner-centered instruction in both distance education classes and face-to-face classes.

4.2 Ideal Scenario

Ideally, synchronous video courses, along with traditional courses at the college, would be consistently learner centered rather than instructor centered. Instructors would serve as guides and resources for learners during class time, but all learners would regularly engage in class activities and share the course workload. Also, given the frequent disruptions in synchronous video class sessions due to technical problems, a learner-centered class environment would enable learners to continue in productive learning during equipment failures. Finally, the establishment of a professional development training program for instructors who teach using synchronous video would help to ensure that best teaching practices could be maintained in these environments.

4.3 The Current Problem of Practice

The inherent challenge of communicating at a distance tends to suppress student engagement and participation. The overall outcome can be that the synchronous video classes are highly instructor-centered and their rigor is diminished. Furthermore, there is no professional

development in place that instructs faculty in best practices for the synchronous video class environment.

4.4 Consequences for the Audience

Synchronous video courses have been offered at the college for over fifteen years. Without a study of best practices that can be used as a model to improve instruction through synchronous video classes, the current problem is likely to persist. New web-based videoconference technology has replaced ITV equipment at the college. However, interviews with various instructors suggested that classes delivered through this technology would not necessarily be more learner centered. Without a demonstration of how a learner-centered teaching methodology can be successfully executed with a videoconferencing tool, it is likely that many instructors will continue to use instructor-centered teaching methods.

4.5 The Role of the Researcher

As a former ITV instructor and current administrator at the college, the researcher's role document was to work with a current instructor to implement a research-based pedagogy for an interactive video conference class and to evaluate learner outcomes and attitudes to gauge its effectiveness. The researcher would then present the results of the study to stakeholders and encourage the establishment of regular professional development to train instructors in best practices for delivering courses in synchronous video conference environments.

5. THE SOLUTION

5.1 Possible Solutions

Courses at the college that are offered by synchronous video are sometimes more instructor centered than learner centered. To provide a solution to this problem of practice, the researcher conducted an intervention through a Spanish course that was offered with synchronous video class sessions. The intervention involved adapting to a change in the technology used to deliver the course as well as documenting the implementation of a constructivist, learner-centered course design. Constructivism postulates that learners construct knowledge based on their experiences in the world, and that they later reconstruct that knowledge through social interaction. According to Jonassen (1991), constructivist classes include elements such as authentic contexts for learning, opportunities to solve real-world problems, evaluation by self-analysis, multiple perspectives on course content, and feedback from instructors regarding strategies used by learners to solve problems. "Constructivist models, in general, are based on a set of philosophical assumptions and provide designers with a set of flexible learning strategies and methods such as cooperative learning, project-based, problem-based learning, reflective learning, etc." (Kostoulas-Makrakis, 2013, p. 25).

5.1.1 Solution 1. One possible solution for the test group involved the use of Blackboard Collaborate Ultra in place of ITV during the scheduled biweekly class meetings. Blackboard Collaborate Ultra is a cloud-based web conferencing tool that allows individual users to connect to a class session from any location that has an internet connection. In contrast, ITV classes were delivered to participants who were required to meet at locations where equipment was reserved for a particular class connection. In addition, ITV connections usually involved only

one camera and microphone per location, and individual learners lacked a direct connection to the instructor and other class participants. The control group in this scenario included participants of a face-to-face Spanish class of the same course level who were taught by the same instructor. To test the solution, both groups would receive a constructivist, learner-centered pedagogy. Favorable outcomes would include (a) feedback from learners and the instructor that the course learning environment was engaging and learner centered, (b) evidence from scores on a pre-test and post-test that students in the test group improved in their knowledge of course content as well as learners in the control group, and (c) evidence from a course environment survey demonstrating that students in the test group rated their experiences as equally learner-centered and constructivist in nature compared to students in the control group. A mixed methods study design would include qualitative and quantitative data to explain or clarify differences between the two class formats. The qualitative data would consist of a journal kept by the instructor of the test and control groups to document teaching methods and experiences in both classes. Additional qualitative data about learning experiences would be supplied by learners in the online and face-to-face groups. The researcher would collect quantitative and qualitative data from the control and test groups using a course pre-test and post-test to measure possible effects of the treatment intervention on content mastery, and also a Likert-scaled survey to assess the classroom environment.

5.1.2 Solution 2. A second possible solution for the test group was a variation of Solution 1. The only difference would be that Solution 2 would involve using Blackboard Collaborate Ultra in only one of the two weekly class sessions for the test group. The instructor would deliver the remaining course content online. This online group would experience online, asynchronous course delivery mixed with weekly, live class meetings. The advantage of this

hybrid approach to implementing Blackboard Collaborate would be to minimize any technical difficulties that might be involved in delivering instruction through this new technology. A disadvantage might be a reduced capacity to deliver learner-centered instruction to the test group.

5.2 Input from Others

5.2.1 Stakeholders' input. The researcher spoke to two key stakeholders regarding the proposed solutions. One stakeholder is the instructor of Spanish at the college who agreed to allow the researcher to collect data from her students for the project. She also agreed to keep a journal to document her experiences in delivering constructivist learning activities to her classes. The instructor expressed a preference for Solution 2 because it involved a hybrid course delivery for the test group that would not entirely depend on the use of Blackboard Collaborate. Collaborate was a new technology tool at the college, and some instructors had reported connection difficulties due to low internet bandwidth at certain times and locations. The researcher also received recommendations from the associate vice president of academic affairs. She asked for a clarification of the types of constructivist activities that would be used by the groups in the study. The activities were designed by the instructor of the online and face-to-face classes, and are described in Table 12 in the Methods section of this record of study. She also recommended a clarification of the differences between synchronous classes offered by ITV and those offered through web conference software like Blackboard Collaborate. In ITV classes, learners typically met in classrooms that had one microphone and one audio source. The site host, whether the college or a high school, maintained the equipment and was responsible for the live connection through the ITV network. In contrast, a learner who participated in class sessions through Blackboard Collaborate could connect using their own computer and internet connection.

5.2.2 Colleagues' input. Three colleagues in the doctoral program offered their views of the two proposed solutions. Two of them thought that the first solution was the best option because they thought it would provide the students with more time for direct feedback as well as more consistency in instructional practices. The third colleague expressed a preference for the second option, citing the benefit of having only one class session per week that would rely on the proper functioning of Blackboard Collaborate.

5.2.3 Field advisor's input. The vice president of academic affairs was the field supervisor for the researcher's second internship. She did not offer a preference for either solution, but recommended that the researcher check with instructional technology staff at the college to make sure that the equipment would be available to offer both of the proposed class formats.

5.2.4 Others' input. The researcher received additional input regarding the solutions from two people who work in the Office of Distance Education at the college. The senior director for distance education spoke about the technical aspect of the two solutions and said that the infrastructure of the college could support either option. Another individual served as the director of learning resources and he provided technical support for Blackboard Collaborate. He recommended the use of flipped classroom methods with the Blackboard Collaborate software, and did not have a preference for either Solution 1 or 2.

5.3 The Proposed Solution

5.3.1 Informing the solution. Over a period of several months, the researcher interviewed instructors and students who had participated in the ITV format. Most of the instructors acknowledged the challenges of delivering ITV courses, including the technical challenges of operating ITV equipment and the awkward nature of communicating with students

at connected sites. Several instructors highlighted their concerns for students' level of comfort or feelings of connectedness to others in the ITV environment. They also expressed concern that students tended to be less engaged in ITV classrooms than in traditional classrooms. Some instructors indicated that they would like to include more student collaboration in their ITV classrooms, while others believed that instruction could be delivered more efficiently in the ITV class environment if they conducted classes that were more instructor-centered. Students who had experienced the ITV class format said that they preferred face-to-face classes over ITV classes because it was more difficult to interact with their instructors in ITV classes. One student also suggested that an enhanced ITV experience might allow students' questions to appear on the screen during class. This would ensure that students could contribute to class discussions and ask questions in spite of limited opportunities to talk directly to the instructor. Overall, the views that emerged from the interviews with instructors and learners indicated a need for a technology solution that would enable more collaboration and interaction between instructors and students in an ITV environment.

5.3.2 The final solution. The final solution took into account the input from stakeholders regarding the problem of practice in the synchronous video class environment. The researcher identified the problem space as a synchronous video course delivery method in which learners' collaboration and engagement in learning activities were restricted. Instructors in the synchronous video environment were also limited in their capacity to engage directly with learners and to foster more learner-centered teaching methods. The instructor of the two groups of this study expressed a preference for the second solution, which involved the use of synchronous video technology for only one day per week. The rest of the course would be delivered asynchronously through Blackboard. This instructor believed that the inclusion of one

collaborative web conferencing session each week would make a difference in the overall effectiveness of the course learning experiences. Most stakeholders and classmates who offered input believed that this hybrid solution could lead to an effective improvement of the synchronous video class format. Overall, the researcher believed that a partial change in the delivery format would permit the instructor of the class to make the necessary changes to improve the students' learning experience. The final solution involved delivering more learner-centered instruction to students through the replacement of synchronous video sessions through ITV with one or more weekly synchronous video sessions delivered through Blackboard Collaborate. The solution also included working with an instructor who agreed to implement constructivist learning activities in her online and face-to-face courses. The instructor holds a Ph.D. in Hispanic studies and has practiced flipped classroom teaching methods in her face-to-face classes. She has previously taught Spanish courses online.

Using Collaborate, learners in the online group engaged weekly in target language activities with their instructor and peers for an unspecified period of time. In contrast, learners in the face-to-face group met two days per week for a total of 150 minutes each week. Learners in both groups provided a weekly estimate of the number of minutes that they spent speaking Spanish with peers and their instructor. The results are included in Appendices A and B. On average, face-to-face learners spoke Spanish with peers and their instructor more often and for more minutes each week than online learners. The instructor of the courses kept a journal of teaching experiences to document her approaches to teaching and her views of the successes and challenges that were involved for each study group. Similarly, learners in both groups completed a survey on a weekly basis to document their experiences in their respective course environments. To test the effectiveness of the solution, learners in the face-to-face and online

groups took a pre-test and post-test of spoken performance in the target language. The researcher chose to assess spoken language performance since it is one of the components of foreign language acquisition that is enhanced by synchronous engagement with other speakers. Also, in reference to the theoretical framework presented above, synchronous interaction among learners provides an environment for co-construction of ideas between peers as well as targeted mediation by a more knowledgeable instructor. To explore the potential benefits of such mediation by an instructor, the researcher also included a dynamic assessment activity in which the instructor provided specific feedback to learners following their performance of a spoken language task. The instructor then gave learners the opportunity to perform the task again to demonstrate a potential benefit of the mediation on their spoken language performance. Finally, the researcher assessed learners' views of their class environments through a survey that the instructor delivered toward the end of the semester of instruction. This data served to clarify learners' views of the instructional methods that they had described in the weekly surveys and it also shed light on the outcomes of learners' assessments. Table 3 is a summary of the goals, objectives, and activities of the study.

Table 3

Goals, Objectives, and Activities Associated with the Problem Solution

Goal	Objective	Activity
I. Learners and the instructor of online and face-to-face beginning Spanish classes will provide descriptions of the course activities in which they participated.	Online and face-to-face learners will participate in learner-centered activities in their respective course environments during a college semester.	1. The instructor will provide learner-centered activities for learners in online and face-to-face classes. 2. Learners and the instructor will respond to a weekly survey to describe their experiences in class sessions.

Table 3 (continued)

Goal	Objective	Activity
II. Learners in online and face-to-face beginning Spanish classes will improve in their ability to perform a spoken language task in Spanish during a semester of learner-centered Spanish language activities.	Online and face-to-face learners will perform a spoken language task in Spanish before and after participating in learner-centered Spanish language activities during a semester.	The instructor will record learners' performance of a spoken language task early in the semester and late in the semester.
III. A. Learners in online and face-to-face beginning Spanish classes will make additional improvements in their performance of a Spanish language task following a targeted assessment from the instructor. B. The researcher will summarize qualities of the dynamic assessments that the instructor provided to learners.	Online and face-to-face learners will receive a dynamic assessment of their late-semester performance of a spoken Spanish language task and will repeat the task after receiving the feedback.	1. The instructor will read Anton's (2009) procedures for delivering a dynamic assessment to foreign language learners. 2. The instructor will deliver and simultaneously record dynamic assessments of learners' performance of a task of spoken Spanish late in the semester. 3. The instructor will record learners' repeated performances of a spoken language task following a dynamic assessment.
IV. Learners in online and face-to-face Spanish classes will evaluate their respective learning environments.	Learners will complete Walker and Fraser's (2005) Distance Education Learning Environments Survey (DELES) at the end of the semester.	The instructor will deliver the DELES to learners through the course learning management system.

6. METHODS AND CONCLUSIONS

6.1 Statement Regarding Human Subjects and the Institutional Review Board

A preliminary review of the methods for collecting information from human subjects determined that the methods proposed for this study did not meet the federal definition of "human subjects research with generalizable results." As the proposed information gathering methods were within the general scope of activities and responsibilities associated with the researcher's position, he was not required to seek human subjects approval. See Appendix C, which is a copy of the communication regarding the IRB's decision about the study.

6.2 Guiding Questions, Data Collection, and Rationale for Methods

6.2.1 Guiding questions. The following questions guided the collection of information about the proposed solution:

1. What are the qualities of the face-to-face and online learning environments, especially with respect to learner interaction and engagement?

2 (a). Do learners in an online learning group score higher on a post-treatment assessment than on a pre-treatment assessment?

2 (b). Do learners in a face-to-face group score higher on a post-treatment assessment than on a pre-treatment assessment?

2 (c). Does the gain from pre- to post-assessment differ between face-to-face and online learning groups?

3 (a). Do online learners score higher on a repeated performance of a final spoken task after they have received a dynamic assessment of their initial performance?

3 (b). Do face-to-face learners score higher on a repeated performance of a final spoken task after they have received a dynamic assessment of their initial performance?

3 (c). Does the gain from final assessment to repeated final assessment differ between face-to-face and online learning groups?

3 (d). What are the qualities of the dynamic assessments that the instructor provided to learners?

4. Do learners in the online courses differ from face-to-face learners in how they rate the following aspects of their courses: (a) instructor support, (b) student interaction and collaboration, (c) personal relevance, (d) authentic learning, (e) active learning, and (f) student autonomy?

6.2.2 Data collection. The researcher collected three sets of data to answer the first guiding question. First, the instructor kept a journal to describe the design and implementation of learning activities in the two types of classes. The journal also included notes regarding the types of constructivist activities that were assigned, as well as the extent to which social interaction occurred through these activities. See the prompt of the instructor's weekly reflections in Appendix D. Learners in the online and face-to-face groups completed a survey on a weekly basis to report the frequency and total time that they spent using the target language in speaking activities with their instructor and with peers. They also described the activities in which they spoke the target language with the instructor and their peers. In response to the survey prompt, learners described (a) the extent to which these weekly activities were based on prior learning, (b) the role of the instructor, (c) the type of knowledge used in the activity, and (d) the role of peers. The instructor administered the survey through Blackboard. The researcher employed content analysis of survey responses to identify learners' perceptions of their respective learning environments. See Appendix D for the learners' weekly survey prompt.

To answer the second guiding question, the researcher collected two sets of data. The first data collection served as a baseline assessment of students in the face-to-face group and the

online group. In a one-on-one setting, the instructor recorded learners either through Blackboard Collaborate (online group) or through use of digital audio recorders (face-to-face group) as they gave a short monologue on a pre-assigned topic. If students were not able to maintain a short monologue, the instructor asked guiding questions to prompt a response. The researcher scored learners' spoken tasks in two areas: 1) content, purpose, and organization; and 2) grammar, vocabulary, and pronunciation. Learners received one of the following rubric-based ratings for each area: 4) Highly Competent; 3) Mostly Competent; 2) Needs Improvement; and 1) Not Competent. See Appendix E for the assessment rubric.

Following the initial recordings, both groups participated in weekly, constructivist activities delivered through a flipped class format throughout the semester. In a typical constructivist activity for the face-to-face and online groups, learners used prompts provided by the instructor to exchange information by using the target language. Prior to each activity, the instructor assigned the vocabulary and grammatical tools necessary to carry out the activity. Learners in the online group experienced regular flipped class sessions with the instructor and their classmates through Blackboard Collaborate. They prepared for weekly meetings by completing assignments delivered online through Blackboard. Learners in the face-to-face class had one flipped class session per week following an instructor-centered class session that prepared them for the flipped class session.

To answer the third guiding question, the researcher requested two additional sets of data from the instructor. One set of data included recordings of dynamic assessments of the learner monologues that were performed toward the end of the semester. The dynamic assessments were based on procedures described by Anton (2009). The two phases of the assessments were recorded through Blackboard Collaborate (online group) or a digital recorder (face-to-face

group) near the end of the semester as a post-treatment assessment. During the first phase of the dynamic assessment, the instructor listened and took notes as students completed a monologue on a pre-assigned topic. In these notes, the instructor focused on learners' errors in language use. In the second phase, the instructor offered the students suggestions for improving their use of Spanish in the activity. In keeping with Vygotsky's Sociocultural Theory, this input served as a mediation phase for learners based on their particular needs at a given stage of cognitive development. The students in the online group and the face-to-face group participated in the same dynamic assessment activity tasks. A content analysis of the dynamic assessments yielded data for assessing qualities of the dynamic assessments. An additional data set included recordings of students as they gave monologues immediately following the dynamic assessment. The monologues served as a final assessment of students' speaking ability. The instructor recorded face-to-face learners using a digital recorder, and online learners using Blackboard Collaborate. Learners who did not have corrections to make after the second recording did not receive a dynamic assessment and did not perform the spoken task for a third recording.

To answer the fourth guiding question, learners in both groups completed Walker and Fraser's (2005) Distance Education Learning Environments Survey (DELES) to provide data for the survey scales of (a) instructor support, (b) student interaction and collaboration, (c) personal relevance, (d) authentic learning, (e) active learning, and (f) student autonomy. The survey data provided the fifth data set collected for the study. The DELES is copyrighted, so the researcher obtained permission to use the survey in the current study (Appendix F). A sample of items from the survey are included in Appendix G. Figure 2 is an illustration of how each set of data was used to answer the guiding questions and inform a solution to distance education learning environment that do not engage learners in foreign language classes.

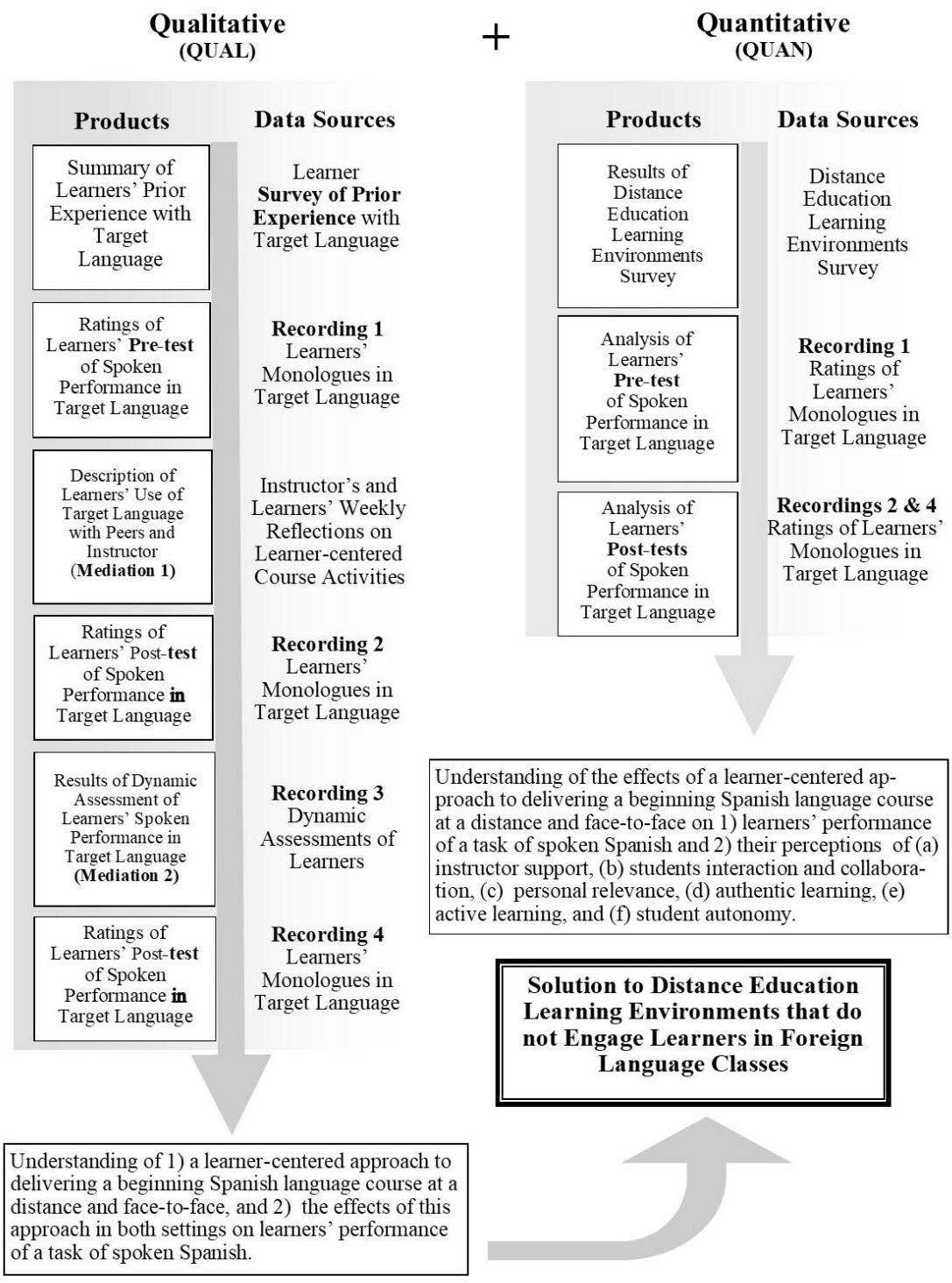

Figure 2. Qualitative and quantitative data sources as components of a study designed to inform a solution to distance education learning environments that do not engage learners in foreign language classes.

6.2.3 Rationale for methods. This study was designed to improve distance education classes delivered through use of synchronous video. Although the college replaced ITV equipment with the use of Blackboard Collaborate in the fall of 2018, the same pedagogical challenges are present for classes that rely on synchronous video connections for live interaction. Regular activities for interaction were designed for both groups during the period of the study, and these were documented in a journal by the instructor. The instructor used the journal to give a description of the activities assigned to achieve learning objectives, the level of engagement of students in the activities, and the perceived effectiveness of activities in promoting learning. Regarding the dynamic assessments, the intention of the activity was to demonstrate how learner-specific feedback could be delivered in the synchronous video environment and potentially have a positive impact on learners' spoken task performance. Ratings of learners' spoken performance before and after the assessments would provide evidence of any improvement a) following eight weeks of learner-centered classes, and b) following feedback from the dynamic assessment.

Dynamic assessment, as described by Anton (2009), is aligned with Sociocultural Theory since it enables instructors to provide mediation in a social context to address each learner's specific needs. The dynamic assessment model described above includes the opportunity for the instructor to pass on expertise to students in a physical or virtual classroom setting. Such methods are also common in flipped classrooms, which are structured to allow learners to use class time to practice what they studied before coming to class. The learning environment survey allowed the researcher to collect data regarding views of different aspects of their respective learning environments. Learners in both groups completed the survey in the same time frame near the end of the semester.

6.3 Data Sources, Data Analysis, Summary, and Conclusions

6.3.1 Data sources. Table 4 shows how guiding questions relate to data collection activities and analyses. Two types of mediation were used in the current study with a goal of providing a solution for foreign language classes that do not adequately engage learners in distance learning environments. As the primary mediation, an instructor engaged learners in her face-to-face and online classes in weekly, learner-centered activities.

Weekly surveys. The instructor wrote weekly reflections to document these activities and to provide her view of the challenges and benefits of conducting class activities in both environments. The researcher provided a link to a Google form to enable the instructor to record weekly reflections of her experiences teaching in both learning environments. Learners in both groups completed open-ended surveys on a weekly basis to provide qualitative data related to the activities, including a description of activities and learners' level of engagement during class. The researcher administered the weekly surveys of learners in the face-to-face and online classes through surveys created through Google forms. The instructor posted the links to the learner survey for each group through their respective course sites in Blackboard. The surveys of learners and the instructor were intended as sources of qualitative data.

Recordings of learners' spoken performance in the target language. To evaluate whether the class activities might have affected learners' progress in a particular area of foreign language competency--speaking the target language--recordings of learners' spoken performance of a task were collected three times during the semester, once near the beginning of the semester and twice at the end of the semester. The researcher chose to assess spoken language performance, as opposed to reading, writing, or listening competencies, since the act of speaking the target language might be most influenced by the availability of opportunities for synchronous

communication. The early recordings served as a baseline for learners' spoken performance in the target language. Learners' recordings of the task late in the semester provided a basis for evaluating whether or not they improved in their spoken performance of the target language. After this task, the instructor provided feedback to learners through a second type of mediation, a dynamic assessment that followed methods described by Anton (2009). Learners were then given the opportunity to perform the spoken language activity a third time to determine whether or not their performance improved.

Both groups of learners in the study were enrolled in beginning Spanish courses lasting sixteen weeks. Learners in face-to-face and online classes participated in spoken language tasks in the target language to permit assessment of their performance early in the semester as well as after the mediation. The instructor recorded learners' initial spoken performance of the task in the target language during the seventh or eighth weeks of class. For the task, learners were asked to list and describe members of their family with as much detail as possible without referring to notes. The instructor recorded learners' first performance of the task after she had assigned a lesson that included the basic vocabulary and grammar required to list and describe family members in Spanish. The instructor recorded learners in face-to-face classes in class in the presence of other learners using a digital recorder. After each learner finished the task, the instructor asked follow-up questions to the other learners about the family members the speaker had just described. The instructor recorded learners in online classes through Blackboard Collaborate, the online learning management system used by the college. Sometimes multiple learners were logged in and participating in the same Collaborate session, but at other times learners presented the task for recording when only the instructor was logged in. When multiple learners were logged in, learners did not use the video function in order to preserve the overall

Table 4

Summary: Questions, Methods, and Analyses, and Results

Guiding Questions	Designs	Samples	Data Collection	Analyses	Results/Inferences
1. What are the qualities of the face-to-face and online learning environments, especially with respect to learner interaction and engagement?	• Instructor's weekly reflections on classes for both groups • Learners in 2 groups submit responses to weekly survey.	• Responses by instructor for twelve weeks • N = 33; 15 online learners and 18 face-to-face learners gave responses over a nine-week period	• Instructor submitted weekly responses online; see prompts in Appendix B; data transcribed for content analysis • Learners responded weekly through Blackboard; see prompts in Appendix B; data transcribed for content analysis	• Content analysis of instructor's responses • Content analysis of survey responses by learner group • See Appendix H for the full list of codes from the content analysis.	Both groups experienced qualities of learner-centered classes. Online group experienced more technical problems. Face-to-face group had more time to speak Spanish.
2a. Do learners in an online learning group score higher on a post-treatment assessment than on a pre-treatment assessment?	1 group, pre- and post-assessment; pre-assessments given during sixth and seventh weeks of the semester and post-assessments given during fourteenth and fifteenth weeks of the semester	N = 8 online learners	Recordings of learners' spoken performance in the target language, pre- and post-treatment; recordings coded in two outcome areas, each on a four-point ordinal scale (min. = 1, max. = 4); see Appendix I.	Comparison of pre-assessment ordinal rank with post-assessment ordinal rank; Wilcoxon sign rank for two dependent groups	Some learners scored higher but more scored the same on the final assessment. No statistically-significant result for either outcome.
2b. Do learners in a face-to-face learning group score higher on a post-treatment assessment than on a pre-treatment assessment?	1 group, pre- and post-assessment; pre-assessments given during sixth and seventh weeks of the semester and post-assessments given during fourteenth and fifteenth weeks	N = 16 face-to-face learners	Same as above; See Appendix J.	Same as above	Learners scored significantly higher on post-treatment scores on outcome 1 (content, purpose, and organization).

Table 4 (continued)

Guiding Questions	Designs	Samples	Data Collection	Analyses	Results/Inferences
2c. Does the gain from pre- to post-assessment differ between face-to-face and online learning groups?	2 groups, pre- and post-assessment, online and face-to-face; both groups receive intervention, but in different delivery environment; pre-assessment scores subtracted from post-assessment scores for each participant	N = 24, 8 online learners and 16 face-to-face learners	Pre-assessment scores subtracted from post-assessment scores (using data from 2a and 2b) to compute gain score for each participant; see Appendices K and L.	Comparison of pre-post gain in face-to-face group with pre-post gain in online group; Mann-Whitney U test for two independent groups	There was no statistically significant difference between the groups in gain scores from pre-assessment to post-assessment.
3a. Do online learners score higher on a repeated performance of a final spoken task after they have received a dynamic assessment of their initial performance?	1 group, pre- and post-assessment; pre-assessments given during sixth and seventh weeks of the semester and post-assessments given during fourteenth and fifteenth weeks of the semester	N = 4	Recordings of learners' spoken performance in the target language, pre- and post-treatment; recordings coded in two areas, each on a four-point ordinal scale (min. = 1, max. = 4); see Appendix M.	Comparison of pre-assessment ordinal rank with post-assessment ordinal rank; Wilcoxon sign rank for two dependent groups	Some learners improved from pre-test to repeated post-test, but there was no statistically significant difference.
3b. Do face-to-face learners score higher on a repeated performance of a final spoken task after they have received a dynamic assessment of their initial performance?	1 group, pre- and post-assessment; pre-assessments given during sixth and seventh weeks of the semester and post-assessments given during fourteenth and fifteenth weeks of the semester	N = 9	Same as above; See Appendix N.	Same as above	Learners' ratings were significantly higher on post-tests than on pre-tests for outcome 1. Most learners showed no improvement for outcome 2.

Table 4 (continued)

Guiding Questions	Designs	Samples	Data Collection	Analyses	Results/Inferences
3c. Does the gain from final assessment to repeated final assessment differ between face-to-face and online learning groups?	2 groups, pre- and post-assessment, online and face-to-face; both groups receive intervention, but in different delivery environment; pre-assessment scores subtracted from post-assessment scores for each participant	N = 14; 5 online learners and 9 face-to-face learners	Pre-assessment scores subtracted from post-assessment scores (using data from 3a and 3b) to compute gain score for each participant; See Appendices O and P.	Comparison of pre-post gain in face-to-face group with pre-post gain in online group; Mann-Whitney U test for two independent groups	There was no statistically significant difference between the groups in gain scores from pre-assessment to repeated post-assessment.
3d. What are the qualities of the dynamic assessments that the instructor provided to learners?	2 groups; spoken feedback provided to learners after performance of final spoken assessment	N = 6 online learners (samples not available for face-to-face learners due to technical issue)	Recordings of instructor's feedback to learners; data transcribed for content analysis; see Appendix Q.	Content analysis of instructor's synchronous feedback to learners	Learners received targeted feedback on spoken assessment errors in a supportive environment.
4. Do learners in the online courses differ from face-to-face learners in how they rate the following aspects of their courses: (a) instructor support, (b) student interaction and collaboration, (c) personal relevance, (d) authentic learning, (e) active learning, and (f) student autonomy?	2 groups; learners took Walker and Fraser's (2005) Distance Education Learning Environments Survey (DELES) during last two weeks of the semester	N = 26; 12 online learners and 14 face-to-face learners	2 groups, 34-item survey administered through Blackboard during last two weeks of semester. See sample in Appendix G.	Comparison of average responses by scale in online group to average responses by scale in face-to-face group; Mann-Whitney U test for two independent groups. See Appendix R and Tables 16 and 17.	The only difference between the groups that was statistically significant was higher mean ratings for online learners for the scale of student autonomy.

quality of the connection. The instructor did not ask follow-up questions to listeners in the online sessions. The instructor recorded learners' second and third spoken performances of the task in the target language during the fourteenth and fifteenth weeks of the course. For the second and third recordings, the instructor required learners in both class formats to present Power Point slides with photos of the family members they were describing. Learners in the Collaborate sessions shared their screens with the instructor, and learners in face-to-face sessions presented their Power Point slides using a computer and projector. For data analysis, learners in both groups were evaluated based only on the audio component of their presentations. The data corresponding to learners' spoken performances were intended as both qualitative data (rubric-based ratings of performances) and quantitative data (tests to determine any significant changes in group averages from pre-tests to post-tests).

Recordings of instructor's dynamic assessments of learners' spoken performance. The researcher and the instructor read "Dynamic Assessment of Advanced Second Language Learners" by Anton (2009) and the instructor structured feedback to students accordingly following the second recording of their spoken language task. In keeping with Vygotsky's belief that learning occurs in a learner's Zone of Proximal Development, Anton (2009) supports assessment practices that focus "on understanding behaviors and developing recommendations to foster development" (p. 578). The instructor recorded her feedback to learners based on notes that she took during their performances of the spoken tasks. Due to the differences in the way face-to-face and online classes were structured, feedback was delivered differently to learners according to their groups. In face-to-face classes, the instructor provided feedback to learners after several learners performed the spoken language task, referring to the notes that she had taken related to their specific performances. The feedback, therefore, was specific to their

individual performances but was addressed to the entire class without mention of any one learner. In online classes, individuals or small groups of learners were connected with the instructor through Blackboard Collaborate. The instructor chose to provide feedback to learners immediately following each presentation, directly addressing each learner based on the notes she had taken while they were speaking. In this manner, all learners in the session were able to hear the feedback that was directed to other learners. The instructor recorded the dynamic assessments of learners in online classes through Blackboard Collaborate. Due to a technical issue, the dynamic assessments for the face-to-face group were not recorded.

The researcher collected two additional sources of data to complement and enhance the interpretation of data from the weekly survey of learners and the instructor's reflections. Following the dynamic assessment, learners in face-to-face and online classes also provided data about their prior experiences with the target language through a survey that was administered early in the semester. In addition, learners in both groups completed Walker and Fraser's (2005) Distance Education Learning Environments Survey (DELES) to provide data for the survey scales of (a) instructor support, (b) student interaction and collaboration, (c) personal relevance, (d) authentic learning, (e) active learning, and (f) student autonomy.

Survey of learners' prior experience with the target language. Due to the fact that learners in first-semester foreign language classes have varying degrees of experience with the target language, the researcher conducted a survey to provide information about learners' experiences with Spanish language prior to enrolling in the course. The researcher created identical surveys for online and face-to-face groups through Google surveys, and the instructor posted links to the surveys in the Blackboard page for each class. The survey data was summarized as descriptive statistics for each group. Seventeen learners from the online group

completed the survey of prior learning experiences at the beginning of the semester, while twenty learners from the face-to-face group completed that survey.

Table 5

Summary of Online Learners' Previous Experience with Spanish

Language Experience	Average Years of Spanish Classes Taken Previously	Have you had other experiences with Spanish that contributed to some level of understanding of Spanish that you have today?
Heritage and Native Speakers of Spanish n = 9	avg. = 2.1	• No (n = 1) • At home • My entire family speaks Spanish and when I go visit my family. They love to teach everything about my culture. I grew up speaking Spanish first and I learn more words from my family every day. • Only a little—I took about 4 classes of basic Spanish. • I grew up speaking Spanish because that is all my parents understood at the time. • I am occasionally asked to translate for patients at the hospital, but I do not have any certification. (The four years of Spanish I took was in High School.) • No, not other than using it at home. • My parents speak Spanish to me every day. • Growing up, I used to translate for my parents because their English was not very good.
Nonnative Speakers of Spanish n = 8	avg. = 1.9	• No (n = 2) • I took Spanish I & II in High School. I have several Spanish speaking customers but have to have a translator. I understand parts of what they are saying. • Yes, I am half Hispanic and I am married to a Hispanic man, I understand a lot but have a hard time communicating back. • Previously at work I used medical terminology a very little. • One year of Spanish in high school • It has made it easier to communicate to family members and I hope that I will get to the level of using it at work. • Some of my friends

The group of online learners that completed the survey was comprised of almost equal numbers of nonnative speakers versus heritage or native speakers of Spanish, with eight leaners in the former group and nine learners in the latter group. Two out of eight nonnative speakers of

Spanish in the online group, or 25%, reported having no previous experience with Spanish, while 75% reported some previous experience with Spanish that influenced their understanding of the language. Table 5 includes a summary of the responses from the group of online learners.

In the group of face-to-face learners completing the survey, there were only four heritage or native speakers of Spanish versus 16 nonnative speakers. Nine out of 16 nonnative speakers, or 56%, had no prior experience with Spanish, while the remaining seven learners, or 44%, reported previous experience with Spanish. A summary of responses from the face-to-face group is included in Table 6.

Table 6

Summary of Face-to-face Learners' Previous Experience with Spanish

Language Experience	Average Years of Spanish Classes Taken Previously	Have you had other experiences with Spanish that contributed to some level of understanding of Spanish that you have today?
Heritage and Native Speakers of Spanish n = 4	avg. = 2.5	• My family is Hispanic. I grew up bilingual. I would travel to Mexico almost every summer to visit family. I also used to live in Mexico. I lived there for about a year and a half. • I have been taking Spanish since I was little. • Work and home • Work -- I always translate for our customers.
Nonnative Speakers of Spanish n = 16	avg. = 1.25	• No (n = 9) • I learned Spanish in the military and used it during a 6-month military operation in a Spanish-speaking country. • My aunt and uncle had great-grandparents that spoke Spanish and we would spend the summer with them some time when we were younger. I have tried to speak with co- workers over the years I have only picked up a little. • Very minimal from high school 20 years ago and very minimal from work. • Yes. I have learned some vocabulary and basic understanding of Spanish while working at the hospital and having to communicate to check people into the emergency room when there is not a translator around.

Table 6 (continued)

Language Experience	Average Years of Spanish Classes Taken Previously	Have you had other experiences with Spanish that contributed to some level of understanding of Spanish that you have today?
		• Work, I worked in a Mexican restaurant for six years. • I have traveled extensively in Mexico. • I grew up learning some and I also try to learn from people at work.

Survey of learner's perception of the learning environment. The researcher delivered Walker and Fraser's (2005) Distance Education Learning Environments Survey (DELES) to gauge learners' perceptions of their respective learning environments. The survey consisted of thirty-four items with the following frequency of response categories: always, often, sometimes, seldom, and never. The items corresponded to six different scales, including instructor support, student interaction and collaboration, personal relevance, authentic learning, active learning, and student autonomy. The researcher created identical surveys for online and face-to-face groups through Google surveys, and the instructor posted links to the surveys in the Blackboard page for each class. Learners in both groups completed the survey during the last two weeks of the semester. The survey data was intended to be analyzed as quantitative data corresponding to each group.

6.3.2 Data analysis. The instructor designed learner-centered activities for learners in online and face-to-face sections of a beginning college Spanish course. These activities were part of the instructional design that served as an intervention in the study. To answer the first guiding question, the researcher captured the instructor's and learners' reflections regarding the learning experiences on a weekly basis through an open-ended survey. One set of weekly reflections by the instructor for each group of learners and weekly reflections by learners in the online and face-to-face groups yielded four data sets for comparison and analysis as qualitative

data. To answer the second guiding question, the instructor recorded learners' spoken performances of a task in the target language early in the semester and again late in the semester to observe whether or not their performances of the task improved following the intervention. Following the learners' performances of the task later in the semester, the instructor provided feedback to learners in the form of a dynamic assessment. The instructor recorded the dynamic assessments of learners in the online group to enable the researcher to address the second part of the third guiding question. The instructor gave learners the opportunity to perform the task a third time immediately after they received feedback from the dynamic assessment. The recordings of learners' performances of the spoken language task provided three sets of numeric ratings each for the online and face-to-face students, resulting in six sets of data for quantitative analysis. A qualitative rubric was the basis for numeric ratings of earners' performances on the spoken tasks. Transcriptions of the instructor's dynamic assessments of online learners following the second performance of the spoken task yielded another set of data for qualitative analysis. Finally, the online and face-to-face students completed Walker and Fraser's (2005) Distance Education Learning Environments Survey (DELES) at the end of the semester, yielding two additional sets of data for quantitative analysis. The following is an analysis of each type of data collected for the study.

Weekly reflections by the instructor and learners. To answer the first guiding question, the researcher compared and analyzed four sets of data, including

- the instructor's weekly reflections for online group,
- the instructor's weekly reflections for face-to-face group,
- a weekly survey of online learners, and
- a weekly survey of face-to-face learners.

The instructor and both groups of learners provided this information through a Google form that automatically sorted responses into a spreadsheet format. The researcher separated learners' open-ended responses from their responses to the questions regarding the amount of time that they had spoken Spanish during the week. See Appendices E and F for learners' estimates of the amount of time spent speaking Spanish with the instructor and their peers.

On average, learners in the face-to-face class spoke Spanish with other learners and the instructor more frequently and for more minutes per week than learners in the online class. This was to be expected given the fact that the face-to-face group was structured to have two meetings per week and the online group had one synchronous video class meeting per week. Nevertheless, it is noteworthy that some online learners reported speaking Spanish more often than some learners in the face-to-face group. Online learners had the flexibility to speak more than once per week with the instructor and other learners through Blackboard Collaborate. The researcher divided data from the weekly reflections by the instructor and both groups of learners into one or more lines of text per cell. In an adjacent column, the researcher then listed the codes associated with that section of text. For the initial round of coding, the researcher assigned codes based on themes that were directly related to survey questions, such as learners' use of prior knowledge, and themes that emerged from the text, such as problems with technology. However, although some codes were related to the preset categories and psychosocial themes on which the questions were based, the researcher used a coding process that allowed emergent categories to appear. After reading each data set several times, the researcher continued the coding process by taking notes on themes present within the data. As other themes emerged, new codes were assigned and added to the column of codes associated with a line of text. Some themes were present across all data sets, while others occurred only in three or fewer data sets.

For example, in Figure 3, one line of text is associated with instructor content support (INCS) as well as pronunciation (PRON). A second line of text is associated with two other codes, students interact and support one another online (ONSU) and online communication with classmates (ONCC).

My instructor was greatly involved in the activities and encouraged us to attempt pronunciations even when we weren't sure about them.	INCS; PRON	My classmates were also quite involved and since a couple of them were more fluent in Spanish they helped me a lot by explaining things to me thoroughly.	ONSU; ONCC

Figure 3. Section of Excel spreadsheet showing how the researcher assigned codes to sections of textual data.

For each new theme that was identified, the researcher created a new code and listed the code and its accompanying description in a table in a separate document. After the researcher had reviewed the text multiple times and had assigned codes to each phrase, codes were sorted into alphabetical order. To accomplish this, rows of text were added to the Excel sheet so a section of text with more than one code assigned to it could be duplicated and listed separately for each code. See Figure 4 for an example. Next, all cells with text and an accompanying cell with a code were arranged into two columns in the Excel sheet (one column for text and one column for codes). The column with text and the column with codes were then sorted alphabetically according to the column of codes. The result was a coded data set in which like codes were grouped together and could be tallied. Initially, 56 codes corresponding to phrases were identified across the four data sets. See Appendix C for the complete list of codes. Several codes were interesting, but not relevant to the study. Next, the researcher grouped codes that were similar or related to allow a comparison of codes across the four data sets. The researcher then sorted into categories based on overall concepts that the codes represented.

My instructor was greatly involved in the activities and encouraged us to attempt pronunciations even when we weren't sure about them.	INCS
My instructor was greatly involved in the activities and encouraged us to attempt pronunciations even when we weren't sure about them.	PRON

Figure 4. Section of Excel spreadsheet with lines of textual data duplicated so that each code associated with that text could be listed separately in an adjacent column.

The initial groupings yielded categories in the areas of

- technology,
- learner traits,
- learning environments, and
- instructor's involvement in class sessions.

Following the procedure described by Taylor-Powell and Renner (2003), additional subcategories were identified within the main categories. For Category 1, Technology, subcategories were identified as:

- a technology disadvantage, and
- a technology support or benefit.

For Category 2, Learner Traits, the subcategories were identified as

- learners' comfort or level of anxiety,
- learners' view of their progress in the target language,
- heritage or native speakers,
- learners' support of one another online, and

- learners' interaction and support in the face-to-face class.

For Category 3, Learning Environments, subcategories were identified as

- active learning,
- flipped learning,
- use of prior learning,
- authentic learning, and
- autonomy of learners.

For Category 4, Instructor Involvement, the two subcategories were

- communication from the instructor, and
- the instructor's approach to teaching.

Descriptors related to use of technology. There were 43 data points related to learning technology in the weekly reflections of learners and the instructor. These data points are summarized in Table 7. Of all codes related to technology, 36 of 43 data points, or 83%, were collected from the instructor's weekly reflections. Most of those data points, 33 out of 36, or 92%, were from the instructor's reflections about teaching the online group, while three data points, or 8%, were derived from the instructor's reflections about teaching the face-to-face group. The remaining seven data points, or 16%, were from reflections of learners in the online group. There were no data points related to learning technology in reflections by face-to-face learners. Four data points from the instructor's reflections related to learners' inability to log in to Collaborate. Ten additional data points involved other difficulties with the Collaborate software experienced by learners, such as signing in to the correct session or sharing their screen image with the other participants, and other non-specified technology problems. Five data points included references to learners' problems with their microphone or internet connection. In five

additional data points, the instructor noted how technology problems affected the class

Table 7

Descriptors Related to Technology

Instances	Codes	Code Definitions	Sample Data Points
32	TECD	Technology disadvantage	"Sometimes students can't log in or they lose connection."
11	TEC+	Technology support/benefit	"I have been able to clarify any questions about homework and lab by projecting it on the screen."

environment in a variety of ways. She noted that she used English more often with the online group because she needed to explain and give directions related to technology problems. The instructor also noted twice that learners had to work in groups instead of pairs due to problems using the Collaborate software. She also noted a time when a student left a session early because problems with the software kept her from participating. In one instance, the instructor described using Google Hangouts as a substitute for Collaborate: "We finally changed to Google Hangouts, but we could only get the chat (written) to work there. It was better than nothing, but definitely not ideal."

Nine data points from the instructor's reflections related to a benefit of technology or support for learners through use of technology. Three data points were from the instructor's reflections regarding the face-to-face group, including the use of a projector and screen to display learning materials in the classroom and the instructor's use of Blackboard to post instructions during an unplanned absence. The instructor noted that learners did not receive the notifications when she intended them to display them because she was not familiar enough with the settings in Blackboard. The other seven data points were related to use of technology with the online group, including mentions of the benefits of Collaborate to facilitate communication (3 instances), the instructor's acquisition of a new microphone, references to fewer technology

problems and improved support (2 instances), and the use of the chat function in Collaborate when a microphone wasn't working.

A learner in the online group noted in one weekly reflection that the instructor used the chat box in the Collaborate session when the sound wasn't working properly. In another data point, an online learner noted that classmates typed replies when they had technical difficulties. In two other data points, online learners wrote that they were having problems with their computers. Another online learner reflected that they were not able to connect with the live sessions online, but they watched two separate pre-recorded sessions.

Descriptors related to learner traits. The weekly reflections by learners and the instructor included a wide variety of data points describing characteristics of learners in online and face-to-face learning environments. Several categories of data emerged in the reflections that were not overtly suggested in the survey prompts. Such categories included learners' level of comfort and anxiety, effects of the presence of heritage or native speakers of Spanish in learner groups, and learners' views of their own progress in target language acquisition.

Regarding learners' support of each other, the researcher grouped the data points into the following subcategories: learners' support or lack of support of each other online and learners' support of each other in face-to-face classes. These data points are distributed among the categories as shown in Table 8. The instructor and online learners recorded weekly reflections that yielded 29 data points related to learners' level of comfort or anxiety. The instructor's reflections supplied three and eight data points for the face-to-face and online groups, respectively, or 38% of the data points in this category. The remaining 62% of data points were provided from learners, with 8 data points and 10 data points included in reflections from face-to-face and online learners, respectively.

Table 8

Descriptors Related to Learner Traits

Instances	Codes	Code Definitions	Sample Data Points
29	SANX	Learners' comfort/anxiety level	There are just a couple of students who are reluctant to fully participate in the activities and must be encouraged to do so.
6	SELF	Students' view of their progress in target language	My instructor was quite involved in giving me feedback this week, even creating an additional Collaborate session. I feel much more prepared for this upcoming exam than I was for the first exam.
9	SPER	Learner performance	It is easy to assume that students will know this or figure it out on their own, but it seems not to be the case with many.
6	HERI	Heritage/native speaker	I had to rely a lot on what was learned. Though I speak Spanish, I am not familiar with the holidays.
38	ONSU	Learners support each other online	This week I have started to collaborate with another student on skit ideas. Quite a bit of our discussion had to do with trying to incorporate all of the vocabulary in our final product.
4	NONS	Lack of support from classmates in online class	They were not involved because I didn't speak to any of my classmates.
48	FASU	Learners' interaction and support in face-to-face class	It is fun to speak with classmates, because there is not as much tension as when speaking with a teacher, preferably I would rather speak with one of my peers just because I'm not intimidated by lack of knowledge.

Regarding face-to-face learners, the instructor noted in three data points that some learners were not comfortable speaking aloud in class, and they had to be encouraged to speak as well as write. The instructor noted for online learners that one learner was a perfectionist and didn't want other learners to hear her mistakes. She noted that another learner was intimidated by the presence of native speakers in the class. In four data points, the instructor referred to

feedback that she had solicited from online learners to gauge their level of anxiety in the class. In the feedback, learners indicated that they were uncomfortable speaking in the Collaborate sessions when peers were present. The instructor reflected that she had not known of their feelings prior to the survey, but that her encouragement following the survey had helped them feel more comfortable. In two other data points, the instructor noted that online learners were more comfortable in online sessions when speaking in small groups.

Learners in the face-to-face group noted in two data points that some classmates were quiet or shy about speaking the target language in class. Another learner lacked confidence in target language conversations with classmates who seemed to know what to do. Two learners indicated that activities in the classroom were fun, with one of the learners also noting, "there is not as much tension as when speaking with a teacher," and "I would rather speak with one of my peers just because I'm not intimidated by lack of knowledge."

Two learners in the online group noted that classmates were more comfortable with one another later in the semester and were consequently more involved in speaking activities as the semester progressed. One learner noted that the Collaborate session was stressful because the class went over content the learner had not yet studied. In another data point, a learner noted that the instructor facilitated conversation in Collaborate by displaying on the screen the questions that were being asked in Spanish. Another learner expressed being pleased that they were progressing in their comprehension of questions asked in Spanish by the instructor. In two data points, online learners noted that encouragement by the instructor made it easier for learners to participate in class discussions in the target language.

The instructor and online learners noted certain factors related to learners' progress in acquisition of Spanish. In three data points, the instructor noted the effect of having heritage or

native speakers of Spanish in the online class. On one occasion she noted that three native speakers did not need much practice in Spanish but that they did learn something from the class. She observed another time that some learners should be in a higher course level because of their prior experience with the language. In a third instance, the instructor wrote that some students in the class overestimated the skill of heritage speakers in the class. In two data points, learners wrote that they were heritage speakers, but that they were learning new things from the class. One of those learners noted that the dialect of Spanish that they learned growing up was different from what they were learning in class. Another learner observed that the vocabulary of one lesson was previously unknown to them. A third learner stated that they were already fluent in Spanish.

The instructor and learners provided fifteen additional data points related to learners' attitudes toward their progress in the target language. The instructor noted that she had solicited learners' feedback regarding their opinions of their own levels of engagement in the class as well as the effectiveness of the instructor and the course learning materials. She wrote in one weekly reflection that she believed that some learners expected more of themselves than was realistic at that point in the course. She also described one learner who performed well in spoken activities in Collaborate in spite of expressing concern that other learners were more advanced. One online learner observed feeling prepared for an exam as a result of feedback from the instructor through an additional Collaborate session. Another learner noted, "My classmates and I were both equally involved in the speaking activities, especially since they had to kind of lead the conversation as I am not that great at speaking in Spanish yet." Two online learners noted that their comprehension of spoken Spanish had improved compared to previous weeks in the class, and two other learners observed that they had provided wrong answers to questions or had

misused words during the Collaborate session that week. Regarding the face-to-face learners, four data points from the instructor involved a range of reflections regarding learners' performance. In one instance, the instructor observed that learners' poor performance on an exam did not match their apparent comprehension of the material in class. The instructor also noted that learners struggled with certain concepts and that she was able to react by providing additional support in class. In another reflection, regarding learners' capacity to think inductively on a certain point, she observed, "It is easy to assume that students will know this or figure it out on their own, but it seems not to be the case with many."

The instructor, along with face-to-face and online learners, provided weekly reflections that yielded 90 data points related to the overall topic of support of learners. The instructor supplied 28 of these data points, with 11 instances relating to online learners and 17 instances relating to face-to-face learners. The two groups of learners provided 31 data points each related to learner support and interaction.

In weekly reflections about the face-to-face group, the instructor referred to ten occasions when learners worked in pairs or directly communicated with one another. In three data points, the instructor observed that learners spent class time becoming acquainted with one another and by exchanging personal descriptions. She also recorded that on four occasions learners had interacted well with one another or had supported each other in class activities. In reflections about the online group, the instructor referred to seven times when learners had been supportive of each other or had worked well with one another. In two data points, the instructor noted how learners had supported each other in the context of overcoming technical difficulties. In particular, she noted that learners would alert the instructor when other learners joined the Collaborate session late and that they all worked together in one group online because of the

difficulties of dividing into groups through Collaborate. In one data point, the instructor observed that she was unsure about learner interaction and support, although interaction appeared to be good among some learners. On another occasion she acknowledged that interaction among learners on Collaborate seemed to be causing anxiety for some learners.

Learners in the face-to-face group indicated in sixteen data points that classmates were supportive of one another in conversation activities in class. Learners noted in two data points that classmates helped each other with pronunciation. In addition, two learners recorded that classmates helped one another with sentence structure in writing exercises. In five data points, learners recorded that classmates helped one another with mistakes. In six other data points they reflected that classmates were attentive or engaged. Online learners noted in eighteen data points that classmates were supportive of each other in interactive exercises using the online software. Referring to use of the software, one learner stated, "My classmates asked to practice while trying to complete assignments in Portales. I had previously completed these assignments, but it never hurts to go back and practice and I enjoy helping others that have a hard time getting a partner to connect with them." In addition, learners used positive words such as "helping" (five times), "involved" (three times), or "great" (twice) to describe how learners interacted with each other in class. However, in two instances, learners indicated that they had a hard time finding partners to practice with them online. In another instance, an online learner stated that classmates were "not involved."

Descriptors related to learning environments. The weekly reflections by learners and the instructor provided a wide variety of data points describing the online and face-to-face learning environments. The researcher grouped the data points into the following subcategories: active learning, flipped classes, online communication, authentic learning materials, autonomy in

learning, personal relevance of class activities, pronunciation practice, and use of prior learning. These data points are distributed among the categories as shown in Table 9. In a subset of those data points —62 total—learners and the instructor directly compared online and face-to-face learning environments. A summary of those comparisons follows separately, and the corresponding data are summarized in Table 10.

Table 9

Descriptors Related to Learning Environments

Instances	Codes	Code Definitions	Sample Data Points
45	ONAC	Active learning online	Everyone makes sure to participate answering
15	ONCC	Online communication with classmates	After directing our questions about a particular topic to our classmates, they had to answer the question in Spanish.
78	FAAC	Active learning face-to-face	She spoke Spanish to us while she was also writing the words on the whiteboard so that we received both a visual and a verbal knowledge of it, and then had us answer questions that she asked in Spanish.
51	FLIP	Flipped learning practices	Instructor used activities related to weekly assignments
55	NOFL	Not flipped learning	My instructor always starts with an example and encourages students to participate.
97	PRIO	Prior learning used	This required past knowledge on family trees and the family members as well as incorporating new vocabulary words.
10	FAAU	Authentic learning face-to-face	This week's activities are relevant because we are introducing ourselves and each other in Spanish and this is an authentic activity.

Table 9 (continued)

Instances	Codes	Code Definitions	Sample Data Points
2	ONAU	Authentic learning occurs online	Learning is authentic as they're learning Spanish as they're learning about each other.
2	NONA	Learning not authentic	I don't think the online exercises are very authentic.
11	FAAT	Autonomy in face-to-face	Students have autonomy within a structure. I give them a structure within which they can make many choices, both inside and outside of the classroom.
13	PREV	Personal relevance face-to-face	Students have a lot of autonomy as far as how to practice the material at home. In class, they are more directed by me, especially the first days of class.
8	PRON	Pronunciation practice	My instructor was greatly involved in the activities and encouraged us to attempt pronunciations even when we weren't sure about them.
18	QMAT	Quality of course materials	The online learning is a mix of active and less active. It is definitely more active than paper textbooks, but my lessons are more interactive.
29	TIME	Practice time affected negatively	My classmates asked to practice while trying to complete assignments in Portales. I had previously completed these assignments, but it never hurts to go back and practice and I enjoy helping others that have a hard time getting a partner to connect with them.

The instructor and online learners recorded weekly reflections that yielded 60 data points related to active learning. Online learners provided 52 of the 60 data points related to active learning online, or 87%. According to reflections of the online learners, active learning online

took place in the form of asking and answering questions in the target language, co-constructing sentences, conjugating verbs, practicing for spoken exams, and discussing assignments. Several learners referred to structured activities that provided the context for the active learning to occur. In the remaining eight data points, the instructor referred to active learning online as taking place in the form of questions that she and the other learners asked each other and answered. She also described the online conversations as occurring in small groups and as sometimes involving native speakers who didn't need much practice. The instructor and learners in the face-to-face group provided an additional 78 data points related to active learning. Learners in the face-to-face group provided 54 of the 78 data points (69%) related to active learning in the face-to-face learning environment. Face-to-face learners asked and answered questions of one another, provided feedback to classmates, held questions of the instructor when necessary. In the remaining 24 data points, the instructor noted that face-to-face learners asked and answered questions within the framework of assigned activities, spoke in pairs and in the larger group of learners, inductively constructed rules of Spanish grammar based on examples of language, pronounced vocabulary words, held conversations, and experimented with the Spanish language.

In flipped classrooms, learners are introduced to basic, introductory information outside of class, while they engage in higher order thinking through their activities with one another during class (Fulton, 2012; Herreid, 2013; Lage, Platt, & Treglia, 2000; Lasry, Dugdale, & Charles, 2014; McLaughlin et al., 2014; Strayer, 2012). The researcher coded data points in the weekly reflections of the instructor and learners in both groups that were in keeping with practices of flipped learning. For some data points, not enough information was provided to label an activity as an example of flipped learning. In other instances, activities or practices were clear examples of learning that was flipped or not flipped. For example, the instructor noted in

one instance that students "displayed a lot of energy in their interactions." While energetic interaction could be a characteristic of flipped learning, there is not enough information in the data point to make a determination one way or the other. In contrast, the instructor noted in another instance that "students seem to be supportive of each other and eager to work through things together, and then ask questions when they are unsure of something." This data point indicates a learner-centered classroom environment where the instructor is a resource for learning. Still other data points indicated practices that were contrary to characteristics of flipped learning environments. For example, in one instance the instructor wrote, "Students have a lot of autonomy as far as how to practice the materials at home. In class they are more directed by me, especially the first few days of class." In this instance, the learning environment is not flipped. Practice time takes place at home, while time in class is instructor-centered.

Weekly reflections by the instructor and learners yielded 106 data points related to the topic of flipped learning. These data points were divided between two codes, one code indicating flipped learning and another one indicating a practice or activity that was contrary to flipped learning practices. The instructor's reflections were the source of twelve data points related to flipped learning and fourteen data points related to practices that were contrary to flipped learning, or 25% of all data points related to the overall topic of flipped learning. The instructor's data points that indicated practices of flipped learning were evenly distributed between the online and face-to-face groups, with six data points assigned for each group. However, the data points coded as practices that were contrary to flipped learning were divided unevenly, with five data points assigned to the face-to-face group and nine data points assigned to the online group.

Learners in the online and face-to-face groups provided 75% of the data points that

corresponded to learning that was described as either flipped or not flipped. Of the 39 data points from learners' reflections that indicated flipped learning practices, 29 were from learners in the face-to-face group and ten were from learners in the online group. In contrast, of the 41 data points from learners' reflections that indicated practices that were contrary to flipped learning, three were from reflections of face-to-face learners and 38 were from learners in the online group. Learners in the face-to-face group described learning practices such as asking and answering questions of each other in the target language, helping each other with pronunciation, listening for each other's mistakes and offering corrections, and taking part in conversations. Examples of flipped learning practices from online learners contained descriptions of the same types of activities. The three data points from face-to-face learners that were categorized as being contrary to flipped learning practices were related to instructor-centered class activities. Similarly, the 38 data points from online learners that included practices contrary to flipped learning practices described instructor-centered practices. Examples of these data points included statements such as "My instructor asked me questions in my oral interview and moderated the Collaborate session," and "I didn't speak to any of my classmates."

The use of prior learning in class activities was a frequent topic in the reflections of learners online and in the face-to-face groups, with 48 and 49 data points supplied by face-to-face and online learners, respectively. Flipped class environments are facilitated when learners have acquired knowledge of basic principles prior to attending class sessions. In 40 of 48 data points, or 83%, face-to-face learners recorded that they had relied fully or most of the time on prior knowledge when completing activities in class. In the remaining eight data points, or 13%, learners indicated that they relied on prior learning "somewhat" or "a little bit." In 46 of 49 data points, or 94%, online learners indicated that they relied fully or most of the time on prior

knowledge to complete activities in class. Only three data points from reflections of online learners indicated that learners used prior knowledge "somewhat" or not at all.

The weekly reflections by the instructor were the source of 13 of the 14 data points were related to the authenticity of learning materials. Of those 14 data points, 12 were included in reflections about the face-to-face classes. Data points involving the instructor's or learners' comparisons of online versus face-to-face classes are discussed separately in a following section.

Most data points that related to authenticity of materials were from the instructor's reflections of the face-to-face group. In five of the data points, the instructor noted that materials were authentic if they involved students in language use that occurred in "real life." For example, she observed, "This week's activities are relevant because we are introducing ourselves and each other in Spanish, and this is an authentic activity." Two additional data points included observations from the instructor that she should search for additional learning materials and opportunities that were authentic. In another instance she reflected that more cultural elements should be used in class activities. Yet another data point involved the instructor's observation that "authenticity could be improved upon by the use of more authentic materials, but right now we're focusing on learning the vocabulary and grammatical structures." Two data points included the instructor's criticism that the online learning exercises provided by the publisher of the textbook were not very authentic. In reflections regarding the online class, the instructor noted once that "learning is authentic in that they're learning Spanish as they learn about each other." On another occasion, she simply noted that authentic learning could have been better. One learner in the face-to-face group noted that conversations in Spanish were "realistic."

The weekly reflections by the instructor and learners yielded 16 data points related to the autonomy of learners. Of those 16 data points, 12 were included in the instructor's reflections

about the face-to-face classes, and three data points were from the instructor's reflections concerning the online group. One remaining data point was provided by a learner in the online group. Data points involving the instructor's or learners' direct comparisons of online versus face-to-face classes are discussed separately in a following section.

Consistently, the instructor noted that learners were allowed to have autonomy within a structure that she provided. For example, in two data points, the instructor noted that learners were allowed to choose which questions to ask one another from a list that she provided. "Students have autonomy within a structure," she wrote, noting further, "I give them a structure within which they can make many choices, both inside and outside the classroom." In one instance, she noted that learners "put what they learn to use and they experiment with material during the learning process." In another example, she observed that learners could choose what they wished to write about within the guidelines of a general writing prompt. In five data points, the instructor observed that learner autonomy had been restricted in a given week for a variety of reasons, such as a need to support learners' study of certain topics or to make up for missed class sessions. In some of those instances, the instructor only noted that learners did not have much autonomy in a given lesson. The instructor made similar observations in three data points from reflections about the online group. She noted twice that learners had autonomy to choose which vocabulary they wanted to use within the structure of an activity. On another occasion she noted that autonomy was limited for learners due to a need to provide feedback on topics they struggled with and to prepare for an exam. One learner in the online group noted the following, indicating a level of autonomy that was experienced by online learners: "We usually discuss our conversation before we begin recording and bounce ideas off of each other as to where we'd like to conversation to go. Sometimes we stay on script and other times we ad lib!"

The weekly reflections by the instructor and learners yielded 19 data points related to the personal relevance of activities to learners. Of those 19 data points, 13 were included in the instructor's reflections about the face-to-face classes, and six data points were from the instructor's reflections concerning the online group. Data points involving the instructor's or learners' direct comparisons of online versus face-to-face classes are discussed separately in a following section.

In weekly reflections about the face-to-face group, the instructor listed topics of in-class activities that were personally relevant to face-to-face learners: families, communicating information about oneself, qualities of a good student and professor, becoming acquainted with others, describing feelings, and areas of study that were liked or disliked. In eight data points for face-to-face learners, the instructor noted that topics were personally relevant to learners, and in five other instances she reflected that classes may not have been personally relevant to learners or that personal relevance of learning materials was not as apparent. In six data points regarding class activities of online learners, the instructor noted twice that the personal relevance of topics to learners was the same as in face-to-face classes. The instructor noted in one data point that a particular topic for the online group was relevant to learners (the examination of their personal beliefs), and she noted on three occasions that the activities were personally relevant to learners without providing any specific details.

Reflections from learners in the online and face-to-face groups yielded six data points related to class time that was spent practicing pronunciation. The instructor made a reference to pronunciation practice on one occasion. The topic of pronunciation emerged from the data and was not a focus of the researcher prior to the study. In two data points, face-to-face learners noted that the instructor helped learners with pronunciation during class time. In two other

instances, face-to-face learners noted that they helped each other with pronunciation during class activities. One online learner noted that learners helped one another with pronunciation while connected in synchronous online sessions. Another online learner observed that the instructor provided feedback on pronunciation during the sessions. The instructor recorded once that she asked learners in the face-to-face group to take turns pronouncing vocabulary words.

Participants' comparisons of face-to-face and online learning environments. A total of 62 data points involved direct or indirect comparisons of the face-to-face and online learning environments by the instructor and learners. The researcher grouped the comparisons in the subcategories of communication and interaction, active learning, autonomy in learning, authentic learning materials, and personal relevance. These data points are distributed among twelve categories as shown in Table 10. Most of the comparisons between the two groups were noted by the instructor, who had direct knowledge of both learning environments. Some reflections by online learners referred to aspects of their learning environment that face-to-face learners did not experience, particularly related to the use of technology.

Thirty of the 62 data points were related to the subcategory of interaction and communication, and twenty of those were noted by the instructor. All ten data points in this subcategory from learners were from the online group. Five of the 30 data points, or 17%, were related to observations by the instructor that communication online was limited in quality in some way. For example, the instructor noted on several occasions that she couldn't read nonverbal cues from learners in the online group as she could with face-to-face learners, and that this negatively affected communication. In particular, one class activity involved classmates asking each other their names, but learners and the instructor couldn't signal a particular person in the online group without calling their name and defeating the purpose of the exercise.

Referring to the effect of limited nonverbal cues on online instruction, the instructor noted, "I think it is harder to sense and respond to anxieties when we are just connected by voice." Four of the 30 data points in this category, or 13%, related to less authentic target language

Table 10

Descriptors Related to Comparison of Two Learning Environments

Instances	Codes	Code Definitions	Sample Data Points
18	F2FI	Interaction online not as good as face-to-face	I did not speak to my instructor.
13	F2FC	Communication online not as good as face-to-face	It's easier to correct problems for everyone when they are in the same classroom.
1	FISU	Face-to-face interaction and support same as online	With Collaborate, the instructor can review in the same way as face-to-face classes.
6	FACO	Face-to-face learning activity same as online	Active learning was the same as face-to-face.
3	F2FA	Learning online not as active as face-to-face	less active learning because fewer students in Collaborate sessions
6	FATO	Autonomy face-to-face same as online	Student autonomy same as face-to-face.
2	F2FU	Authentic learning harder to create online than face-to-face	I don't know that I would call online learning authentic at the most basic level. It seems like it may be one step removed, at least for language learning.
7	FAUO	Authentic learning face-to-face same as online	authentic learning same as face-to-face
6	FPRO	Face-to-face personal relevance same as online	personal relevance same as face-to-face

communication in online class sessions relative to face-to-face class meetings. "I feel the need to guide and explain more in English," noted the instructor. She also noted that some learners would listen to their peers and respond through the chat box when their microphones didn't

work. The remaining data points from the instructor's reflections included her observations that students online shared less interaction than their peers in face-to-face classes. She cited several reasons for this, including a lack of physical proximity to classmates, an increased need for the instructor to guide conversation activities, technical difficulties that hindered communication, and the fact that some learners did not log in to the Collaborate sessions at all. The instructor explained in her reflections how limitations of technology hindered her capacity to deliver the same quality to learners compared to the face-to-face group:

> Instructor support still does not seem to match that which I give in my face-to-face courses. We have still experienced tech difficulties, so that takes up some of our time. Also, I need to work on creating clear alternate assignments for those students who are unable to make the Collaborate sessions for some reason and they need to be held accountable for these as part of their participation in the class. I do believe that students feel much more supported with the addition of the mandatory Collaborate sessions. I even had a student who has experienced tech problems comment on how much better it is than her other online courses have been. She said in other classes they are just assigned readings and given tests. It is not living up to my expectations yet, but I do believe it is an improvement.

Learners in the online group also made comments in their reflections that drew indirect comparisons to differences in communication between online and face-to-face learning environments, and their comments provided the remaining data points in this subcategory. Learners noted that they did not speak to the instructor due to problems scheduling a time to meet through Collaborate or they simply indicated that they did not meet with the instructor. Another learner indicated that they listened to a session that the instructor had recorded and

posted in Collaborate, but that they did not participate in a synchronous Collaborate session. Learners in the face-to-face group do not have these circumstances because they have regularly scheduled class meetings.

Eight of 62 data points, or 13%, involved reflections by the instructor on the autonomy of learners in face-to-face versus online groups. In six of those data points, the instructor noted that learners in the online group had as much autonomy in their class activities as did learners in the face-to-face group. In two data points early in the semester, the instructor indicated that online learners had less autonomy because she believed that they needed more guidance and structure. In one of those instances she wrote the following about learner autonomy with respect to homework:

> Students in my online courses this semester started out with less autonomy than those in my face-to-face courses with regards to the homework because I thought the added structure might be helpful to them. I quickly changed my mind because I saw that it removed their ability to really see the learning goals and chose how nest to achieve those. Instead, they would have just been following directions. I want them to know the goals and to understand how each assignment helps them to achieve those goals and to engage in self-directed learning in making decisions based upon this information.

The instructor also noted that online learners had less autonomy because of the support needed to use the online learning system.

Of the 62 data points that involved a direct or indirect comparison between online and face-to-face learning environments, nine data points, or 15%, related to a comparison of the authenticity of learning materials or experiences for the two groups. A reading passage is authentic, for example, if it contains text written for native users of the target language, such as

advertisements, news articles, books, etc. In contrast, a text written by textbook authors for language learners would not be authentic. In two data points, the instructor referred to a lack of authenticity in spoken discourse for online learners. In particular, she noted that authentic learning situations are harder to create for online learners than for face-to-face learners:

> For example, the first day of class in the face-to-face environment, I start by saying, "Me llamo Annette. ¿Cómo te llamas tú? I'm not able to do that using Collaborate. I can ask the question, but I have to call the person's name. I cannot gesture to them. It is definitely not authentic to ask them their names by calling them by name."

A total of six out of 62 data points, or 10%, were related to a comparison of face-to-face and online learning environments with respect to the personal relevance of class activities for learners. In all six data points, the instructor indicated that personal relevance was the same for each group.

Table 11

Descriptors Related to Instructor Involvement

Instances	Codes	Code Definitions	Sample Data Points
12	FFCI	Face-to-face communication with instructor	I was able to go over the topics I saw students had difficulties with the whole class.
4	IFBK	Instructor seeks feedback from learners	There has been more interaction than usual because we were doing oral interviews this week and I also take the time to ask each student how everything else is going.
98	INCS	Instructor provides content support	Our instructor helped us transition between classmates, conjugate verbs, and directed us so the collaborate session would run smoothly.

Table 11 (continued)

Instances	Codes	Code Definitions	Sample Data Points
4	INXP	Instructor experience	I think the online lab is good enough to where I really can have a flipped classroom. I am still a little uncomfortable with that though.
10	INTL	Instructor spoke target language in class	She spoke Spanish and we would answer, and she also would speak to the whole class in Spanish when giving instruction.
14	INRE	Instructor requirement	We broke out in groups today and each of us had to interview another student which encouraged participation.
18	ONCI	Online communication with instructor	Instructor made activities and I replied back in Spanish.
46	INTP	Instructor's teaching philosophy/approach	I do not explain the material to them and then have them use it. I use it and then ask them to do the same.

Instructor involvement. Of all data points related to the instructor's involvement in class sessions, 56 out of 222, or 25%, were from the instructor's weekly reflections. The remaining 166 data points, or 75%, were from learners' weekly reflections. The data points related to instructor involvement are summarized in Table 11.

Instructor's communication with learners. A total of 136 data points from learners and the instructor were related to descriptions of the instructor's spoken communication with learners in both groups. Of those 136 data points, only 14 data points, or 10%, were from the instructor's reflections. All but two of those 14 data points were from the reflections about the face-to-face group. In particular, the instructor noted that she spent time in class asking questions in the target language and communicating through other activities (two data points), and she answered questions and addressed topics of grammar that were difficult (five data points). She also

described giving support to learners generally or in specific ways, such as helping them understand the online learning system (four data points). In two additional data, points the instructor asked learners for input. This type of communications was reported twice for the online group and once for the face-to-face group. Learners in the two groups recorded a total of 122 data points related to the instructor's communication with them during class. There were 57 data points from the face-to-face group and 65 data points from the online group. Of the 57 data points related to communication by the instructor, face-to-face learners recorded 12 data points indicating that the instructor "corrected," "led," "taught," or "explained." In 13 data points, learners reported communication by the instructor that suggested more of a supportive role, including "answered questions," "helped," and "gave feedback." In eight data points, learners described the instructor in a general sense as "involved" or "very involved." Learners indicated in six data points that the instructor asked questions in the target language, and in five data points that she spoke in the target language. In six data points, learners wrote that the instructor translated to English if asked to do so. Online learners wrote in 52 instances that the instructor "gave examples," "asked questions," "encouraged participation," "explained," "checked for understanding," and either "moderated" or "led" the Collaborate session. In twelve instances, online learners described the instructor as "involved," or "very involved." In a single data point, an online learner noted that the instructor would "give resources" to the class.

The remaining data points that were related to the instructor's involvement in class sessions had to do with different aspects of the instructor's approach to teaching. Specifically, the related data points were categorized as (a) direct statements from the learners or the instructor regarding the instructor's approach to teaching, or (b) modifications of class assignments by the instructor.

The instructor's reflections contained twenty-two data points regarding her approach to teaching learners in both groups. Twelve data points related to face-to-face learners and ten data points related to online learners. Face-to-face and online learners provided nine and 15 data points, respectively, related to the instructor's teaching approach. Learners in both groups described how the instructor would prompt learners to speak to her and to one another by asking and answering questions in Spanish. Learners in both groups also observed that the instructor would translate words for the class and conjugate verbs. In three data points from the face-to-face group, learners noted that the instructor made sure that they spoke Spanish correctly. One data point from the online group referred to pronunciation and described the instructor as encouraging learners to attempt the correct pronunciations of words. Online learners noted other aspects of the instructor's approach to teaching that were absent from the reflections of face-to-face learners. Specifically, online learners noted that they watched or listened to recordings made by the instructor in Collaborate. They also observed that she made activities for the class, checked for understanding, and gave examples. None of those actions were recorded in reflections by learners in the face-to-face group.

The instructor and online learners provided eighteen data points regarding the instructor's modifications of class assignments. The instructor recorded ten data points for the online group, but no data points for the face-to-face group. She observed that limitations of teaching online result in a different teaching approach. In particular, she wrote in four reflections that large group activity was substituted for pair or small group work because of the technical challenges of having learners work in pairs online. In addition, she noted in three instances that learners either watched a recording or communicated by means of the chat box when the Collaborate app wasn't working properly. The instructor also noted that it was easier to use physical objects as

reference points for discussion in a face-to-face group than in an online class environment. Online learners recorded eight data points in this category, but there were no data points from face-to-face learners for the category. They observed in five data points that the instructor was involved through pre-recorded activities. Two learners noted that the instructor and learners would type in the chat box to communicate when there was no audio function due to a weak internet connection. One student listed email as a means of communicating with the instructor.

Constructivist activities implemented during weekly classes. The instructor documented in her weekly reflections the activities that she implemented for learners in both groups. See Table 12 for a summary of these activities.

Table 12

Summary of Weekly Class Activities for Online and Face-to-face Groups

Week	Description of Activity
9/1	The instructor modeled use of the target language to introduce another person and asked learners to follow her example. She did not explain how to use the target language. Learners then introduced each other in Spanish.
9/9	Learners practiced telling the time in Spanish by using flashcards to prompt one another.
9/15	The task for learners in the online and face-to-face groups was to speak to one another in Spanish about likes and dislikes. First, learners read a list of academic subjects in the target language and translated them to English with help from the instructor. The instructor then provided a list of example sentences containing the Spanish verb "gustar," and learners deduced rules for using "gustar" with help from the instructor. Finally, learners communicated to each other about the subjects they liked and disliked using 'gustar."
9/22	The instructor provided learners with a list of Spanish verbs and learners used them to tell other learners about their regular activities. Learners ended their statements with tag questions to prompt other learners to respond.
9/29	The task for learners was to speak to one another in the target language to discuss traits of people in a variety of roles, such as students, instructors, heroes, villains, etc. First, the instructor asked learners to take turns pronouncing the vocabulary words and to ask questions if needed. Next, they worked in smaller groups to describe themselves and to ask others about the traits that they selected. Finally, learners in the face-to-face groups concluded the activity by talking about the traits in the class as a whole. Learners in the online group did not work in pairs, but they concluded the activity by speaking to all learners who were logged in to the Collaborate session.

Table 12 (continued)

Week	Description of Activity
10/6	Learners in both groups asked each other questions in Spanish using a new list of verbs. Learners in the face-to-face group worked in pairs and then with the class as a whole. Online learners worked in pairs in Collaborate and the instructor joined each group in turn to listen and provide feedback as needed.
10/13	Learners used idioms that included the Spanish verb "tener" to describe their feelings to one another. Online learners and the instructor worked together to complete the activity as a group. The instructor did not specify groupings for face-to-face learners.
10/23	Learners in both groups used a new list of Spanish verbs to ask and answer questions to one another.
10/28	Learners in both groups used pictures as prompts to ask questions about where people go and what they do at those locations.

Recordings of learners' spoken performance in the target language. To answer the second guiding question, the instructor recorded learners as they gave descriptions of their families in Spanish during the sixth and seventh weeks of the semester and again during the fourteenth and fifteenth weeks of the semester. The instructor collected recordings through Blackboard Collaborate for online learners and with a digital recorder for face-to-face learners. To prepare the audio files to be rated, the researcher separated each recorded task performance into a separate audio file and then saved each file on a personal computer as the name of the participant. The researcher then created a randomized list of codes for each participant file using an Excel spreadsheet. He then created a corresponding key showing the name that corresponded to each code. On two separate occasions, the researcher rated learners' recorded baseline and final tasks in two outcome areas: a) content, purpose, and organization (outcome 1); and b) grammar, vocabulary, and pronunciation (outcome 2). Learners received one of the following rubric-based numeric ratings for each outcome: 4) Highly Competent; 3) Mostly Competent; 2) Needs Improvement; and 1) Not Competent. See Appendix D for the rubric. For discrepancies between the first and second rating, the researcher listened to the audio file a third time as a tie

breaker, if necessary. The purpose of collecting recordings of both the baseline and final assessments was to understand whether learners' scores for the two outcomes improved significantly after experiencing a semester in their respective course environment. For the sign test analysis, the researcher obtained difference scores for each learner who participated in both a baseline assessment and a final assessment of the spoken task. If a learner lacked either a baseline or a final assessment score, the researcher did not include a difference score for that learner in the analysis.

Online learners' ratings on baseline and initial final assessments. In answer to question 2 (a), three of the eight online learners who completed a pre-test and a post-test scored higher ratings for outcome 1 on the first final assessment compared to the baseline assessment. Five learners had the same rating on both assessments. Graphs in Appendix S show distributions of scores for online learners on baseline and initial final assessments. An exact sign test showed that there was no statistically significant difference in scores for the first outcome of content, purpose, and organization (*Mdn* = 0) from pre-intervention (*Mdn* = 4.0) to post-intervention (*Mdn* = 4.0), p = .25. A paired-samples t-test is an appropriate test to run to determine whether differences between a pre-test post-test are significant. However, the data were rank-ordered and were not normally distributed. For outcome 1, a Shapiro-Wilk test showed a significant departure from normality, $W(8) = .68$, $p = .001$. Also, Appendix T includes graphs showing that the differences between the post-tests and pre-tests were not normally distributed for outcomes 1 and 2. Therefore, the data for outcome 1 did not meet the required assumptions for a paired-samples t-test and the researcher ran the exact sign test as a nonparametric equivalent.

Two of eight online learners scored higher ratings for outcome 2 on the first final assessment compared to the baseline assessment. Six learners had the same rating on both

assessments. The researcher ran an exact sign test for outcome 2 and found that there was no statistically significant difference in scores (*Mdn* = 0) from pre-intervention (*Mdn* = 3.5) to post-intervention (*Mdn* = 3.5), p = .50. For outcome 2, a Shapiro-Wilk test showed a significant departure from normality, $W(8) = .60$, $p < .001$.

Online learners' ratings on baseline and repeated final assessments. Learners who made errors while performing the final spoken task participated in the dynamic assessment activity with the instructor and repeated the final spoken task immediately afterward. For those participants, the researcher substituted the second final assessment in place of the first final assessment score and recalculated the difference scores before running the sign test again. In answer to question 3 (a), two of the four online learners who completed a pre-test and a post-test scored higher ratings for outcome 1 on the repeated final assessment compared to the baseline assessment. Two learners had the same rating on both assessments. The graphs in Appendix U show distributions of scores for online learners on baseline and repeated final assessments. The researcher ran a Wilcoxon signed-rank test as a nonparametric equivalent to the paired-samples t-test. For outcome 1, there was a median increase in task ratings (*Mdn* = 1.0) from pre-intervention (*Mdn* = 2.5) to post-intervention (*Mdn* = 4.0), but this difference was not statistically significant, $z = 1.34$, $p = .18$. A Shapiro-Wilk test showed that ratings were normally distributed for outcome 1, $W(4) = .85$, $p = .22$. Appendix V includes graphs showing the distributions of differences between the post-tests and pre-tests for outcomes 1 and 2. The current data were rank-ordered, so the researcher chose a nonparametric equivalent to the paired-samples t-test to test for the significance of differences between pre-tests and post-tests for both outcomes.

Three of four online learners scored higher ratings for outcome 2 on the repeated final assessment compared to the baseline assessment. One learner had the same rating on both

assessments. Again, the researcher ran a Wilcoxon signed-rank test as a nonparametric equivalent to the paired-samples t-test. For outcome 2, there was a median increase in task ratings (*Mdn* = 1.0) from pre-intervention (*Mdn* = 2.5) to post-intervention (*Mdn* = 3.5), but this difference was not statistically significant, $z = 1.16$, $p = .25$. A Shapiro-Wilk test showed that ratings were normally distributed for outcome 2, $W(4) = .90$, $p = .41$. However, the current data were rank-ordered and therefore did not meet all of the assumptions required for a paired-samples t-test.

Face-to-face learners' ratings on baseline and initial final assessments. In answer to question 2 (b), ten of the sixteen face-to-face learners who completed a pre-test and a post-test scored higher ratings for outcome 1 on the first final assessment compared to the baseline assessment. Five learners had the same rating on both assessments and one learner scored lower on the post-test than on the pre-test. The graphs in Appendix W show distributions of scores for face-to-face learners on baseline and initial final assessments. An exact sign test showed that there was a statistically significant difference in scores for the first outcome of content, purpose, and organization (*Mdn* = 1.0) from pre-intervention (*Mdn* = 2.0) to post-intervention (*Mdn* = 3.0), p = .01. A paired-samples t-test is an appropriate test to run to determine whether differences between a pre-test post-test are significant. However, the data were rank-ordered and were not normally distributed, so they did not meet the required assumptions for a paired-samples t-test. Appendix X includes graphs showing that the differences between the post-tests and pre-tests were not normally distributed for outcomes 1 and 2. Also, for outcome 1, a Shapiro-Wilk test showed a significant departure from normality, $W(16) = .88$, $p = .04$. Therefore, the researcher ran an exact sign test as a nonparametric equivalent to the paired-samples t-test.

Seven of sixteen face-to-face learners scored higher ratings for outcome 2 on the first final assessment compared to the baseline assessment. Seven learners had the same rating on both assessments and two learners scored lower on the post-test than on the pre-test. For the second outcome of grammar, vocabulary, and pronunciation, an exact sign test showed that there was not a statistically significant difference in scores (*Mdn* = 0) from pre-intervention (*Mdn* = 2.5) to post-intervention (*Mdn* = 3.0), p = .18. For outcome 2, a Shapiro-Wilk test showed a significant departure from normality, $W(16) = .83$, $p = .01$.

Face-to-face learners' ratings on baseline and repeated final assessments. In answer to question 3 (b), seven of the nine face-to-face learners who completed a pre-test and a post-test scored higher ratings for outcome 1 on the repeated final assessment compared to the baseline assessment. Two learners had the same rating on both assessments. The graphs in Appendix Y show distributions of scores for face-to-face learners on baseline and repeated final assessments. For outcome 1, grammar, vocabulary, and pronunciation, an exact sign test showed that there was a statistically significant difference in scores (*Mdn* = 1.0) from pre-intervention (*Mdn* = 2.0) to post-intervention (*Mdn* = 3.0), p = .02. As before, the researcher ran an exact sign test as a nonparametric equivalent to the paired samples t-test. A Shapiro-Wilk test showed a significant departure from normality, $W(9) = .78$, $p = .01$. Appendix Z includes graphs showing the distributions of differences for outcomes 1 and 2.

Two of nine face-to-face learners scored higher ratings for outcome 2 on the repeated final assessment compared to the baseline assessment. Five learners had the same ratings on the baseline and repeated final assessments for outcome 2, and two learners scored lower ratings on the repeated final assessment than on the baseline assessment. The researcher ran a Wilcoxon signed-rank test as a nonparametric equivalent to the paired-samples t-test. For outcome 2, there

was a median increase in task ratings (*Mdn* = 0) from pre-intervention (*Mdn* = 3.0) to post-intervention (*Mdn* = 3.0), but this difference was not statistically significant, $z = .38$, $p = 71$. A Shapiro-Wilk test showed that ratings were normally distributed for outcome 2, $W(9) = .85.$, $p = .07$. However, since the current data were rank-ordered they did not meet all of the assumptions required for a paired-samples t-test.

Table 13 is a summary of how learners' scores changed from the baseline assessment to the first final assessment. Table 14 summarizes how scores changed for each group of learners when the post-dynamic assessment scores were substituted as final scores for the learners who participated in the second final assessment.

Table 13

Comparisons of Learners' Outcomes between Baseline and First Final Assessments

Online Learners, N = 8		Face-to-face Learners, N = 16	
Outcome 1	Outcome 2	Outcome 1	Outcome 2
3 improved	2 improved	10 improved	7 improved
5 no change	6 no change	5 no change	7 no change
0 scored lower	0 scored lower	1 scored lower	2 scored lower

Comparison of pre-assessment to post-assessment gains for the two groups. To answer question 2 (c), the researcher ran the Mann-Whitney U test to determine if there were differences in gain scores between online and face-to-face learners. There was no statistically significant difference in gain scores between online learners (mean rank = 10.94) and face-to-face learners (mean rank = 13.28) for outcome 1, $U = 76.5$, $z = .82$, $p = .413$.

The same was true of online learners (mean rank = 11.13) and face-to-face learners (mean rank = 13.19) for outcome 2, $U = 75.0$, $z = .75$, $p = .528$. Gain scores are listed in

Appendices Q and R. An independent t-test can be used to compare the gains between two independent groups, but the current data did not meet the required assumptions. The data are ordinal data and not continuous as required by the independent samples t-test. Also, based on a visual inspection of data in Appendix AA, the distributions of gain scores were not similar for the two groups for either outcome.

Table 14

Comparisons of Learners' Outcomes between Baseline and Second Final Assessment

Online Learners, N = 4 (with scores for 4 learners updated after dynamic assessment)		Face-to-face Learners, N = 9 (with scores for 9 learners updated after dynamic assessment)	
Outcome 1	Outcome 2	Outcome 1	Outcome 2
2 improved	3 improved	7 improved	2 improved
2 no change	1 no change	2 no change	5 no change
0 scored lower	0 scored lower	1 scored lower	2 scored lower

Comparison of pre-dynamic assessment to post-dynamic assessment gains for the two groups. To answer question 3 (c), the researcher ran the Mann-Whitney U test again to determine if there were differences in gain scores between online and face-to-face learners from initial final assessments to the repeated attempts of the final assessment following the dynamic assessments. There was no statistically significant difference in gain scores between online learners (mean rank = 7.38) and face-to-face learners (mean rank = 6.83) for outcome 1, U = 16.5, z = -.25, p = .804. This was also the case for online learners (mean rank = 9.0) and face-to-face learners (mean rank = 6.11) for outcome 2, U = 10, z = -1.28, p = .200. Gain scores from the initial final assessments to repeated final assessments are listed in Appendices V and W.

Content analysis of dynamic assessments. Some learners received a second

intervention through the instructor's dynamic assessment of their performance of the final spoken language task. In keeping with Anton (2009), the instructor gave targeted feedback to learners before inviting them to attempt the final task a second time. Five learners in the online group received the dynamic assessment and repeated the final spoken language task. Their ratings are listed in Appendix K. The dynamic assessments were recorded for online learners through Blackboard Collaborate. The researcher also conducted a content analysis of transcripts of the dynamic assessments. Learners who did not have errors in their second performance of the spoken language assessment did not receive a dynamic assessment and the instructor did not ask them to perform the third spoken language assessment. Due to a technical issue, recordings of dynamic assessments for the face-to-face group were not available for analysis.

To obtain data in a textual format for analysis, the researcher paid a transcription service to transcribe the dialogues between the instructor and each participant. The researcher used both preset and emergent categories to code the data. Two of the preset categories—instructor feedback and learner acknowledgment of feedback—included the components of the two outcomes for the assessed task performances. The components of outcome 1 were content, purpose, and organization, and the components of outcome 2 were vocabulary, pronunciation, and grammar. To begin the process of coding the dynamic assessment, including the utterances of the instructor and the learners, the researcher read the transcripts several times. In each transcript, the researcher made notes in the margins to mark occurrences of the preset categories in addition to categories that emerged from the text. After reading each data set several times, the researcher continued the coding process by taking notes on subcategories present within the data. Some codes were present across all data sets, while others occurred only in four or fewer data sets. Finally, the researcher identified two overall themes for the categories of data:

dynamic assessment and *engagement by learners*. Within each of the themes he identified categories and subcategories or codes. See Appendix AA for the complete list of themes, categories, and codes. Examples of codes are listed in Table 15.

Table 15

Examples of Codes from the Dynamic Assessments of Five Online Learners

Codes	Code Description	Sample Data Points
IAFF	Attitude or emotion by instructor	Um, cool.
ICFM	Instructor confirmation of corrected response	Right, you just pronounced "tiene" correctly.
ICLA	Instructor seeks clarification of utterance	I'm not sure which one you were talking about.
ICOR-VOC	Instructor makes vocabulary correction	OK, so I would say "*es* divertida."
ICOR-PRON	Instructor makes pronunciation correction	I'm pronouncing these words correctly, um, 'cause I'm not sure exactly how you pronounced it from writing it down, but words to correct are: *afuera, luego, tenemos, hijo, años,* and *dinosaurios*.
ICOR-GRAM	Instructor makes grammar correction	I think you said, "mi nietos," so just make sure it's plural.
IPOL	Instructor politeness	It's not a big deal either way because you did fine.
IQST	Instructor prompts with question or pause	Do you know what [word] you might want to use and why?

Table 15 (continued)

Codes	Code Description	Sample Data Points
IXPL-GRAM	Instructor explanation related to grammar	You could just say, “le gusta jugar basquetbol.” So the “a” is not needed if you’re going to say “el,” and if not, you don’t need it. You can just say “le gusta.” But you need the “le” in any case.
IXPL-VOC	Instructor explanation related to vocabulary	So “ poco” would be like a little bit of something. Like, “quiero un poco de chocolate.” And “pequeño” is little like size-wize.
IXPL-PRON	Instructor explanation related to pronunciation	Make sure you’re not pronouncing the “h”.
LAFF	Attitude or emotion employed by learner	(laughing)
LAGR	Learner agrees	Oh yes, I think I probably did.
LCFM	Learner confirms corrected response	I said, “Estos, estos son mis padres.”
LCOR	Learner makes correction	Should that be “son”?
LDBT	Learner self doubt/lack of understanding	Yeah, I didn’t know how to set that up.
LFAC	Learner face-saving utterance	I had the word in mind, but I just couldn’t…
LPOL	Learner politeness	Thanks
LQST	Learner questions instructor about error	Oh, I shouldn’t use “es,” should I?

The theme of dynamic assessment. The three categories within the theme of dynamic assessment reflected qualities of the communication from the instructor to learners: *instructor feedback*, *instructor prompts learner to engage*, and *instructor creates supportive environment*. Related to instructor feedback, the researcher identified four subcategories or codes. First, for two of the five learners, the instructor gave confirmation of a response that they had corrected. Second, the instructor gave feedback to all five learners in the form of direct correction of an error related to vocabulary, pronunciation, or grammar. There were sixteen data points coded with this subcategory, with eight instances relating to correction of the use of vocabulary, and three and five data points related to pronunciation and grammar, respectively. The third subcategory that related to instructor feedback was *instructor explanation related to target language use*. In this subcategory, nine data points related to vocabulary, while six and five data points related to grammar and pronunciation, respectively. Finally, in 23 data points distributed among the five learners, the instructor repeated aloud learners' errors based on the notes that she had taken while listening to learners perform the task.

A second category of the theme of dynamic assessment was *instructor prompts learners to engage*. Three subcategories emerged related to this category. First, for two learners, the instructor requested clarification of an utterance. A second subcategory involved requests by the instructor for two of the learners to repeat utterances that they had made during the performance of the task. A third code was related to fifteen data points involving a question or other prompt by the instructor. For this subcategory, the researcher identified a total of fifteen data points among the five learners.

A third category under the theme of dynamic assessment was related to a supportive environment that was created by the instructor. Within this category there were two

subcategories. First, in four data points with four different learners, the instructor conveyed positive emotion. In all instances, this was noted in the transcript as the word "laughing." For a second subcategory, instructor politeness, the instructor used polite words or expressions with all five learners in a total of thirty data points. In addition to the sample data point listed in Table 14, some examples of polite expressions included "cool," "good," "excelente," and "muy bien."

The theme of content-related engagement by learners. Categories within the theme of engagement by learners included *learner use of target language* and *other learner engagement*. The researcher identified four subcategories related to learner use of the target language. First, four of the learners confirmed that they understood a correction from the instructor in nineteen data points. In another subcategory, one of the learners verbalized corrections after receiving feedback from the instructor. These six data points were related to errors of grammar, pronunciation, and vocabulary. Additionally, three learners asked questions about an error in four data points. For a fourth subcategory, one learner explained use of the target language in five data points.

Five subcategories emerged from the data related to other learner engagement. First, in three data points, two different learners expressed agreement with a statement made by the instructor. Second, in two data points, two different learners expressed doubt regarding their knowledge of the target language. In a third subcategory, two learners made face-saving comments in ten different data points. Some examples of these comments included "got a little confused in the middle," and "yeah, I didn't know how to set that up." For a fourth subcategory, two learners used polite expressions in response to feedback from the instructor in five instances. Finally, the transcriber noted laughter by three learners in nine instances.

Survey of learner's perception of the course environment. To provide another method of assessing learners' perceptions of their respective course environments, the instructor delivered Walker and Fraser's (2005) Distance Education Learning Environments Survey (DELES) to learners in the face-to-face and online groups during the last two weeks of the semester. The researcher entered the survey in two separate Google forms and provided the links to the instructor to post in the Blackboard sites of the two groups during the last two weeks of the semester. The DELES is a copyrighted survey, and permission to use the survey is included in Appendix F. Fourteen learners in the face-to-face group completed the survey, compared to 12 learners in the online group. The DELES contains 34 items distributed across six scales, including eight items for instructor support, six items for student interaction and collaboration, seven items for personal relevance, five items for authentic learning, three items for active learning, and five items for student autonomy. An example item from each of the six scales is listed in Appendix Y. Learners responded to the 34 items of the survey by selecting one of five options: never, seldom, sometimes, often, and always. For the purpose of statistical analysis, the researcher associated the five options for each item with a number: 1 = never, 2 = seldom, 3 = sometimes, 4 = often, and 5 = always. To answer the fourth guiding question, regarding how learners in each group perceived the learning environment of their respective course format, the researcher summed individual learners' item responses within a scale and divided by the total number of items to yield a scale mean for each learner. As an example, online learners' responses to the three items of the active learning scale are presented in rows in Table 16. The means of individual learners' responses are shown in the column on the far right. The researcher compiled all scale results of the DELES in the same manner as in Table 16 to yield scale means for each participant in both groups. An independent-samples t -test is appropriate to run to

evaluate the statistical significance of the differences between two groups. However, the current data did not meet the assumptions of normally distributed data. The Mann-Whitney U test is suitable for data that are not normally distributed but that have similar distributions. Before making inferences about the differences in medians between the online and face-to-face groups,

Table 16

Online Learners' Responses to Items in the Active Learning Scale of the Distance Education Learning Environments Survey (DELES)

Online Participants	Items in Active Learning Scale			Scale Means by Participant
	I explore my own strategies for learning.	I seek my own answers.	I solve my own problems.	
1	4	4	4	4
2	3	3	4	3.33
3	4	4	4	4
4	3	4	3	3.33
5	4	3	3	3.33
6	5	5	5	5
7	3	4	4	3.67
8	5	5	5	5
9	5	5	5	5
10	3	4	5	4
11	4	3	3	3.33
12	4	5	5	4.67

Note. Learners' responses to survey items were converted to numbers as follows: 1 = never, 2 = seldom, 3 = sometimes, 4 = often, and 5 = always. Survey items are from Walker, S. L., & Fraser, B. J. (2005). Copyright 2004-2019 Scott L. Walker. Used with permission.

the researcher checked to make sure that the shapes of distributions were similar for both groups of each independent variable under consideration. A visual inspection of the histograms presented in Appendix Z revealed that the distributions were similar enough to proceed with comparisons on the basis of differences in medians. The test relies on the assumptions that the dependent variables are continuous or ordinal, that the independent variables consist of two or more independent groups,

and that each participant is counted for only one observation per test. Each of the conditions were met, so the researcher used SPSS statistical software to run the test.

Table 17

Results of Mann Whitney U Test for Learner's Responses to the Distance Education Learning Environments Survey (DELES)

Scale	Group	Mean Rank	Median	Mann-Whitney U	Z	2-tailed
Instructor Support	Online	14.46	5.0	72.5	-.634	.526
	Face-to-face	12.68	4.88			
Student Interaction and Collaboration	Online	13	3.58	90	.310	.756
	Face-to-face	13.93	3.5			
Personal Relevance	Online	15.04	4.5	65.5	-.974	.33
	Face-to-face	12.18	3.71			
Authentic Learning	Online	15.96	4.0	54.5	-1.543	.123
	Face-to-face	11.39	3.6			
Active Learning	Online	13.42	4.0	85	.052	.958
	Face-to-face	13.57	4.0			
Student Autonomy	Online	16.92	4.8	43	-2.150	.032
	Face-to-face	10.57	4.0			

To answer guiding question 4, the researcher used the scale means as the data points to run the Mann-Whitney U test. Based on *p*-values, the null hypothesis that the distribution of mean ratings was the same for participants in the two groups was rejected only for the scale of student autonomy. Since there were fourteen participants in the face-to-face group and twelve participants in the online group, there were twenty-six data points included in the analysis for each scale. The mean rank, median, and Mann-Whitney U test statistics are shown by group for each scale in Table 17.

The Mann-Whitney U test involves a ranking from lowest to highest of the combined data points of both groups. For responses to the DELES, lower numbers are associated with less satisfaction or more negative feelings and higher numbers are associated with greater satisfaction or more positive feelings. Consequently, higher mean ranks and medians are associated with higher levels of satisfaction. Also, when mean ranks or medians for two groups are similar, this indicates that the distribution of ranks was fairly even between the two groups. Conversely, large differences in mean ranks or medians indicate that the scores of one group were clustered more at one end of the rank distribution compared to the other group. The Mann-Whitney test statistic shows whether or not such differences between two groups are statistically significant.

6.3.3 Summary

Learners' Experiences in the Face-to-Face and Online Learning Environments. As stated in the first guiding question, the purpose of collecting weekly reflections from learners in both groups and from the instructor was to determine whether learners in the face-to-face and online groups experienced similar learning environments with respect to engagement in constructivist learning opportunities and interactions between learners. Four overall categories emerged from the data, including technology, learner traits, learners' experiences in the two

course environments, and the instructor's involvement in class sessions.

The role of technology in the face-to-face and online course environments. The instructor and online learners reported both difficulties and improvements with regard to the learning technology used to deliver the course. Online learners' difficulties with Collaborate were related to software login problems, use of different features of the software, problems with microphones, or a poor-quality internet connection. The data in the current study showed that the technical difficulties with Blackboard Collaborate had a negative impact on the online learning environment (a) by limiting the instructor's ability to arrange learners in pairs instead of groups for speaking activities, (b) by requiring the instructor to speak less Spanish and more English due to communication related to troubleshooting, and (c) by limiting the amount of time that learners spent speaking to each other in the target language. Several positive aspects of learning technology were also reported, primarily for the online group, and included (a) improved technology support and fewer problems with technology as the semester progressed, (b) fewer problems with technology when the instructor acquired new equipment, and (c) the ability to use the chat feature in Collaborate when a participant's microphone wasn't working properly. In the face-to-face environment, the instructor used technology as an aide in classroom discussions. She also reported mixed success in using features of Blackboard as a communication tool for the face-to-face group.

Traits of learners in the two course environments. The theme of learner anxiety emerged from the data for both online and face-to-face learners. Some learners in both groups preferred to speak the target language in small groups rather than in a large group of their peers. The use of Blackboard Collaborate is intended to facilitate multiple small-group sessions at once, but learners often missed out on the benefit due to difficulties related to the quality of the internet

connection, lack of familiarity with software, and problems with microphones. Studies on the effect of anxiety on learners in the foreign language classroom have indicated that learners are more anxious about speaking in front of others than about making mistakes in speaking (Azher, Anwar, & Naz, 2010). Other studies suggest that a supportive learning environment can help to alleviate anxiety (Horwitz, Horwitz, & Cope, 1986). The instructor in the current study reflected that she became aware of online learners' anxiety and invited them to provide feedback on how she could help them feel less anxious. Data from the online groups indicates that some learners became more confident and less confident as the semester progressed. Nevertheless, the ability for learners to practice speaking the target language in pairs is facilitated online through properly functioning learning technology, such as Blackboard Collaborate.

As shown in Tables 5 and 6, a greater percentage of online learners than face-to-face learners were heritage or native speakers of Spanish. The instructor and some online learners noted that some learners felt anxious about speaking Spanish in front of learners who were native speakers. A fully functioning Collaborate software program permits the instructor to use this feature to ensure that learners have a variety of speaking partners during practice sessions. During some interactions, learners would be able to practice with speakers of a similar skill level. In face-to-face classes, this strategy can be adopted within the classroom without a need for special technology.

Learners' experiences in the two course environments. Learners in the online and face-to-face groups reported similar types of active learning, including engaging in question and answer activities within a framework provided by the instructor, co-constructing sentences, and practicing for exams. However, there were differences in how active learning took place in the two groups. Notably, face-to-face learners and the instructor described learners as providing

feedback to one another during class, co-constructing rules of Spanish grammar from sample sentences in the target language, and experimenting with the target language. The fact that there were relatively fewer data points related to these qualities in the online group does not necessarily indicate that they were not present at all in online interactions. However, these findings correspond to trends observed in other subcategories of data and they support an overall picture that the face-to-face environment included more instances of learner-centered, constructivist exchanges in Spanish. For instance, although learners and the instructor provided examples of flipped learning that occurred in both environments, face-to-face learners recorded many more instances of flipped learning. The instructor's reflections also supported this finding. Conversely, practices that were contrary to flipped learning were associated primarily with the online group.

Face-to-face learners experienced more opportunities for pair work than online learners, while online learners were supportive of one another in resolving technical problems. Learners in the face-to-face group noted that they received help from peers related to the pronunciation of Spanish words, sentence structure in Spanish, and mistakes. Online learners frequently noted that they also used of the publisher's online software to interact with one another. This feature of the software provided an additional means for learners to engage in synchronous conversations with peers. However, some learners noted that it was difficult to find a partner who would engage in this manner through the course software. This problem could be resolved by offering the online course as a hybrid course. In a hybrid format, learners would have a weekly scheduled meeting in a classroom and choose to join the class in a classroom or through software such as Blackboard Collaborate.

As summarized earlier, online learners and the instructor were not able to make use of all

features of Blackboard Collaborate that would have facilitated more learner-centered synchronous class sessions. In particular, they were not able to consistently make use of the breakout groups feature that allows the instructor to divide a group of learners into smaller group sessions. The data related to use of prior learning were evenly divided between face-to-face and online learners and suggest that learners had studied the relevant course material before joining their peers for class discussions. As indicated previously, flipped classroom practices can occur when learners study course materials prior to class meetings. Thus, in spite of the fact that online learners were prepared to experience a learner-centered course, the problems with learning technology may have hindered that outcome. Overall, the instructor's reflections indicated that face-to-face learners interacted with their peers more often and could communicate more easily with their instructor than online learners.

Other aspects of instructional delivery that emerged from the data included autonomy of learners, authenticity of learning materials, and pronunciation practice. Regarding autonomy of learners, the instructor observed that both face-to-face and online learners had autonomy within a structure to direct their own learning. The instructor also noted that autonomy was restricted at times when learners needed additional support on a given topic or when she needed to make up for a missed class period. Concerning the authenticity of learning materials, Jonassen (1991) found that the use of authentic learning materials contributes to constructivist learning. The instructor noted that the materials used for both learning environments were authentic when they prompted learners to use Spanish to perform realistic functions of communication, such as introducing oneself. However, she also noted that the learning materials provided by the publisher could have better reflected the culture of speakers of the target language. In other instances, she indicated a need to add authentic learning resources to the course delivery.

Finally, learners in both course environments received feedback regarding pronunciation and were able to practice during class sessions.

The role of the instructor in the two course environments. The data revealed that a significant part of the instructor's role in class sessions for both groups involved "leading," "teaching," or "explaining." Also, learners in both groups frequently described the instructor as involved or very involved in class meetings. However, there were more data points for face-to-face learners than online learners indicating that the instructor may have taken a less central role in the class at certain times by helping learners or answering their questions. Face-to-face learners noted more frequently than online learners that the instructor spoke the target language in class. The instructor noted the specific challenge of not being able to point to objects in the online environment to help learners with comprehension as she spoke in the target language. She noted that she frequently supported learners in that way in the face-to-face environment. Also, online learners observed that they received some content from the instructor by watching pre-recorded sessions. Face-to-face learners made no mention of watching sessions recorded by the instructor. Overall, the data provide a description of the instructor as providing both instructor-centered and learner-centered instruction to both groups and as adapting instructional methods for online learners based on the limitations of the delivery format. The modifications for online learners took the form of more instructor-centered teaching practices or involved eliminating a component of instruction used in the face-to-face group. Such challenges might be overcome through regular sharing of best practices among instructors and professional development targeted for instructors seeking to deliver learner-centered courses online.

The theme of support provided by the instructor to learners also emerged from the data. Learners in both groups benefitted from content-related support given by the instructor. Online

learners received this support from the instructor during regularly scheduled Collaborate sessions or through additional sessions that they arranged with the instructor. The use of the Collaborate tool in Blackboard provided a benefit to the online course environment (i.e., synchronous feedback) that was common in the face-to-face environment.

The instructor reported in her weekly reflections that she solicited feedback from learners on the overall course during the semester. This involvement by the instructor enabled learners to provide information on aspects of the course that had helped them as well as elements that had caused frustration. By providing such an opportunity to learners to evaluate the course, an instructor might make adjustments to course delivery or offer additional resources to learners. This practice might also alleviate frustrations by learners related to any technology problems and views of their own progress in the course by enabling the instructor to take steps to address those issues.

The effect of treatment instruction on learners' spoken language performance. To answer the three parts of the second guiding question, learners in both groups gave monologues on a topic of the Spanish language course before and after the treatment instruction. The researcher compared learners' baseline and final scores in two areas: a) content, purpose, and organization (outcome 1); and b) grammar, vocabulary, and pronunciation (outcome 2). The only significant pre-test to post-test gains were experienced by the face-to-face group for the outcome of grammar, vocabulary, and pronunciation. On average, face-to-face learners spent twenty more minutes speaking Spanish each week than their online counterparts.
Also, the weekly reflections revealed that face-to-face learners likely experienced more learner-centered, constructivist activities compared to the online group. These factors may have contributed to the improvements experienced by the face-to-face learners. However, there was

no statistically significant gain in scores for face-to-face learners compared to online learners.

The effect of dynamic assessment on learner's spoken language performance. For the two groups, there were no statistically significant differences in gains from the initial final assessments to the repeated final assessments. A content analysis of the dynamic assessments of four online learners revealed that the instructor was able to provide feedback specifically related to the errors made by each learner. The data also showed that the instructor provided feedback in an encouraging, supportive manner.

Face-to-face and online learners' views of their respective course environments. Although the qualitative data indicated that the instructor was able to foster a more learner-centered environment for the face-to-face group, the study also showed that the instructor was able to provide aspects of learner-centered instruction to the online group. The online group experienced considerable problems with the technology used to deliver the synchronous video component of the course. To answer the fourth guiding question, the instructor administered the Distance Education Learning Environments Survey to learners in both groups near the end of the semester. Based on learners' ratings on the course environment survey, online learners were at least at satisfied with their course experience as their face-to-face counterparts. The mean ranks and median ratings for online learners were higher in the following categories: instructor support, personal relevance, authentic learning, and student autonomy. The two groups were essentially tied in the category of student interaction and collaboration, with the mean rank of ratings higher for face-to-face learners and the median ratings higher for online learners. Face-to-face learners provided a higher mean rank for active learning, although the group medians were tied in this category. Of all categories, only the group differences for student autonomy were statistically significant. This difference between the two groups may reflect a natural tendency for learners at

a distance to feel less reliant on an instructor than their peers in face-to-face environments. It may also be a consequence of having a higher percentage of native speaker survey respondents in the online group compared to the face-to-face group. However, given the indications from the learners' and instructor's reflections that the face-to-face environment was more learner-centered and provided more opportunities for constructivist learning, it is noteworthy that face-to-face learners did not provide significantly higher ratings than online learners for any category of the survey. This may indicate that the instructor was successful in her efforts to deliver a quality, learner-centered environment to both groups in spite of the challenges of the online delivery format.

6.3.4 Conclusions. To solve the problem of synchronous video courses in which learners were not actively engaged, the researcher tested an instructional method that included features of flipped classroom models and best practices for ITV classrooms and learner-centered instruction. The solution relied upon the use of instructional technology through Blackboard Collaborate to provide each learner with direct contact with other learners and the instructor. The following recommendations are based on the researcher's findings from the study:

- Learners might benefit if online courses were scheduled as hybrid courses when they rely on a synchronous video component to provide students with a high-quality, rigorous learning experience. The hybrid course schedule allows an instructor to require learners to participate in regular, synchronous class sessions. The live sessions could be offered online as well as face-to-face so that learners could join the synchronous sessions from a location on campus if they had problems with technology.
- The college should require learners to complete an orientation to online learning prior to starting an online course. The orientation could be delivered online and should provide

knowledge of the use of different aspects of the learning management system as well as guidelines for setting up peripheral computer equipment (e.g., microphones, speakers, etc.). The orientation should also provide contact information on how to contact technical support staff as well as how to access computers on campus or in the community in case of problems with personal devices or internet connections.

- Instructors of courses that require a live, interactive component should complete professional development training in the use of interactive learning software and related best practices and learner-centered teaching methods. The training should focus on the use of breakout groups features of such software to permit small group interactions. Ideally, the professional development training would emphasize the importance of supportive behaviors by instructors in the synchronous video environment.
- The researcher analyzed data from the instructor's journal to provide information about the qualities of the online and face-to-face learning environments. Data from the reflections indicated that the instructor focused on these target qualities throughout the semester and that she made adjustments to her teaching based on her reflections. A final recommendation for improving foreign language courses that incorporate synchronous video is to encourage instructors to reflect on the degree to which they address certain target values in their courses. This might be achieved informally on an ad hoc basis or formally as part of a professional development program for instructors. Educators could maintain a list of readings that highlighted certain target values for using synchronous video in distance education courses (e.g., autonomy of learners, active learning, etc.). Instructors could implement best practices for their courses based on the readings and reflect on the results. By doing so, learners could benefit from the efforts of their instructors to engage in

continuous improvement of their courses that incorporated communication through synchronous video.

6.4 Timeline. The timeline for the overall study is provided in Table 18.

Table 18

Timeline for Study

Month	Contact/Activity
October 2016	Discuss with field supervisor the need for learner-centered synchronous video classes and the possible use of Blackboard Collaborate to facilitate learner engagement in these classes.
November 2016	Receive feedback on proposed ROS solutions from fellow cohort members and stakeholders. Conduct interviews of instructors and students who have taught/taken ITV courses. Meet with instructor who will administer intervention in order to plan/negotiate pedagogy.
January – May 2017	Finish ROS proposal.
June – August 2017	Complete chapters 1-3 of ROS: Introduction, Review of Literature, Research Methods
August – December 2017	Instructor keeps journal to document how learning environments are structured in the two classes. Each week, learners in both groups self-report frequency and duration of target language engagement with peers and instructor. Collect baseline assessments (recorded monologues). Dynamic assessments recorded for online and face-to-face groups. Administer learning environments survey to both groups during same two-week period at the end of the semester. Complete ratings of spoken assessments that follow dynamic assessments.
January 2018 – May 2019	Preparation of data for ratings and transcription

Table 18 (continued)

Month	Contact/Activity
June – November 2019	Content analysis of instructor's and learners' reflections
December 2019 – February 2020	Complete content analysis of dynamic assessments. Complete analysis of learners' ratings on the Distance Education Learning Environments Survey. Complete analysis of learners' ratings on spoken assessments. Share ROS with chairs.
March – May 2020	Share ROS with committee and defend ROS. Receive Thesis clerk approval.
August 2020	Graduate

6.5 Issues of Reliability, Validity, and Other Ethical Concerns

6.5.1 Issues of reliability. To ensure reliability and stability in collecting data, the researcher delivered the weekly reflections and Walker and Fraser's (2005) Distance Education Learning Environments Survey (DELES) to online and face-to-face learners by providing a survey link to the instructor to be posted in Blackboard. This method enabled the instructor to collect the date of each submission and to ensure that learners had equal opportunity to access the weekly survey. The same instructor delivered both the online and face-to-face courses, which provided an opportunity for online and face-to-face learners to receive comparable course content in spite of the differences in the delivery formats. The weekly reflections, the spoken assessments, the DELES, and the dynamic assessments were all delivered to learners of both groups within the same time frames during the semester. The researcher hired a professional transcription service to provide a reliable transcription of the dynamic assessments. The instructor used a high-quality digital microphone to record the face-to-face learners' monologues and the recording option in Blackboard Collaborate to record the online learners' monologues.

Both methods provided recordings that were clear and that enabled the researcher to understand them and assign a rating based on the rubric.

The researcher prepared the recordings of monologues by first saving each as a file with the name of the participant and the type of recording (baseline, final assessment, or repeated final assessment). He then created a randomized list of codes in Microsoft Excel and listed each file name adjacent to a code from the list. A file with codes and names was stored on a password-protected personal computer. The recordings were then relabeled according to the randomized codes and stored as a separate file on the personal computer. The researcher then created a Google survey with the assessment rubric that was used to rate the monologues. Before rating the monologues, the researcher randomly sorted the tokens. He then entered a code in to the Google survey, listened to the token, and assigned scores for each outcome on the rubric. After submitting the responses, he continued this process until he had rated all tokens twice. The researcher then compared his responses to the survey and listened to tokens a third time as a tie-breaker for any discrepancies in the ratings. In a few cases, a fourth rating was necessary to assign a final score to a token.

6.5.2 Issues of validity. The researcher relied on a mixed methods study design to provide validity to the data collection. Weekly reflections by the instructor and learners were collected over the course of a semester and were enhanced by the Distance Education Learning Environments Survey that learners completed near the end of the semester. The recordings of learners' monologues provided a means of evaluating learners' progress under the methods revealed by the weekly reflections. To evaluate a method of providing feedback to learners that corresponded to the theoretical framework of the study, the researcher evaluated the effects of a dynamic assessment on learners' performances of the monologue task. He then conducted a

content analysis of the dynamic assessments to understand the qualities that might have influenced learners' performance of the repeated final assessment. Due to a technical issue, only the dynamic assessments of the online group were recorded, so the dynamic assessments of the face-to-face group were not analyzed.

The delivery of leaner-centered instruction in synchronous video courses is a goal of the community college where the researcher is employed. External validity is not typical in the case of a small study such as this one. It is plausible that some of the findings related to best practices in distance education would be relevant to other course settings.

6.5.3 Ethical concerns. Ethical concerns for this study included fair use of the Distance Education Learning Environments Survey, anonymity of participants, secure storage of study materials, and objectivity of the researcher. The proposal for this study was submitted to the Texas A&M Institutional Review Board (IRB). A preliminary review of the methods for collecting information from human subjects determined that the methods proposed for this study meet the criteria for a quality improvement project and, as such, are exempt from IRB approval.

The researcher obtained permission from the owner of the DELES for use of the survey according to the parameters outlined in Appendix F. The researcher used the survey only for the current study and distributed the survey (with help from the instructor) through the learning management system used by the study participants. The survey was removed from the site after the course ended. Only excerpts from the survey are included in this document and the requested attribution has been included. The researcher also paid the owner a usage rights fee to use the survey.

The names of participants were not included in the current study and students' names were replaced with randomly generated codes. The code sheet associating participants' names

with their audio recordings was maintained on a password-protected personal computer. The audio files used to create tokens or transcripts were also kept on a password-protected personal computer and were deleted after the study was completed.

When working with data in the current study, the researcher organized and analyzed data in a way that permitted an objective evaluation of patterns and findings. The summary and conclusions of the study were based on an interpretation of the results within the framework of the literature review.

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APPENDIX A

ONLINE LEARNERS' SELF-REPORTED INSTANCES AND MINUTES SPEAKING SPANISH EACH WEEK

Learner	Number of Weeks Reported	Average Times Per Week Speaking Spanish with Instructor	Average Times Per Week Speaking Spanish with Classmates	Average Weekly Minutes Speaking Spanish with Instructor and Classmates
O1	3	2	1.7	27.33
O2	5	1	1	51.4
O3	6	1	1.6	23.8
O4	8	1.13	2.13	100.9
O5	1	1	0	80
O6	6	1	1	70
O7	7	.71	.57	39.71
O8	6	1.5	1.33	50
O9	2	9	7.8	5
O10	1	0	0	0
O11	8	.88	.88	51.25
O12	2	.5	0	5
O13	1	0	0	0
O14	2	0	3	150
O15	1	1	1	0
Group Average	**3.93**	**1.38**	**1.47**	**43.63**

APPENDIX B

FACE-TO-FACE LEARNERS' SELF-REPORTED INSTANCES AND MINUTES SPEAKING SPANISH EACH WEEK

Learner	Number of Weeks Reported	Average Times Per Week Spent Speaking Spanish with Instructor	Average Times Per Week Spent Speaking Spanish with Classmates	Average Weekly Minutes Speaking Spanish with Instructor and Classmates
F1	4	4	4.5	8.13
F2	1	2	2	150
F3	7	1.86	2	36.29
F4	1	2	2	300
F5	1	10	12	10
F6	12	4.33	4.58	22.92
F7	1	2	2	120
F8	6	2.67	6.5	10.5
F9	5	2	2	22
F10	2	3	3	75
F11	3	4	8.5	56.67
F12	1	10	10	30
F13	1	2	2	180
F14	1	1	0	50
F15	1	3	5	60
F16	2	8	15	25
F17	11	2.36	2.18	47.73
F18	1	3.5	4.5	8
Group Average	**3.39**	**3.76**	**4.88**	**67.35**

APPENDIX C

COMMUNICATION REGARDING IRB EXEMPTION

TEXAS A&M UNIVERSITY
College of Education and Human Development
Department of Teaching, Learning, and Culture

September 9, 2016

To Whom It May Concern:

Timothy Ditoro is a student in good standing in the Online Ed.D program at Texas A&M University and I am the chair of his doctoral committee. His topic of study for his final Record of Study is titled "Learner Centered Instruction in an Interactive Television Course". The Institutional Review Board here at TAMU has reviewed his study and determined that it meets the criteria for a quality improvement project and as such, is exempt from IRB approval. Any assistance that you can render him in collecting data for his Record of Study would be much appreciated.

If you have any questions, please do not hesitate to contact me at 979-845-8384 or by email at viruru@tamu.edu

Sincerely,

Radhika Viruru, Ph.D
Clinical Professor
Director, Online Ed.D Program
Department of Teaching, Learning and Culture
Texas A&M University.
viruru@tamu.edu
979-845-8384

308 Harrington Tower • 4232 TAMU • College Station, Texas 77843-4232 • (979)845-8384 • FAX (979)845-9663

APPENDIX D

WEEKLY SURVEY PROMPTS FOR INSTRUCTOR AND LEARNERS

Instructor's Survey Prompt

Please reflect on successes and challenges of course delivery during the previous week and the extent to which you believe you promoted the following course qualities for students in each learning environment (face-to-face and online): (a) instructor support, (b) student interaction, (c) personal relevance, (d) authentic learning, (e) active learning, and (f) student autonomy.

Learners' Survey Questions

Please think about your learning experiences in this course as you answer these questions.

How many times did you speak Spanish with your instructor this week?

How many times did you speak Spanish with your classmates this week?

Estimate the total number of minutes that you spoke Spanish with your instructor and classmates (combined) this week.

Think about the times this week when you spoke Spanish with your instructor and classmates. To what extent did this require you to rely on what you had studied previously in Spanish?

Think about the times this week when you spoke Spanish with your instructor. Describe how your instructor was involved in these activities.

Think about the times this week when you spoke Spanish with your classmates. Describe how your classmates were involved in these activities.

When you spoke Spanish this week to your instructor and peers, to what extent did you rely on memorized language?

APPENDIX E

ASSESSMENT RUBRICS FOR LEARNERS' SPOKEN PERFORMANCE

IN THE TARGET LANGUAGE

Outcome 1: Content, Purpose, and Organization

Rating	Description
4	Highly Competent: Content is well developed and information is organized in a manner that is very effective in communicating the relevant ideas and/or information to the audience. Creativity and thoroughness are evident.
3	Mostly Competent: Content is adequately developed and the organization is effective in communicating the relevant ideas and /or information to the audience.
2	Needs Improvement: Content is not adequately developed and is sometimes lacking in logical organization.
1	Not competent: Content is not developed and organization is lacking.

Outcome 2: Grammar, Vocabulary, and Pronunciation

Rating	Description
4	Highly Competent: Language is virtually error free. Excellent word usage, grammar, and pronunciation is evident without interference from student's first language.
3	Mostly Competent: Uses language with clarity, although speech may contain some errors. Word choices, grammar, and pronunciation are generally adequate, although there may be some interference from the student's first language.
2	Needs Improvement: Uses language that intermittently conveys meaning to readers with clarity due to errors in word choice, grammar, and / or pronunciation. There is noticeable interference from the student's first language.
1	Not competent: Uses language that impedes meaning. Significant deficiencies in word choices, grammar, and / or pronunciation with continual interference from student's first language.

APPENDIX F

PERMISSION TO USE THE DISTANCE EDUCATION

LEARNING ENVIRONMENTS SURVEY (DELES)

Scott L. Walker, ScEdD
397 S. Willow Ave.
New Braunfels, TX 78130
USA
walkstx@gmail.com

DELES Permission Letter

Tim Ditoro has been granted permission to use the Distance Education Learning Environments Survey (DELES) for the purpose of the proposed doctoral study:

> ***Use of Synchronous Video to Deliver a Learner-Centered Foreign Language Course at a Distance: A Mixed Methods Approach***

through Texas A&M University, with the following usage rights being granted.

(1) One-time U.S. rights for e-mail distribution of the Preferred, Actual, and Instructor forms of the DELES, ending July 31, 2020.

(2) One-time U.S. rights for Web posting (including any learning management system) of the Preferred, Actual, and Instructor forms of the DELES to be removed from the Web no later than July 31, 2020.

The DELES and its versions and derivatives are copyright protected. When DELES sample items are published or presented for non-commercial use, you must mention Scott L. Walker as the copyright holder of the instrument in this format:

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You do not have permission to publish the DELES in its entirety in any format except for the two temporary forms listed above in (1) e-mail and (2) Web posting. This includes no publishing of the DELES in its entirety in your dissertation, thesis, or subsequent publications.

Scott L. Walker, ScEdD

October 6, 2019

APPENDIX G

SAMPLE ITEMS FROM THE DISTANCE EDUCATION

LEARNING ENVIRONMENTS SURVEY (DELES)

Scale	Sample Item
Instructor Support	In this class, the instructor adequately addresses my questions.
Student Interaction and Collaboration	In this class, I work with others.
Personal Relevance	In this class, I can connect my studies to activities outside of class.
Authentic Learning	In this class, I enter the real world of the topic of study.
Active Learning	In this class, I seek my own answers.
Student Autonomy	In this class, I make decisions about my learning.

Note. From Walker, S. L., & Fraser, B. J. (2005). Development and validation of an instrument for assessing distance education learning environments in higher education: The Distance Education Learning Environments Survey (DELES). *Learning Environments Research*, *8*(3), 289-308.

APPENDIX H

INITIAL LIST OF CODES AND NUMBER OF INSTANCES FROM

INSTRUCTOR'S AND LEARNERS' REFLECTIONS

Code	Code Description	Instances of Codes in Instructor's Reflections		Instances of Codes in Learners' Reflections	
		Face-to-face	Online	Face-to-face	Online
CURR	current course knowledge used			10	9
F2FA	online not as good as F2F		3		
F2FC	communication online not as good as F2F		10		2
F2FI	interaction online not equal to F2F		10		8
F2FS	instructor support online not as good as F2F		2		
F2FT	autonomy online not as good as F2F		2		
F2FU	authentic learning harder to create online than F2F		2		
FAAC	active learning F2F	24		54	
FAAT	autonomy in F2F	11			
FAAU	authentic learning F2F	9		1	
FACO	face to face active learning same as online		6		
FASU	students' interaction and support in F2F	17		31	
FATO	face to face autonomy same as online		6		
FAUO	face to face authentic learning same as online		7		
FFCI	face-to-face communication with instructor	6		6	
FISU	face to face interaction as support same as online		10		
FLIP	flipped learning	7	6	13	19
FPRO	face to face personal relevance same as online		6		
FRON	frequency online meeting		1		
HERI	heritage/native speaker		3		3
HPAR	on-campus participation hindered	2		8	
IFBK	instructor seeks student feedback	2	2		
INCS	instructor content support	6		46	46
INMO	instructor modifies teaching online because of limitations online		11		9
INRE	instructor requirement	2	3		10
INSU	instructor support	11	19	8	15
INTL	instructor spoke target language in class			8	2
INTP	instructor's teaching philosophy/approach	12	10	9	15
INTS	instructor tech support				1
INXP	instructor experience	1	3		
NONA	learning not authentic	2			
NONS	lack of online support from other students		1		3
NOAT	lack of autonomy in learning	1			
NOFL	not flipped	5	10	3	37
NTEC	non-technology problem		1		
ONAC	active learning occurs online		8		37
ONAT	students have autonomy online		3		1
ONAU	authentic learning occurs online		2		
ONCC	online communication with classmates				15

APPENDIX H (CONTINUED)

Code	Code Description	Instances of Codes in Instructor's Reflections		Instances of Codes in Learners' Reflections	
		Face-to-face	Online	Face-to-face	Online
ONCI	online communication with instructor				18
ONLS	instructor support online not as good as F2F	1			
ONPR	questions online are personally relevant		1		
ONSU	students interact and support each other online		10		28
PREV	personal relevance	13	5		
PRIO	prior learning used			48	49
PRON	pronunciation practice	1		4	3
QMAT	quality of materials	14	2		2
SANX	student comfort/anxiety level	3	8	8	10
SELF	students' view of their own progress in their L2		2		4
SFBK	student feedback re format		6		1
SPER	student performance	4	1		4
TECD	technology disadvantage	1	26		5
TECI	technology improvement		1	-	
TECS	technology support		1		
TECV	technology value added	2	6		
TIME	practice time affected negatively		8	6	15

APPENDIX I

ONLINE LEARNERS' SPOKEN TASK RATINGS FOR

BASELINE AND FINAL ASSESSMENTS 1 AND 2

	Baseline		Final 1		Final 2	
Participant	Outcome 1	Outcome 2	Outcome 1	Outcome 2	Outcome 1	Outcome 2
O1[a]	4	4	4	4	-	-
O2	-	-	2	2	2	2
O3[a]	4	4	4	4	-	-
O4[a]	4	4	4	4	-	-
O5	4	4	4	4	-	-
O6[a]	3	3	4	3	3	3
O7	2	2	3	3	4	3
O8	4	3	4	3	4	4
O9	1	1	4	3	4	4
O10	-	-	3	3	-	-
O11	-	-	4	4	-	-
O12	-	-	3	3	3	2
O13	2	2	-	-	-	-
O14	2	2	-	-	-	-

Note. Dash indicates that student did not attempt a performance. Learners with the maximum rating (4) on the Final 1 activity were not required to perform the Final 2 activity. Outcome 1 related to content, purpose, and organization. Outcome 2 related to grammar, vocabulary, and pronunciation.

[a] Participant is native or heritage speaker of Spanish

APPENDIX J

FACE-TO-FACE LEARNERS' SPOKEN TASK RATINGS

FOR BASELINE AND FINAL ASSESSMENTS 1 AND 2

	Baseline		Final 1		Final 2	
Participant	Outcome 1	Outcome 2	Outcome 1	Outcome 2	Outcome 1	Outcome 2
F1	1	2	4	3	-	-
F2	1	1	2	3	2	3
F3	2	4	2	2	3	3
F4	2	3	3	3	3	3
F5	2	2	-	-	-	-
F6 [a]	2	4	4	4	4	4
F7 [a]	2	2	3	3	-	-
F8	2	2	2	3	-	-
F9	2	2	2	2	2	2
F10	2	3	3	3	3	3
F11	2	2	2	3	-	-
F12	3	4	2	2	-	-
F13 [a]	1	3	4	4	-	-
F14	2	2	-	-	-	-
F15	2	3	-	-	-	-
F16	2	3	3	3	3	2
F17	1	3	-	-	-	-
F18	2	2	2	2	2	2
F19	2	2	-	-	-	-
F20	2	2	3	3	3	3
F21 [a]	3	4	4	4	-	-
F22	2	1	-	-	-	-
F23	-	-	2	2	2	3
F24	2	1	-	-	-	-

Note. Dash indicates that a student did not attempt a performance of the task. Learners with the maximum rating (4) on the Final 1 activity were not required to perform the Final 2 activity. Outcome 1 was related to content, purpose, and organization. Outcome 2 was related to grammar, vocabulary, and pronunciation.

[a] Participant is native or heritage speaker of Spanish

APPENDIX K

GAIN SCORES FOR ONLINE LEARNERS' RATINGS BETWEEN

BASELINE AND FINAL ASSESSMENT 1

	Baseline		Final 1		Gain	
Participant	Outcome 1	Outcome 2	Outcome 1	Outcome 2	Outcome 1	Outcome 2
O1[a]	4	4	4	4	0	0
O2	-	-	2	2		
O3[a]	4	4	4	4	0	0
O4[a]	4	4	4	4	0	0
O5	4	4	4	4	0	0
O6[a]	3	3	4	3	+1	0
O7	2	2	3	3	+1	+1
O8	4	3	4	3	0	0
O9	1	1	4	3	+3	+2
O10	-	-	3	3		
O11	-	-	4	4		
O12	-	-	3	3		
O13	2	2	-	-		
O14	2	2	-	-		

Note. Dash indicates that student did not attempt a performance. Learners with the maximum rating (4) on the Final 1 activity were not required to perform the Final 2 activity. Outcome 1 related to content, purpose, and organization. Outcome 2 related to grammar, vocabulary, and pronunciation.

[a] Participant is native or heritage speaker of Spanish

APPENDIX L

GAIN SCORES FOR FACE-TO-FACE LEARNERS' RATINGS

BETWEEN BASELINE AND FINAL ASSESSMENT 1

	Baseline		Final 1		Gain	
Participant	Outcome 1	Outcome 2	Outcome 1	Outcome 2	Outcome 1	Outcome 2
F1	1	2	4	3	+3	+1
F2	1	1	2	3	+1	+2
F3	2	4	2	2	0	-2
F4	2	3	3	3	+1	0
F5	2	2	-	-		
F6 [a]	2	4	4	4	+2	0
F7 [a]	2	2	3	3	+1	+1
F8	2	2	2	3	0	+1
F9	2	2	2	2	0	0
F10	2	3	3	3	+1	0
F11	2	2	2	3	0	+1
F12	3	4	2	2	-1	-2
F13 [a]	1	3	4	4	+3	+1
F14	2	2	-	-		
F15	2	3	-	-		
F16	2	3	3	3	+1	0
F17	1	3	-	-		
F18	2	2	2	2	0	0
F19	2	2	-	-		
F20	2	2	3	3	+1	+1
F21 [a]	3	4	4	4	+1	0
F22	2	1	-	-		
F23	-	-	2	2		
F24	2	1	-	-		

Note. Dash indicates that a student did not attempt a performance of the task. Learners with the maximum rating (4) on the Final 1 activity were not required to perform the Final 2 activity. Outcome 1 was related to content, purpose, and organization. Outcome 2 was related to grammar, vocabulary, and pronunciation.

[a] Participant is native or heritage speaker of Spanish

APPENDIX M

GAIN SCORES FOR ONLINE LEARNERS' RATINGS BETWEEN

BASELINE AND FINAL ASSESSMENT 2

	Baseline		Final 2		Gain	
Participant	Outcome 1	Outcome 2	Outcome 1	Outcome 2	Outcome 1	Outcome 2
O1[a]	4	4	-	-		
O2	-	-	2	2		
O3[a]	4	4	-	-		
O4[a]	4	4	-	-		
O5	4	4	-	-		
O6[a]	3	3	3	3	0	0
O7	2	2	4	3	2	1
O8	4	3	4	4	0	1
O9	1	1	4	4	3	3
O10	-	-	-	-		
O11	-	-	-	-		
O12	-	-	3	2		
O13	2	2	-	-		
O14	2	2	-	-		

Note. Dash indicates that student did not attempt a performance. Learners with the maximum rating (4) on the Final 1 activity were not required to perform the Final 2 activity. Outcome 1 related to content, purpose, and organization. Outcome 2 related to grammar, vocabulary, and pronunciation.

[a] Participant is native or heritage speaker of Spanish

APPENDIX N

GAIN SCORES FOR FACE-TO-FACE LEARNERS' RATINGS

BETWEEN BASELINE AND FINAL ASSESSMENT 2

	Baseline		Final 2		Gain	
Participant	Outcome 1	Outcome 2	Outcome 1	Outcome 2	Outcome 1	Outcome 2
F1	1	2	-	-		
F2	1	1	2	3	1	2
F3	2	4	3	3	1	-1
F4	2	3	3	3	1	0
F5	2	2	-	-		
F6 [a]	2	4	4	4	2	2
F7 [a]	2	2	-	-		
F8	2	2	-	-		
F9	2	2	2	2	0	0
F10	2	3	3	3	1	0
F11	2	2	-	-		
F12	3	4	-	-		
F13 [a]	1	3	-	-		
F14	2	2	-	-		
F15	2	3	-	-		
F16	2	3	3	2	1	-1
F17	1	3	-	-		
F18	2	2	2	2	0	0
F19	2	2	-	-		
F20	2	2	3	3	1	1
F21 [a]	3	4	-	-		
F22	2	1	-	-		
F23	-	-	2	3		
F24	2	1	-	-		

Note. Dash indicates that a student did not attempt a performance of the task. Learners with the maximum rating (4) on the Final 1 activity were not required to perform the Final 2 activity. Outcome 1 was related to content, purpose, and organization. Outcome 2 was related to grammar, vocabulary, and pronunciation.

[a] Participant is native or heritage speaker of Spanish

APPENDIX O

GAIN SCORES FOR ONLINE LEARNERS' SPOKEN TASK

RATINGS BETWEEN FINAL ASSESSMENTS 1 AND 2

	Final 1		Final 2		Gain	
Participant	Outcome 1	Outcome 2	Outcome 1	Outcome 2	Outcome 1	Outcome 2
O1[a]	4	4	-	-		
O2	2	2	2	2	0	0
O3[a]	4	4	-	-		
O4[a]	4	4	-	-		
O5	4	4	-	-		
O6[a]	4	3	3	3	1	0
O7	3	3	4	3	-1	0
O8	4	3	4	4	0	1
O9	4	3	4	4	0	1
O10	3	3	-	-		
O11	4	4	-	-		
O12	3	3	3	2	0	-1
O13	-	-	-	-		
O14	-	-	-	-		

Note. Dash indicates that student did not attempt a performance. Learners with the maximum rating (4) on the Final 1 activity were not required to perform the Final 2 activity. Outcome 1 related to content, purpose, and organization. Outcome 2 related to grammar, vocabulary, and pronunciation.

[a] Participant is native or heritage speaker of Spanish

APPENDIX P

GAIN SCORES FOR FACE-TO-FACE LEARNERS' SPOKEN

TASK RATINGS BETWEEN FINAL ASSESSMENTS 1 AND 2

	Final 1		Final 2		Gain	
Participant	Outcome 1	Outcome 2	Outcome 1	Outcome 2	Outcome 1	Outcome 2
F1	4	3	-	-		
F2	2	3	2	3	0	0
F3	2	2	3	3	1	1
F4	3	3	3	3	0	0
F5	-	-	-	-		
F6 [a]	4	4	4	4	0	0
F7 [a]	3	3	-	-		
F8	2	3	-	-		
F9	2	2	2	2	0	0
F10	3	3	3	3	0	0
F11	2	3	-	-		
F12	2	2	-	-		
F13 [a]	4	4	-	-		
F14	-	-	-	-		
F15	-	-	-	-		
F16	3	3	3	2	0	-1
F17	-	-	-	-		
F18	2	2	2	2	0	0
F19	-	-	-	-		
F20	3	3	3	3	0	0
F21 [a]	4	4	-	-		
F22	-	-	-	-		
F23	2	2	2	3	0	1
F24	-	-	-	-		

Note. Dash indicates that a student did not attempt a performance of the task. Learners with the maximum rating (4) on the Final 1 activity were not required to perform the Final 2 activity. Outcome 1 was related to content, purpose, and organization. Outcome 2 was related to grammar, vocabulary, and pronunciation.

[a] Participant is native or heritage speaker of Spanish

APPENDIX Q

CODES, CATEGORIES AND THEMES FROM DYNAMIC

ASSESSMENTS OF FIVE ONLINE LEARNERS

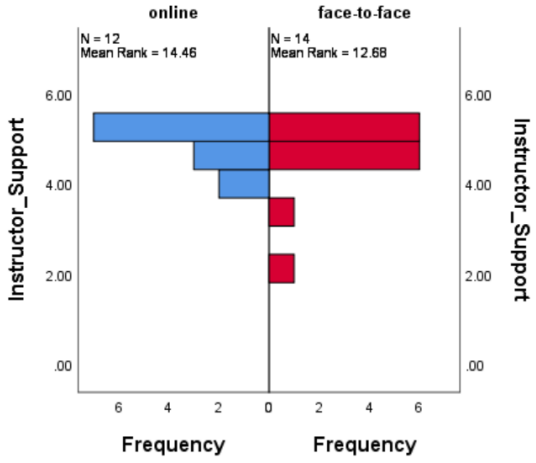
Code	Code/Subcategory Description	O1	O2	O4	O6	O7	Categories	Themes
IAFF	Attitude or emotion by instructor	2	1	1			instructor creates supportive environment	dynamic assessment
ICFM	Instructor confirmation of corrected response	2			2		instructor feedback	dynamic assessment
ICLA	Instructor seeks clarification of utterance	5	1				instructor prompts learner to engage	dynamic assessment
ICOR	Instructor makes/verbalizes correction						instructor feedback	dynamic assessment
	Vocabulary		3	1	3	1		
	Pronunciation			1	2			
	Grammar	2	3					
IPOL	Instructor politeness	20	1	5	3	1	instructor creates supportive environment	dynamic assessment
IQST	Instructor prompts student with question or pause	7	1	3	2	2	instructor prompts learner to engage	dynamic assessment
IREP	Instructor repeats error	6	5	3	5	4	instructor feedback	dynamic assessment
IREQ	Request by instructor	2				1	instructor prompts learner to engage	dynamic assessment
IXPL	Instructor explanation related to target language use						instructor feedback	dynamic assessment
	Grammar	3	1	1	1			
	Vocabulary	4	2	1	1	1		
	Pronunciation	3			2			
LAFF	Attitude or emotion by learner	7		1		1	other learner engagement	engagement by learners

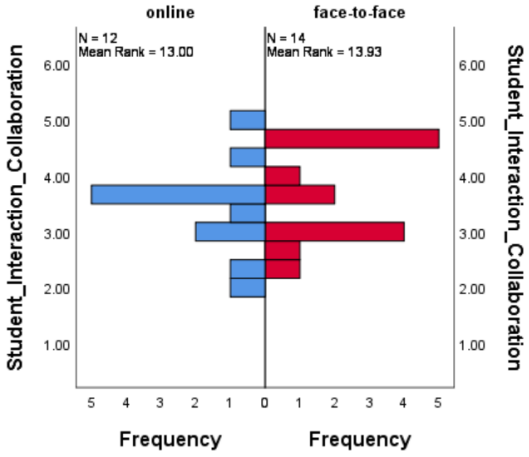
LAGR	Learner agrees	2	1				other learner engagement	engagement by learners
LCFM	Learner confirmation of corrected response	4		6	4	5	learner use of target language	engagement by learners
LCOR	Learner makes/verbalizes correction						learner use of target language	engagement by learners
	Grammar	2						
	Pronunciation	1						
	Vocabulary	3						
LDBT	Learner self doubt/lack of understanding	1	1				other learner engagement	engagement by learners
LFAC	Learner face-saving utterance	7				3	other learner engagement	engagement by learners
LPOL	Learner politeness	4		1			other learner engagement	engagement by learners
LQST	Learner questions instructor about error	1		1	2		learner use of target language	engagement by learners
LXPL	Learner explanation of target language use	5					learner use of target language	engagement by learners

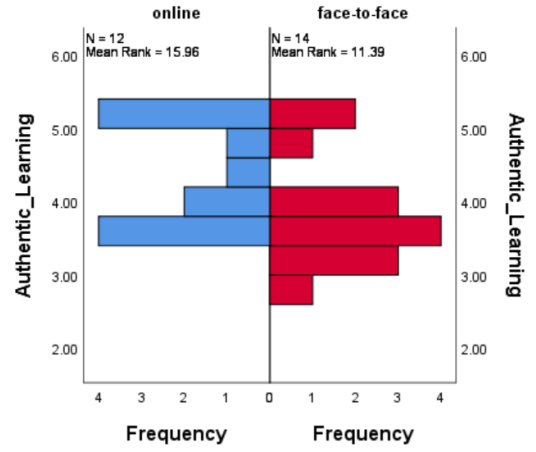
APPENDIX R

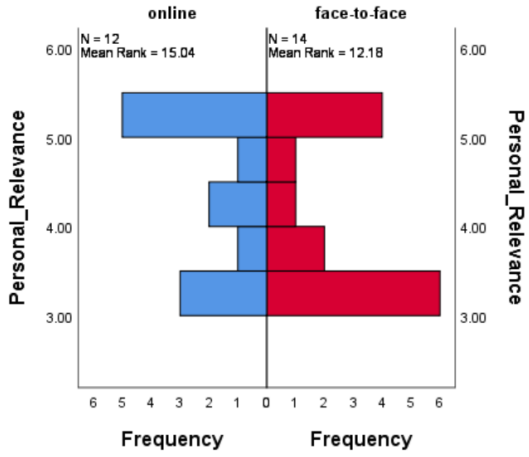
DISTRIBUTIONS OF ONLINE AND FACE-TO-FACE PARTICIPANTS'

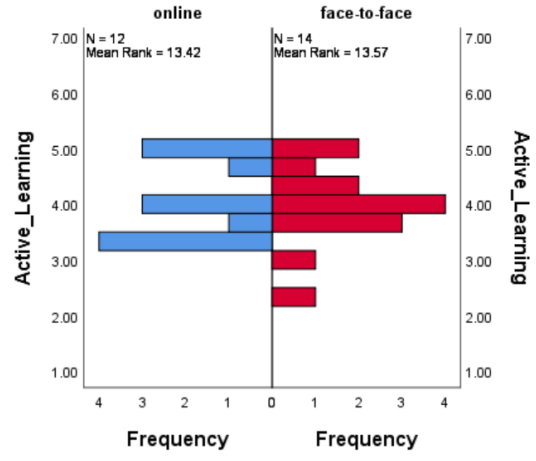
RESPONSES IN SIX SCALES OF THE DELES

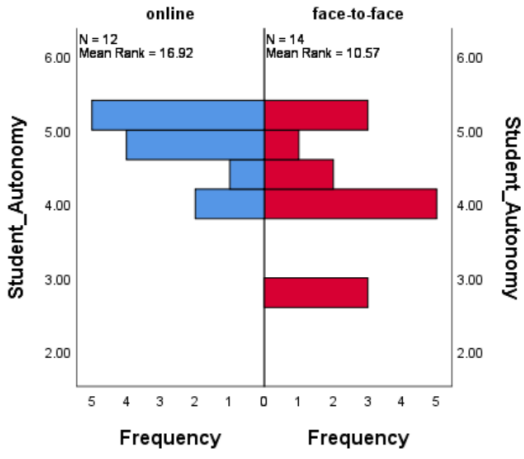








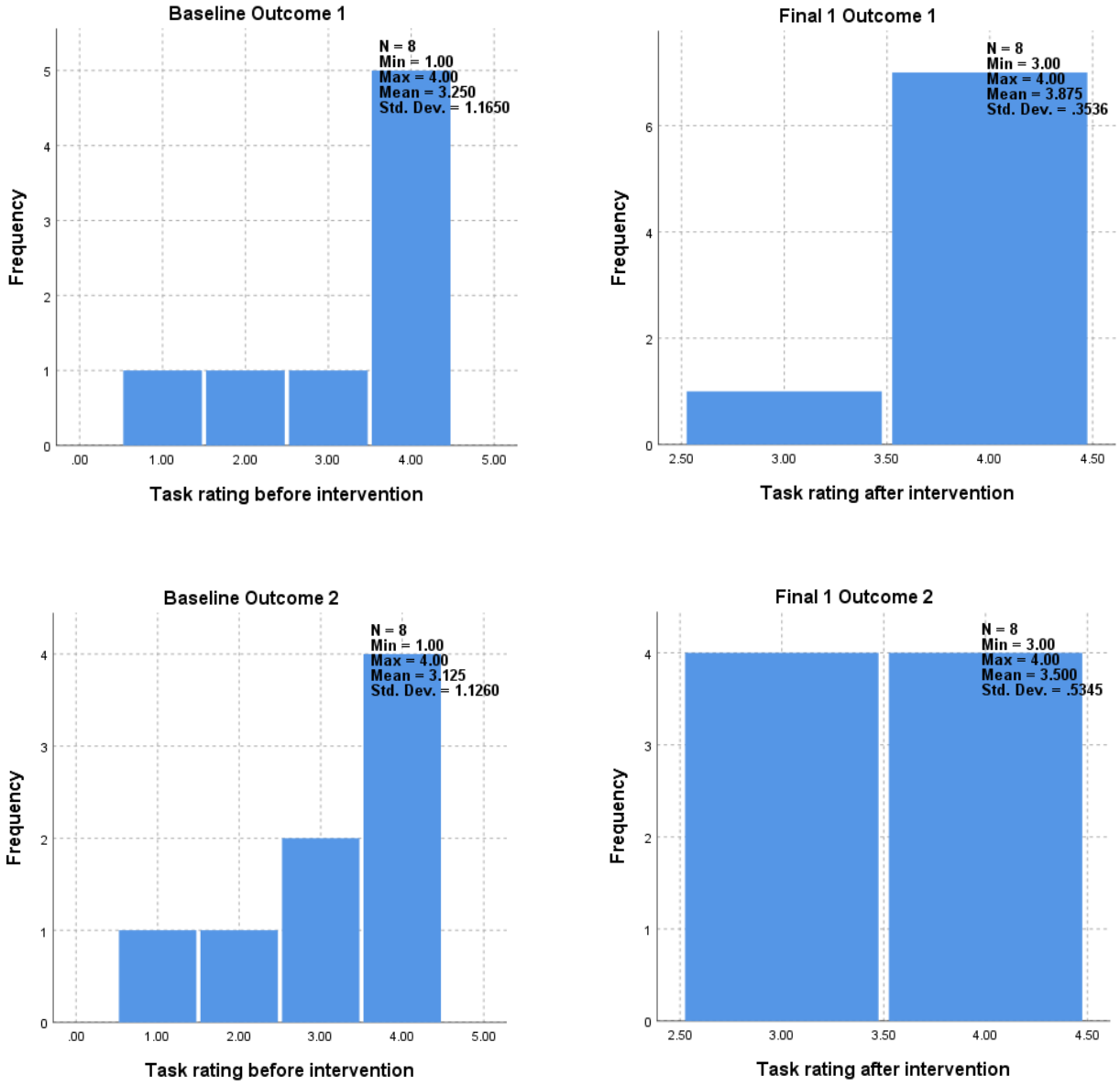




APPENDIX S

DISTRIBUTIONS OF ONLINE LEARNERS' RATINGS ON

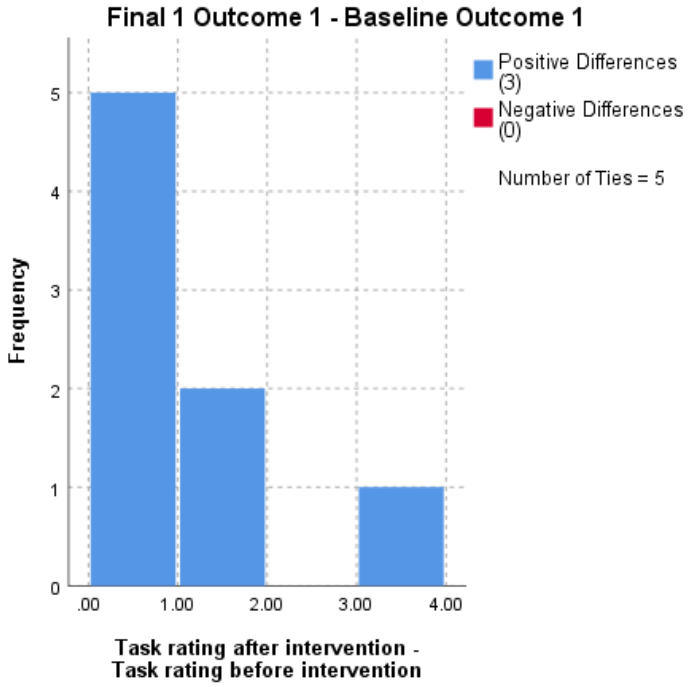
BASELINE AND FINAL 1 ASSESSMENTS

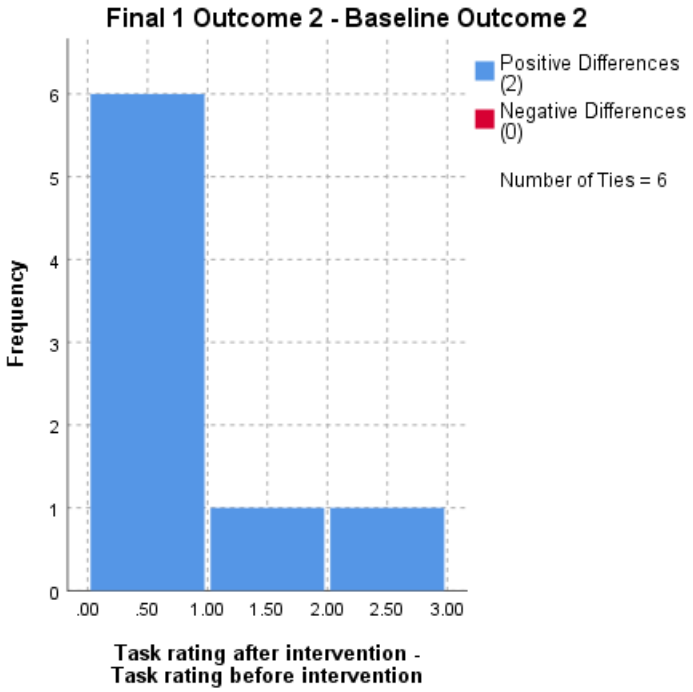


Note. Distributions for ratings of online learners' performances of the pre-assessment (baseline) and initial post-assessment (final 1) tasks are shown for Outcome 1 (content purpose and organization) and Outcome 2 (grammar, vocabulary, and pronunciation).

APPENDIX T

DISTRIBUTIONS OF DIFFERENCES BETWEEN ONLINE LEARNERS' FINAL 1 AND BASELINE RATINGS

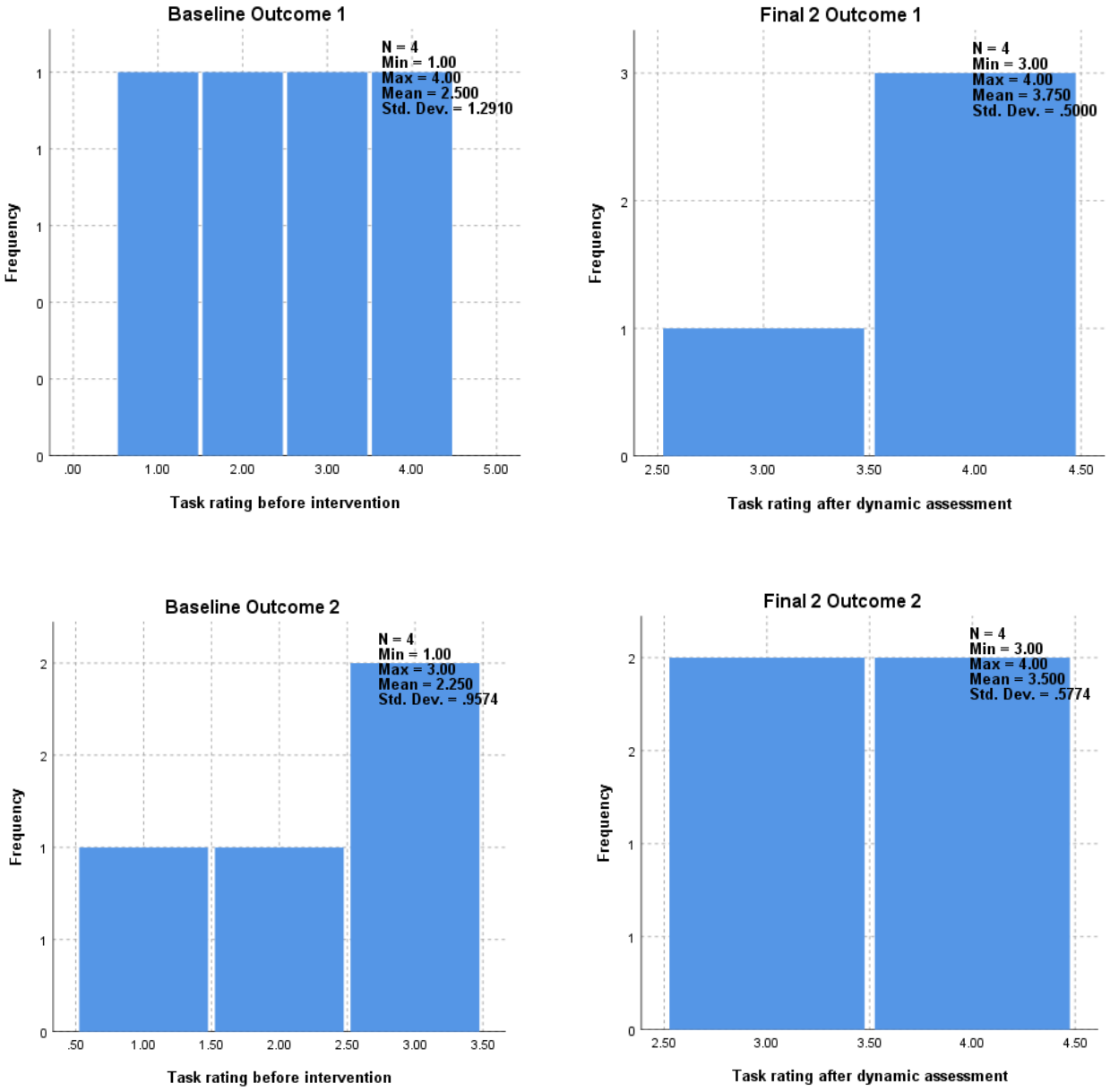




APPENDIX U

DISTRIBUTIONS OF ONLINE LEARNERS' RATINGS ON

BASELINE AND FINAL 2 ASSESSMENTS

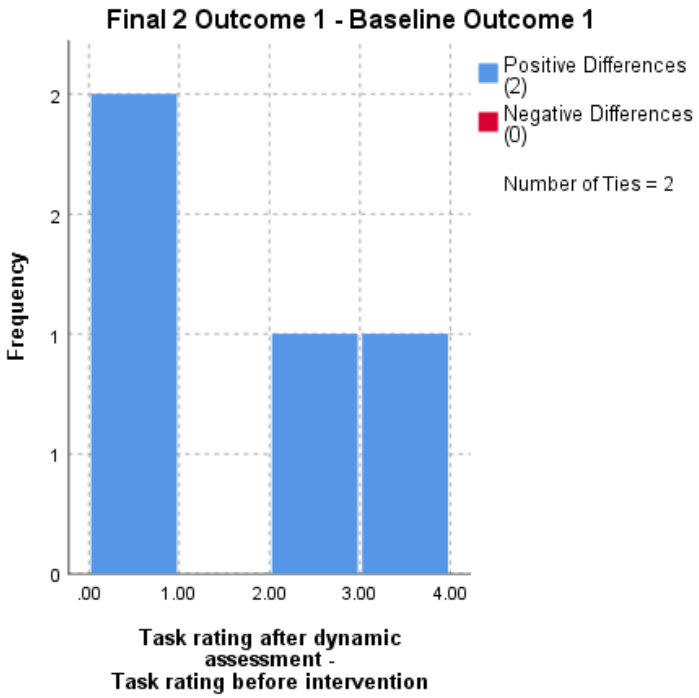


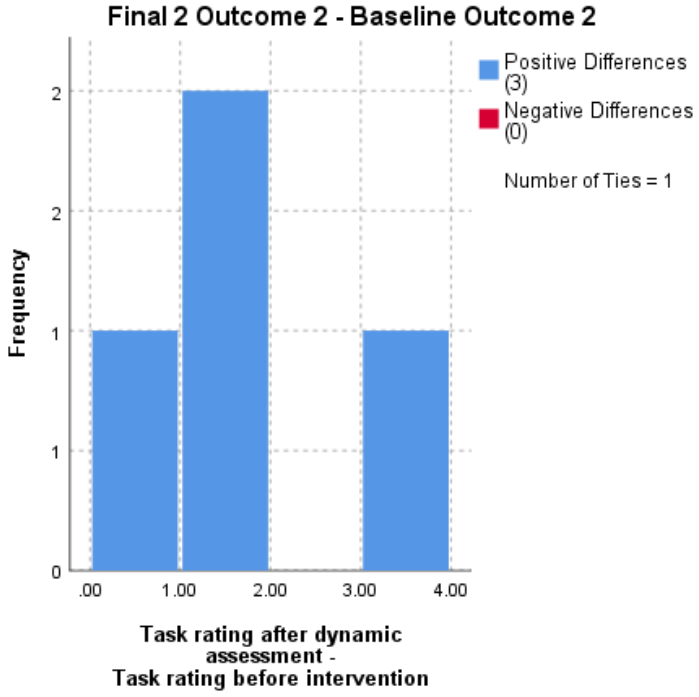
Note. Distributions for ratings of online learners' performances of the pre-assessment (baseline) and repeated post-assessment (final 2) tasks are shown for Outcome 1 (content purpose and organization) and Outcome 2 (grammar, vocabulary, and pronunciation).

APPENDIX V

DISTRIBUTIONS OF DIFFERENCES BETWEEN ONLINE LEARNERS'

FINAL 2 AND BASELINE RATINGS

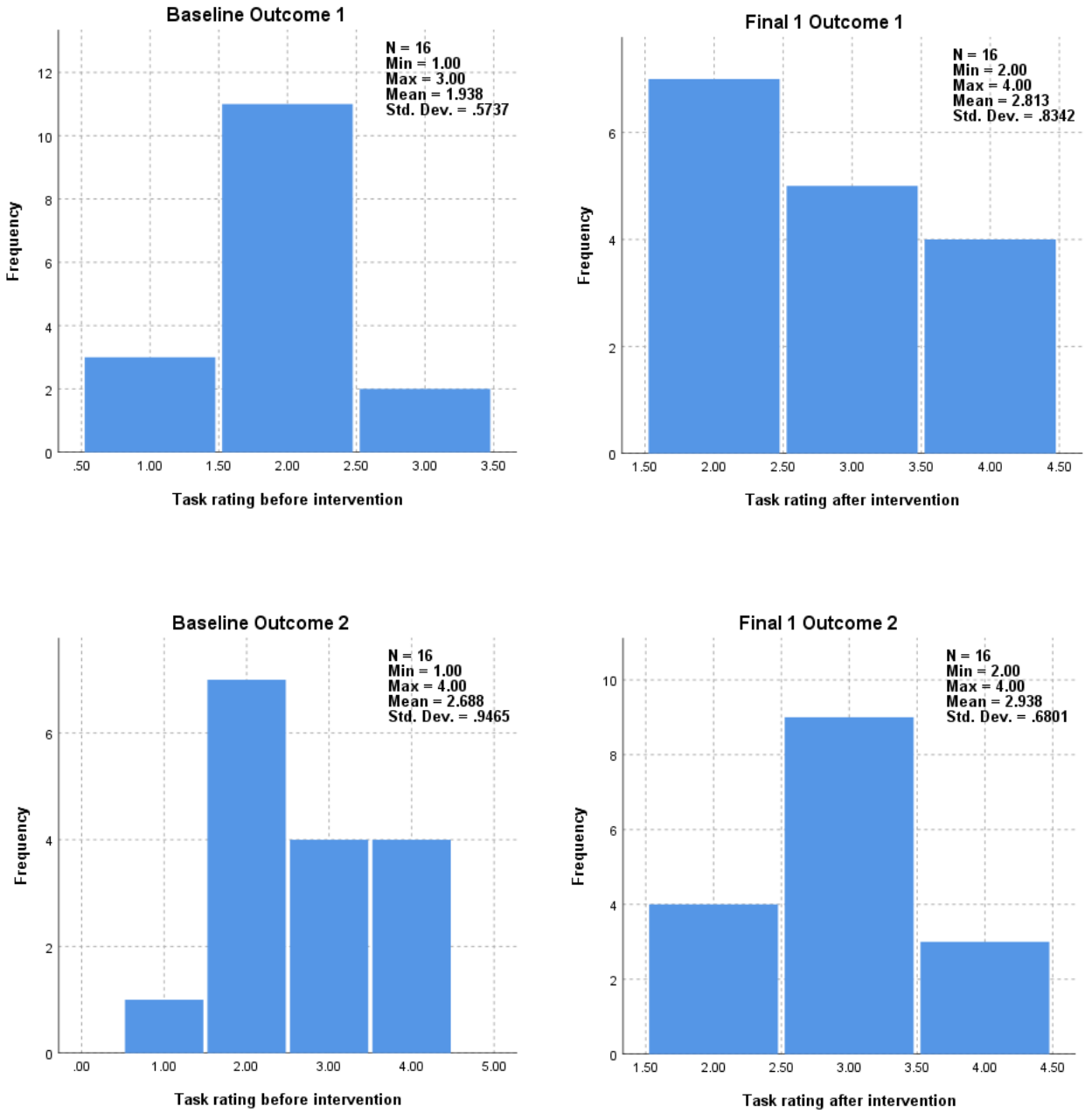




APPENDIX W

DISTRIBUTIONS OF FACE-TO-FACE LEARNERS' RATINGS

ON BASELINE AND FINAL ASSESSMENTS

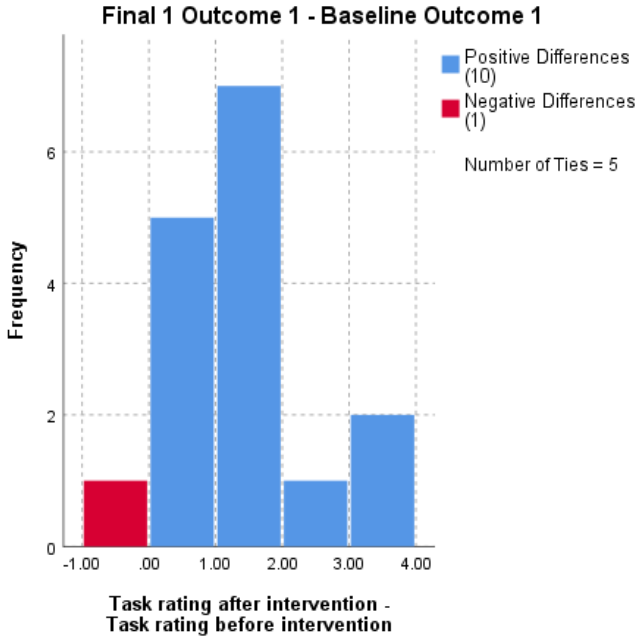


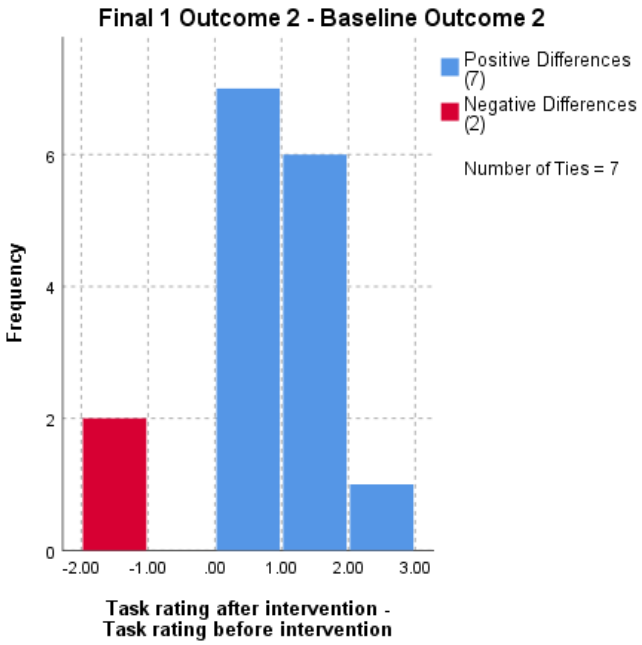
Note. Distributions for ratings of face-to-face learners' performances of the pre-assessment (baseline) and initial post-assessment (final 1) tasks are shown for Outcome 1 (content purpose and organization) and Outcome 2 (grammar, vocabulary, and pronunciation).

APPENDIX X

DISTRIBUTIONS OF DIFFERENCES BETWEEN FACE-TO-FACE LEARNERS'

FINAL 1 AND BASELINE RATINGS

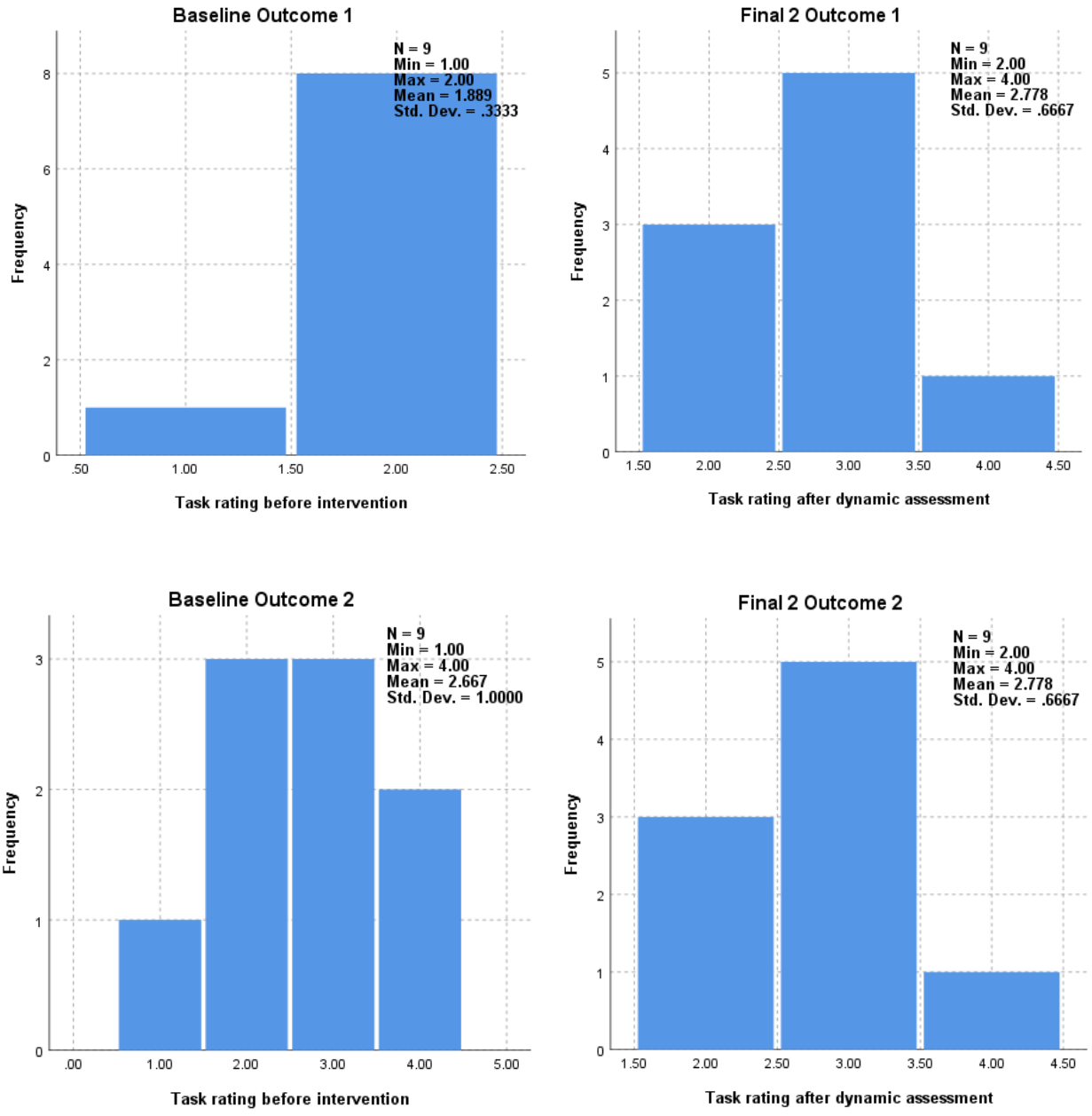




APPENDIX Y

DISTRIBUTIONS OF FACE-TO-FACE LEARNERS' RATINGS

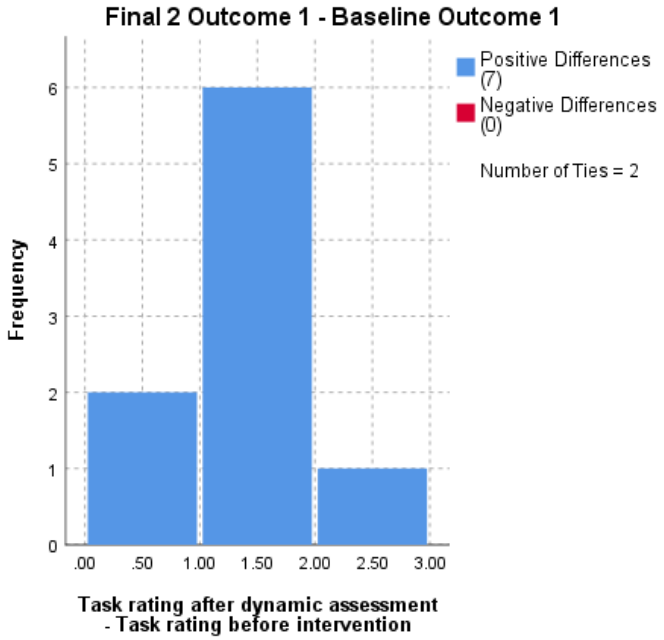
ON BASELINE AND FINAL ASSESSMENTS

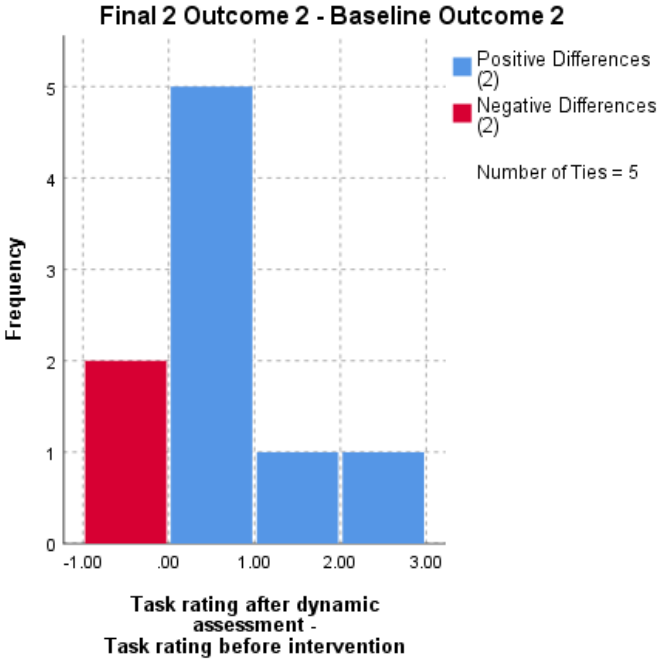


Note. Distributions for ratings of online learners' performances of the pre-assessment (baseline) and repeated post-assessment (final 2) tasks are shown for Outcome 1 (content purpose and organization) and Outcome 2 (grammar, vocabulary, and pronunciation).

APPENDIX Z

DISTRIBUTIONS OF DIFFERENCES BETWEEN FACE-TO-FACE LEARNERS' FINAL 1 AND BASELINE RATINGS





APPENDIX AA

DISTRIBUTIONS OF GAIN SCORES BETWEEN BASELINE AND FINAL 1 & 2 FOR GROUPS OF LEARNERS