

## PERCEIVED BENEFITS OF TECHNOLOGY ENHANCED LANGUAGE LEARNING IN BEGINNING LANGUAGE CLASSES

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### Abstract

*This paper examines the perceptions of benefit of Technology Enhanced Language Learning (TELL) on students' language learning, comfort & enjoyment, and increased confidence using technology at a large Southern California University during one university term. Through a survey administered to 345 beginning language students, 11 tutors and 12 instructors, and through selective interviews and classroom observations, several questions were examined: 1.) Perceived confidence, benefits, and comfort/enjoyment with TELL for instructors, tutors, and students at the beginning and end of the semester; 2.) Students' perceived impact of TELL between pre and post survey measures on second language skills, learning culture, student motivation to learn a language, and preparing students for class tests and quizzes; 3.) Whether or not target language orthography, exposure to TELL, student gender, and instructors' or tutors' previous confidence in using TELL, impacted perception of benefit by students; 4.) Positive and negative aspects of incorporating a TELL component in the language classroom for instructors and tutors. The*

*results showed that incorporating TELL in a new, but limited, way in all beginning level classes at one university was a positive experience for many participants, especially in the areas of comfort/enjoyment, and increased confidence in using technology. However, unless tasks were clearly tied to learning objectives, students did not recognize their instructional value.*

## **INTRODUCTION**

Language classes, especially in less commonly taught languages, are being threatened with extinction because of campus budget woes. Technology has been seen as one way to deliver cost-savings to replace regular classroom instruction. Technology in the modern language classroom can refer to more traditional types like cassette recordings, CDs, and films, or more recent types like word processing, digital photos or videos, course management systems, or the internet, but most especially the inclusion of working in the language laboratory, media center, or the “resource center” as Angell, Dubravac, and Gonglewski (2007) prefer to call it because of its potential for facilitating meaningful communicative interaction through multi-media applications. The language laboratory (or media center, or resource center) has the potential to enhance instruction, especially when combined with adequate teacher training and support. This study attempts to investigate the interplay of teaching and learning factors that lead to optimal use of technology-enhanced language learning (TELL) for beginning foreign language learning as perceived by classroom participants during one semester of instruction. The focus of this study is on the use of TELL, which includes CALL (computer-assisted language learning) in addition to more traditional forms of technology such as the examples listed above.

## **LITERATURE REVIEW**

A variety of TELL applications have shown mostly positive but some negative effects in the classroom for students learning foreign languages. Courses which solely use media (e.g., online courses) have been shown to be as effective academically as regular (offline) classes, especially with certain motivated students (Chenoweth, Ushida, & Murday, 2006). Classes which incorporate TELL, particularly CALL in the form of computer-mediated communication and automated online exercises, have also been shown to produce positive results (Sanders, 2005). Several recent studies have demonstrated the effect of TELL on increasing motivation (Chenoweth, Ushida, & Murday, 2006; Gallego, 1992; Schulze, 1994), assisting students with mastering basic skills (grammar, vocabulary, listening, pronunciation, reading and writing; Chun, 2007; Corbeil, 2007; Gascoigne, 2006; Scida & Sauray, 2006; Taylor, 2006; Stepp-Greany, 2002; Cononelos & Oliva, 1993), helping students become more engaged in the learning process (Salaberry,

2001), and fostering deeper cultural learning (Hager, 2005; Dubreil, Herron & Cole, 2004; Stepp-Greany, 2002; Kern, 1996; Cononelos & Oliva, 1993).

Other studies have shown the value of TELL for increasing authentic input (Earp, 1997), facilitating greater student participation (Warschauer, 1996), and providing opportunities for linguistic practice, review, and feedback (Bush, 2008; Rosell-Aguilar, 2005). TELL has been shown to personalize learning with its ability to address different learning styles and learning needs (Gimenez, 2000; Froehlich, 1996). Even more exciting is the role of TELL in providing opportunities for meaningful interaction in which technology-related tasks approximate more and more real-world conditions for conversation and communication (Egbert & Hanson-Smith, 2007; Sanders, 2005; Kenning, 1999).

Some negative effects have also been documented. Sanders (2005) reported a significant decrease in writing scores for students receiving TELL instruction in place of traditional instruction within the context of a beginning level Spanish class. Burnett (1998) in a one semester ethnographic study revealed reduced oral target language use as well as lack of meaningful interaction in French in computer-equipped French classrooms because of technical problems impeding language lessons. Schulze (1994) found that beginning level German students were motivated by the use of computers but concluded that computer-assisted language learning could not replace the teacher as the only tool of student language learning.

Studies have also highlighted the need for teacher training in the effective use of TELL. Winke and Goertler (2008) surveyed 911 students in basic foreign language programs to estimate their readiness for hybrid language instruction. Most students are proficient (and ahead of their teachers) in use of the computer for “day-to-day” tasks such as downloading, communicating via email, and socializing and creating identity communities but lack competency in more advanced tasks. Hubbard (2008) notes that overcoming similar deficiencies in faculty training will be the only route for TELL to “survive and prosper.” Sanders (2005) incorporated increased instructor training from 8 hours to 21 hours when a new textbook with more multimedia and computer support materials was included, which led to improved instruction. Stepp-Greany (2002) reported strong agreement by students in 21 beginning level Spanish classes that the instructor was important as a facilitator to trouble-shoot activities, provide vocabulary assistance, and increase learning potential in the lab. Glisan, Dudt, and Howe (1998) acknowledge the important role of the teacher as a facilitator in classrooms using TELL. Another concern is the simplistic approach to blindly interjecting new technology into the classroom without thoughtfully matching student learning problems with appropriate technology use (Bush, 2008).

One way to obtain a glimpse of the perceptions of benefit of media or TELL on students’ language learning is to examine technology choices made by language teachers and tutors, survey them on their perceptions of the effects of technology in their classrooms, survey their students who have been exposed to technology in language classes, and observe and interview teachers, tutors, and students while they

are using technology to determine the strengths and weaknesses of its perceived effects. This paper will summarize the results of a study which did this at a large Southern California University during one university term.

### ***Research Questions***

Based upon the goals of the study, the following research questions were proposed:

1. What are the levels in perceived confidence, benefits, and comfort/enjoyment with TELL for instructors, tutors, and students at the beginning and end of the semester?
2. According to students, what is the perceived impact of TELL between pre and post survey measures on second language acquisition; developing listening, speaking, reading, writing; learning culture; student motivation to learn a language; and preparing students for class tests and quizzes?
3. Does target language orthography, exposure to TELL, student gender, instructors' previous confidence in using TELL, or tutors' previous confidence in using TELL impact perception of benefit by students?
4. What are the positive and negative aspects of incorporating a TELL component in the language classroom for instructors and tutors?

## **METHODOLOGY**

### ***Participants***

Participants in the study included instructors, tutors, and students in 14 beginning language classrooms during Fall 2008. Twelve different instructors participated who taught 10 different languages. Two instructors taught two courses each in Spanish (Spanish 101 and 102) and Japanese (101). The rest taught beginning level 101 classes in Arabic, Chinese, French, German, Italian, Korean, Persian, and Vietnamese. The mean age of the instructors was 50 (s.d. 11.6). 43% were males and 57% were females. Half were Asian (50%) with 28.6% being Latino/Hispanic, 14.3% White and 7.1% missing data. All instructors had master's or doctoral degrees.

Tutors were selected by Language Coordinators or self-selected by email invitations that went out to all students in the department. In the end, only 11 of the 14 classes had tutors who were available to work during the assigned lab times. One tutor dropped out because of complaints by students in the class. Those who remained received one unit of student-to-student tutoring credit for MLNG 496 or were considered official "volunteers" in the class. During the training sessions, tutors were instructed to become actively involved during the lab sessions and not just be silent bystanders. The mean age of the tutors was 27.1 (s.d. 9.5). 60% were

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females; 40% were males. Half were Asian (40%), 30% were White, and 30% were Latino/Hispanic.

345 students participated in the study, 93.6% of whom were under 30 years old. 51.3% were females; 44.3% were males (with 4.4% missing data). Most students were Asian (39.1%) with 30.45% White, 15.9% Latino/Hispanic, 4.6% American Indian, African, or other (with 10% missing data).

### ***Pre-Training***

The semester before the study began, instructors received 1½ hours of training in how to integrate technology into their classes. Instructors were asked to include at least five tasks with step-by-step instructions in their syllabi so that a student tutor could easily follow along or assist the instructor. Sample tasks provided for the instructors included the following: 1) do lab orientation with Media Center staff on manual/workbook materials, 2) receive instruction on listening to materials, recording voices, using pairwork with headphones, 3) use foreign language keyboards or Microsoft Word, 4) do web search assignment, and 5) create a Powerpoint presentation with a cultural component. All sample tasks could be done using the Sanako lab management system, but instructors could also include other types of technology. Class syllabi were checked by foreign language coordinators in the department and the chair of the department (one of the co-authors) for appropriateness before the semester began.

Instructors were encouraged to be creative in order to effectively integrate TELL into the curriculum to improve student learning. TELL could include the use of multi-media (computers, cassette recorders, video cameras, email, CD-roms, Quia software) incorporated into beginning level foreign language classes for at least five hours in the Language Lab with the possibility of additional TELL assignments inside or outside normal classroom hours.

### ***Instruments***

Pre- and post-study surveys were administered to students, instructors, and in-lab tutors.<sup>1</sup> (See Appendix for student and instructor pre- and post-study surveys.) These surveys consisted of a number of background questions, and three multi-item scales, or sections: confidence using TELL ( $k = 6$ ), perceived benefit of using TELL ( $k = 8$ ), and comfort with and enjoyment of using TELL ( $k = 2$ ). All respondents were measured on a four-point scale: confidence in TELL, with 4 = “very confident” and

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<sup>1</sup> The pre- and post-study questionnaires administered to tutors; the pre- and post-study correlation matrices for student, instructor, and tutor questionnaire responses; the language lab class observation protocol; a sample syllabus used during the pre-study training; and figures not included in the text which show the effects of TELL exposure on the eight categories of student-perceived benefit (c.f. Figure 1) are available upon request from the authors.

1 = “not at all confident”; predicted benefit for various factors, with 1 = “none” and 4 = “a lot”; and comfort and enjoyment, with 1 = “none” and 4 = “a lot.” In addition, the surveys included open-ended follow-up questions asking for more detailed information on the use of TELL and positive and negative effects of TELL. These same questions were used with all three groups (students, instructors, and tutors).<sup>2</sup>

The pre-study survey was administered during the first week of classes. The post-study survey was administered during the last week of classes.

### *Statistical Analyses*

Research Question 1 was addressed by calculating descriptive statistics for pre- and post-study levels on the means of the three scales and one individual item: confidence using TELL, perceived benefit of using TELL, and TELL comfort/enjoyment. This was done separately for student, instructor, and tutor responses. Reliability was estimated for each of the scales using Cronbach’s alpha.

Research Question 1 was further addressed using paired-sample *t*-tests to determine whether there were significant changes for students in confidence using TELL, student perception of benefit, and TELL comfort/enjoyment. Similar tests were not performed for instructor and tutor responses for two reasons: because of the very small sample sizes, and the pattern of high but *not* significant intercorrelations among the dependent variables.

Whereas Research Question 1 included the overall perception of benefit by students, Research Question 2 focused on the eight areas of potential benefit<sup>3</sup> that were the basis for the eight items on that scale: second language acquisition; developing listening, speaking, reading, and writing; learning culture; student motivation to learn a language; and preparing students for class tests and quizzes. Research Questions 3 addressed the effects on these areas of the target language orthography (described in Table 1), student gender, and instructors’ and tutors’ prior confidence in using TELL. To answer this research question, descriptive statistics were reported, and a repeated measures multivariate analysis of variance (MANOVA) was performed as well to test for significant pre-post differences and significant impacts for these four variables (i.e., TL orthography, student gender, instructor confidence, and tutor confidence) on the eight areas of potential benefit.

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<sup>2</sup> A subset of instructors, tutors, and students in French, German, Italian, and Spanish classes filled out a separate section of the post-survey about the positive and negative benefits of Quia software (an online version of the print lab manuals and workbooks for the required language textbooks which included true and false, multiple choice, and short answer questions to be completed through the internet). They were also asked to say whether or not they would recommend Quia for future classes. These results are not reported in this article.

<sup>3</sup> As noted previously, the eight areas of prospective benefit were of individual interest because this had implications for how TELL might be used most effectively in introductory language classes.

All descriptive statistics, correlations, *t*-tests, and the MANOVA were calculated using SPSS.

**Table 1: Classification of Target Language Orthography**

Grouping	Languages Studied
Character-based	Chinese, Japanese <sup>x</sup>
Non-Roman syllabary-based	Korean
Right-to-left	Arabic, Persian
Roman-plus <sup>y</sup>	Vietnamese
Roman	French, German, Italian, Spanish

<sup>x</sup> Japanese could arguably be classified as syllabary-based instead, particularly at the introductory level, but given that the course does include the memorization of kanji, it was decided to keep it in the more difficult (from a native English speaker's perspective) category.

<sup>y</sup> This category uses the Roman alphabet, but with extensive use of diacritical marks, much more so than any European language.

### *Qualitative Analyses*

Besides taking pre and post surveys, instructors, tutors, and students were observed while assisting with teaching the TELL component in the language laboratory. Students were observed in the language laboratory two times during the school term. One student per class was interviewed per observation session, depending upon whether he or she appeared to be engaged or unengaged in classroom work.

Four faculty observers (and co-authors of this article) all trained in Applied Linguistics and Foreign Language Pedagogy with a combined teaching experience of 87 years made 28 observations of the language laboratory sessions at the beginning and end of the semester. Observers normed themselves by observing the same class and marking choices on a collaboratively designed observation instrument designed to assess the number and type of facilitators in the room, the type of tasks observed, the amount or occurrence of the following factors taking place: use of target language by students, the amount of language learning or technical learning, and the frequency of interaction from student to student, teacher to student, and tutor to student. They were also normed on the results of one individual interview with one of the students in the class in which the student was asked about one technology activity and her satisfaction with the technical training and assistance as well as the language learning potential of the activity. During a group discussion, all observers came to a group consensus on the meaning of certain

choices reaching 100% agreement and observed the remainder of the classes using these instruments for the observations and the one-on-one interviews.

## **RESULTS**

### ***Pre- & Post-Study Survey Results***

Descriptive statistics and reliabilities for pre- and post-study responses to the TELL confidence, overall benefit, and TELL comfort/enjoyment scales—which relate to Research Question 1—are reported in Tables 2, 4, and 5 for students, instructors, tutors, respectively. Descriptive statistics for student responses to the individual components of the benefit scale are reported in Table 3. In order to ascertain the effects of instructor and tutor confidence on student perception of benefit, values for overall instructor and tutor confidence were cross-indexed with the students in their classes; thus, for example, an instructor who had 30 students would have his or her pre-study confidence average included in the dataset 30 times, once for each of the 30 students in the class. These values are reported in Table 6.<sup>4</sup>

Correlations among the pre- and post-study results are available by request from the authors. Student responses had a relatively normal distribution overall, aside from a small amount of negative skewness in post-survey confidence. In particular, the eight areas of perceived benefit had rather normal distributions in both the pre- and post-study survey responses. Survey reliability was quite high. Results for the instructor and tutor surveys were relatively normal and showed adequate scale reliabilities, with some exceptions. As these results were not subjected to parametric tests for significant differences, though, the variables with appreciable skewness and kurtosis were not a problem. The poor reliability levels for instructor pre-study confidence, pre- and post-study comfort and enjoyment, and tutor pre-study perceived benefit, on the other hand, require that those results be interpreted with caution.

Both before and after the study, students reported being somewhat to very confident about their ability to use TELL, and reported some comfort with and enjoyment of using TELL. Students initially thought that TELL would be somewhat beneficial, but by the end of the study, their perception of its benefit were between “somewhat beneficial” and neutral (see Table 2). This pattern of decreasing student perception of benefit was seen in each of the eight categories, although the levels of perceived benefit differed across the categories as reported in Table 3.

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<sup>4</sup> Put another way, they represent not the average values for tutors and instructors (i.e., averaged across instructors or tutors), but what the average student’s instructor and tutor values were. This compensates for the complicating factor that not every instructor had the same number of students; thus, an instructor with 30 students had twice as much impact on these averages as an instructor with only 15 students. The information in Table 6 would, of course, be redundant if every instructor and tutor had had an equal number of students.

**Table 2: Descriptive Statistics of TELL Attitudes (Students)**

	General Confidence		Perceived Benefit		Comfort & Enjoyment	
	Pre	Post	Pre	Post	Pre	Post
<b>n</b>	338	244	318	244	211	241
<b>Alpha</b>	.811	.788	.865	.914	.869	.745
<b>k</b>	6	6	8	8	2	2
<b>Mean</b>	3.7	3.8	3.1	2.7	2.5	2.7
<b>Median</b>	3.8	4.0	3.0	2.8	3.0	3.0
<b>SD</b>	.4	.4	.6	.7	.9	.8
<b>Range</b>	1.5	2.0	3.0	3.0	3.0	3.0
<b>Q</b>	.3	.3	.3	.5	.5	.5
<b>Skewne</b>	-1.3	-2.0	-.7	-.2	-.4	-.3
<b>Kurtosi</b>	.9	4.3	1.4	-4	-6	-5

Results for instructors and tutors mirrored this pattern, except that TELL comfort and enjoyment also decreased for both groups (see Tables 4 and 5).

**Table 3: Descriptive Statistics for Student Perception of Benefit**

	A <sup>5</sup>		B <sup>5</sup>		C <sup>5</sup>		D <sup>5</sup>		E <sup>5</sup>		F <sup>5</sup>		G <sup>5</sup>		H <sup>5</sup>	
	Pre	Post														
<b>n</b>	315	243	317	244	317	244	317	243	317	243	317	243	315	243	316	243
<b>Mean</b>	3.2	2.8	3.3	2.9	3.1	2.6	3.2	2.7	3.0	2.5	2.9	2.6	2.9	2.6	3.3	2.6
<b>Median</b>	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
<b>SD</b>	.6	.8	.7	.9	.8	.9	.7	.8	.8	.9	.8	1.0	.8	1.0	.7	.9
<b>Range</b>	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
<b>Q</b>	.5	.5	.5	1.0	.5	.5	.5	.5	.5	.5	.9	.5	.5	.5	.5	.5
<b>Skewne</b>	-.6	-.5	-1.0	-.5	-.6	-.3	-.8	-.4	-.5	-.1	-.6	-.1	-.7	-.3	-.8	-.2
<b>Kurtosi</b>	1.2	-2	1.2	-.4	-.3	-.7	.7	-.2	-.2	-.9	-.1	-1.0	.0	-.9	.5	-.9

<sup>5</sup> Table Legend: A= Language acquisition; B= Listening; C= Speaking; D= Reading; E= Writing; F= Culture; G= Motivation; H= Test preparation

**Table 4: Descriptive Statistics of TELL Attitudes (Instructors)**

	General Confidence		Perceived Benefit		Comfort & Enjoyment	
	Pre	Post	Pre	Post	Pre	Post
<b>n</b>	14	12	14	12	13	12
<b>Alpha</b>	.514	.821	.904	.708	.364	.562
<b>k</b>	6	6	8	8	2	2
<b>Mean</b>	3.7	3.8	3.1	2.9	3.2	3.0
<b>Median</b>	3.8	4.0	3.0	2.6	3.0	2.8
<b>SD</b>	.2	.3	.6	.5	.6	.8
<b>Range</b>	.7	.7	2.4	1.6	1.5	2.0
<b>Q</b>	0.1	.1	.3	0.5	.5	0.7
<b>Skewne</b>	-1.1	-1.5	-.6	.6	.5	.4
<b>Kurtosi</b>	1.1	.9	1.5	-1.3	-1.2	-1.3

**Table 5: Descriptive Statistics of TELL Attitudes (Tutors)**

	General Confidence		Perceived Benefit		Comfort & Enjoyment	
	Pre	Post	Pre	Post	Pre	Post
<b>n</b>	11	8	11	8	11	7
<b>Alpha</b>	.937	.909	.469	.808	.853	.706
<b>k</b>	6	6	8	8	2	2
<b>Mean</b>	3.7	3.7	3.4	3.1	3.3	3.2
<b>Median</b>	3.8	3.8	3.3	3.0	3.0	3.0
<b>SD</b>	.5	.4	.3	.6	.8	.6
<b>Range</b>	1.8	1.3	1.0	1.9	2.0	1.5
<b>Q</b>	.1	.2	.3	.4	.5	.8
<b>Skewne</b>	-3.0	-2.3	.6	-.0	-.6	.2
<b>Kurtosi</b>	9.6	5.9	-.7	.2	-1.0	-1.7

**Table 6: Descriptive Statistics for Instructor and Tutor Pre-Study Confidence, Cross-Referenced to Students**

	Instructors	Tutors
<b>n<sup>a</sup></b>	338	262
<b>Mean</b>	3.7	3.7
<b>Median</b>	3.8	3.8
<b>SD</b>	.2	.5
<b>Range</b>	.7	1.8
<b>Q</b>	.1	0.1
<b>Skewness</b>	-.7	-2.7
<b>Kurtosis</b>	-.2	6.2

<sup>a</sup>Number of students for whom instructor or tutor results were available. While all 338 students in the sample had instructors, three classes (Italian, and two sections of Spanish) had no tutor. These classes had a total of 76 students; hence the discrepancy between the two columns.

### ***T-Test Results***

Table 7 reports the results of the *t*-tests for student confidence using TELL, perceived benefit from using TELL, and comfort and enjoyment using TELL. As explained earlier, these analyses addressed Research Question 1 as well. Cohen's *d* indicates that the significant decrease in students' perception of the benefits of TELL was meaningful, with a medium-to-large effect size.

**Table 7: Paired-Sample *t*-Test Results for Students**

	<i>t</i>	df	<i>p</i>	Pooled SD	Cohen's <i>d</i>
<b>Confidence</b>	-	243	.160	-	-
<b>Perceived Benefit</b>	8.648	235	.000	.6	.7
<b>Comfort &amp; Enjoyment</b>	-	152	.109	-	-

### ***Repeated Measures MANOVA Results***

The repeated measures MANOVA was used to determine whether the use of TELL, target language orthography, student gender, and instructor and tutor previous confidence in using TELL had a significant effect on the eight areas of perceived student benefit, thus addressing Research Questions 2 and 3. Significant results were obtained at both the multivariate and univariate levels—that is, on overall student perception of benefit, as well as on student perception of benefit in the eight individual categories.

Significant multivariate effects (i.e., effects on overall student perception of benefit) were found for target language orthography, instructor pre-study confidence, and exposure to TELL during the study, meaning that these all had significant effects on overall student perception of benefit. In addition, there was a significant multivariate interaction between the use of TELL and instructor pre-study confidence (i.e., both students' perception of benefit and the amount of change in students' perceptions were effected by their instructors' levels of pre-study confidence). These results are summarized in Table 8.

As Table 8 indicates, TELL exposure had a medium-sized effect, judging from the  $\eta^2$  statistic;<sup>6</sup> that is, the decrease in student perception of benefit mentioned previously was both significant and meaningful.

The effect size for target language orthography was small, as indicated by  $\eta^2$ , and this can also be seen in Figure 1. Examination of Figure 1 also reveals that, in contrast to all the other language groups, students studying Vietnamese (the one language with a heavily modified Roman alphabet) reported an increased sense of benefit for TELL following the study.<sup>7</sup> Results for students studying languages that use characters (Chinese and Japanese), right-to-left writing systems (Arabic and Persian), or a non-Roman syllabary (Korean) were quite similar. Results for the languages that use the Roman alphabet (here, French, German, Italian, and Spanish) were similar to those of the preceding three groups, but decreased more sharply over the course of the study. It is important to note, however, while interesting, the differential changes—that is, the interaction between TL orthography and use of TELL during the study—did not prove significant.

The effect size for instructor pre-study confidence was small, while the interaction between instructor confidence and TELL exposure had only a trivial effect size, as can be seen in Table 8 and Figure 2. As close inspection of Figure 2 further reveals the nature of the interaction effect was that students whose instructors had lower levels of pre-study confidence in their ability to use TELL showed a smaller decrease in their perception of the overall benefit of using TELL than did those students whose instructors had very high levels of confidence prior to the study.

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<sup>6</sup> The  $\eta^2$  statistic expresses the proportion of overlapping variance between a dependent and independent variable. It can therefore be interpreted much the same as a squared correlation coefficient.

<sup>7</sup> Average perceived benefit for this group went from 2.9 to 3.1.

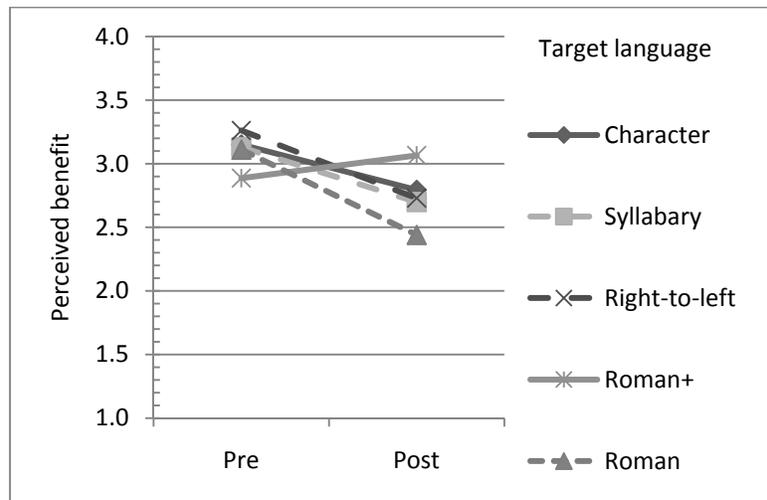
**Table 8: Significant Multivariate Results from Repeated-Measures MANOVA**

	Pillai's	F	Hypothesis	Error	p	$\eta^2$
<i>Between subjects effects</i>						
TL orthography	.136	3.121	8	158	.003	.136
Instructor pre-	.293	3.408	16	318	.000	.146
<i>Within subjects effects</i>						
TELL exposure	.222	5.634	8	158	.000	.222
TELL exposure	.171	1.864	16	318	.023	.086

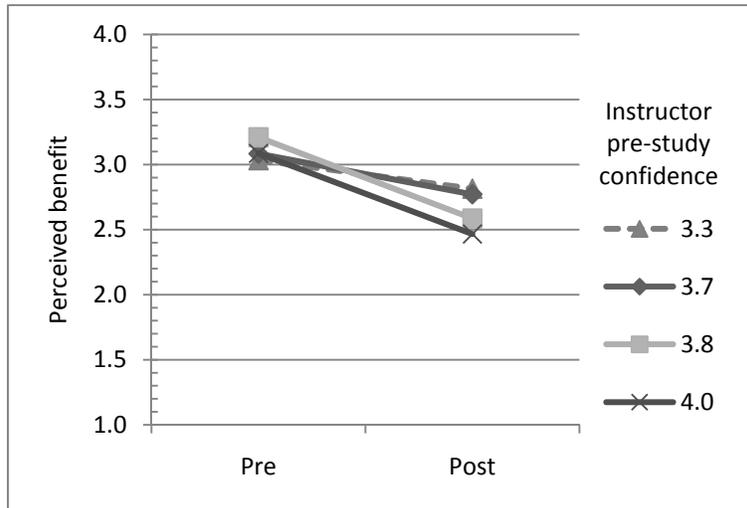
<sup>a</sup>SPSS provides four sets of estimates. Pillai's Trace was used because one of the other three would often be widely divergent from the rest; Pillai's Trace was the only one that consistently avoided this problem.

No other main effects or interactions were found to have multivariately significant effects on student perception of benefit, including student gender and tutor pre-study confidence.

**Figure 1. Effect of TL orthography on students' perception of benefit.**



**Figure 2. Effect of instructor pre-study confidence using TELL on students' average perception of benefit.**



**Table 9: Repeated-Measures MANOVA Results: Effects of TELL on Individual Measures of Student Benefit**

	Type III SS	df	M Sq	F	p	$\eta^2$
<b>L2 acquisition</b>	10.458	1	10.458	23.023	.000	.122
<b>Listening</b>	8.262	1	8.262	14.642	.000	.082
<b>Speaking</b>	10.893	1	10.893	16.286	.000	.090
<b>Reading</b>	16.073	1	16.073	29.546	.000	.152
<b>Writing</b>	15.166	1	15.166	24.385	.000	.129
<b>Culture</b>	6.598	1	6.598	10.716	.001	.061
<b>Motivation</b>	4.956	1	4.956	8.170	.005	.047
<b>Test prep</b>	19.893	1	19.893	36.739	.000	.182

At the univariate level, Table 9 shows that exposure to TELL had a highly significant impact on all eight individual measures of perceived benefit, but with small or trivial effect sizes, as indicated by the  $\eta^2$  values. There were no significant interaction effects between the independent variables (student gender, TL orthography, instructor pre-study confidence, and tutor pre-study confidence) and exposure to TELL during the study. Most notably, there were no significant interactions between instructor pre-study confidence and exposure to TELL for any of the individual measures of student benefit, even though this interaction was multivariately significant. In other words, it was significant for all the variables considered together, but not for any one of them individually. This may be because the interaction's trivial size ( $\eta^2 = .082$ ) made it too small to detect except at the overall, multivariate level; if so, it would only prove significant for individual variables if a much larger sample were used.

## DISCUSSION

Research Question 1 asked what the levels were in perceived confidence, benefits, and comfort/enjoyment with TELL for instructors, tutors, and students at the beginning and end of the semester. The increased level of confidence reported by both students and instructors was not surprising since practice makes perfect and classes which had not previously used TELL gained new levels of expertise as a result of integrating TELL in their language studies. The Persian instructor at the end of the semester commented that the lab was “Very helpful. It helped them listen to the content of the book as many times as they needed.” Many students noted the value of the interactive speaking and pronunciation exercises as well as the helpful typing exercises using foreign language keyboards.

Along with this confidence, an increased sense of comfort and enjoyment, although again not significant, accompanied this practice for students, but not instructors. The change of pace and novelty effect that a TELL activity can bring to the traditional classroom may have contributed to this change. Several students noted that it was an “interesting change,” “a break from monotony,” and a “more fun environment” when compared to the regular classroom. Also as Winke and Goertler (2008) noted, learners are generally ahead of their professors in terms of using technology, and these activities may have more closely coincided with what they do “off hours” for enjoyment—with texting, chatting, skypeing, online computer games, and internet searches. One Spanish professor noted, “Students seemed to enjoy talking to each other and some of them were very enthusiastic in preparing their Powerpoint presentations.” On the other hand, the incorporation of a simple typing exercise, which required students to use the foreign language keyboard to supply their answer, was noted as being very enjoyable during Vietnamese classroom observations as well as individual student interviews. Students from most languages noted the positive aspects of using the foreign language keyboard to reinforce learning in post-class surveys.

Research Question 2 asked “According to students, what is the perceived impact of TELL between pre and post survey measures on second language acquisition; developing listening, speaking, reading, writing; learning culture; student motivation to learn a language; and preparing students for class tests and quizzes?” Despite the positive findings discussed under question 1, students’ expectations regarding the impact of TELL on the acquisition of different language skills, culture, motivation, and test preparation were not met, as evidenced by the consistent and significant decrease on their perceived benefit in those categories at the end of the semester (see Tables 3 and 9). These results align themselves with some of the negative findings reported in Sanders (2005), Burnett (1998), and Schulze (1994) (see above). It is worth noting that this decrease between pre and post survey ratings was small. For each of the categories, their perception of benefit decreases from an average of about 3.15 to an average of about 2.45, thus still remaining on the positive end of the spectrum (with 2 being the middle point between “none” and “a lot” of benefit). This means that students still found TELL beneficial, although not as much as they had anticipated.

Some of the qualitative data gathered in the study adds valuable information related to Research Question 2. A summary of student comments from the questionnaire reveals a high frequency of positive comments about benefit in the four language skills-- speaking, listening, reading, and writing--with specific improvements in pronunciation (e.g., “Voice recording: hear how we pronounce things; perfect pronunciation”) and typing. Comments about gains in culture (e.g., “it allows us to experience culture, which is impossible from a book alone”), and adding fun and variety to the language class (e.g., “I felt it was also a nice change to the traditional classroom setting”) also abound. Among the negative comments, the most frequent were about time in the lab being limited to provide much benefit, and technical problems (e.g., “it didn’t work half of the time (the trying to hear your partner through the headset)”). Lastly, perception of benefit for the students seems to be linked, not surprisingly, to the ability of the professor to create meaningful connections between the technological activity and learning the language, as can be exemplified in the following quotes by two different students from the same French course: 1) “All we did was record our voices. How does that help me?” versus 2) “The voice recordings were helpful in developing verbal skills.”

Research Question 3 asked whether target language orthography, exposure to TELL, student gender, instructors’ previous confidence in using TELL, or tutors’ previous confidence in using TELL impacted perception of benefit by students. Results from quantitative analysis demonstrated that of the five factors studied (see Table 8), target language orthography and instructor pre-study confidence caused an overall positive impact on perception of benefit, while student gender and tutor’s pre-study confidence caused no impact, and exposure to TELL (i.e., spending time in the lab) caused a negative impact on perception of benefit. However, as noted previously, students still found TELL beneficial, just not as much as they had anticipated.

Of the three different types of target language orthographies studied, Vietnamese (Roman +) showed the greatest increase in perception of benefit (see Figure 1). As the Vietnamese professor noted in his post survey, a possible explanation for this increase could be that “students loved this software which helped almost all of them to learn typing assignments in the Vietnamese language, mostly because they learned how to type Vietnamese tone marks correctly and appropriately.” This class also spent more time on this activity, unlike the other target language orthographies, which all showed a decrease in perception of benefit.

For instructor pre-study confidence with TELL, the pre-study confidence level was quite high: 3.7 on a 4.0 scale (see Table 2 and Figure 2). As one of the tutors commented in their post survey, this high confidence with TELL probably had a positive benefit because the professor “uses it well. He constantly posts assignments and records his voice as well. Very helpful. He also has a great knowledge of cultural websites & videos.” However, this example contradicted the overall findings in the study, which showed a decreased sense of benefit in students from classrooms where the instructor had high confidence in TELL.

Finally, the most dramatic effect of TELL was that exposure to it (i.e., spending time in the lab) had an overall negative impact on students’ perception of benefit (see Table 8). Over the course of the study, students’ TELL perceived benefit decreased from a mean of 3.1 to a mean of 2.7 (see Table 2). That is not to say students perceived no benefit; however, after spending time in the lab, students perceived less benefit in using TELL. The three most common student complaints on the post-survey about TELL dealt with the limited time using the lab, the lack of TELL activities being integrated, and technical issues with the equipment. Students noted that, “We only would do it once a week. I think it would be more helpful if we went there more often and used it,” that “it didn't really seem necessary; it felt like we could do the exact same things without the TELL stuff in class,” and, finally, “it didn't work about 1/3 of the time.”

Research Question 4 asked what the positive and negative aspects of incorporating a TELL component in the language classroom were for instructors and tutors. In order to answer this question, we will provide a summary of teachers’ and tutors’ replies to several questions in the survey (in particular, open-ended questions). One logical indicator of the positive impact of using TELL in the language classroom is the intent of instructors and tutors to use it again in future classes. In response to that question in the survey, all teachers showed some level of interest, and seven out of the ten who responded to this question expressed positive to very positive interest in doing so. In contrast, tutors showed a lower level of intent, with about half of them expressing from positive to very positive interest.

When teachers were asked to list positive aspects of TELL in their post-survey, their most frequent response was that it appears to increase student motivation and enjoyment. Other comments referred to the potential for TELL to design more creative and varied teaching materials, and to teach grammar, listening, and typing

and using technology in a foreign language. In responding to the same question, tutors mentioned the following positive aspects: immediate access to native-speaker models, including speakers of different dialects of a language; more student involvement in class activities, helping shy students in particular to feel comfortable in participating; limitless access to information about language and culture (e.g., information about the countries where a language is spoken, etc.); and enabling slower students to work at their own pace.

Teachers and tutors were also asked to list the negative aspects of the use of TELL in the language classroom. Both groups identified technical and logistical problems as an important concern (e.g., number of computers available, having materials ready, moving from their regular classroom location to the lab, getting technical support, etc.). Teachers also mentioned the difficulty of sequencing and matching lab and regular class teaching materials, whereas tutors highlighted that the lab was too time consuming at times, and that students would occasionally spend time responding to email or chatting instead of focusing on the instructional content.

Another open-ended question asked teachers to describe how they would use TELL in future language classrooms—also a likely positive outcome of the use of TELL. Their answers included, among others, the following suggestions: incorporating an online component into their course; more listening and oral practice activities; more interactive websites for students to learn language and culture; videotaping lessons and downloading them into Blackboard; and more lab hours.

When tutors were asked whether they would recommend their experience as tutors to future tutors to assist instructors, 80% said “yes.” They obviously saw value in their TELL experiences during the semester; however, they also mentioned that more direction from instructors would have been useful and other opportunities to assist in the regular classroom would have been appreciated.

One last question that relates to the positive effects of incorporating TELL in the language classroom asked how teachers used TELL for activities other than the ones that were suggested to them by the researchers, such as, attending a lab orientation, getting instruction on how to do listening, recording, and pair-work, using the keyboard, and doing web searches. Teachers reported showing movies, doing voice over exercises, and using BlackBoard to share teaching resources with the students.

## **CONCLUSION**

Is there any benefit from using TELL? Research has consistently shown the value of TELL in language learning, especially when applied appropriately. Incorporating TELL in a new, but limited, way in all beginning level classes at one university was a positive experience for many participants, especially in the areas of comfort, enjoyment, and increased confidence in using technology. However, unless tasks

were clearly tied to learning objectives, students did not recognize their instructional value and perceived TELL activities as doing more harm than good..

TELL is no magic bullet for language learning. Although students, instructors, and tutors had high hopes for overall improvement in the four skill areas—as well as culture, motivation, and test preparation—actual results were quite mixed, with some being very enthusiastic but most others being neutral or slightly disappointed. Interestingly, students taught by an instructor with less confidence in using TELL at the beginning of the study reported more positive perceptions of benefits than students taught by instructors with more confidence in TELL. Students learning to write roman-plus (Vietnamese) orthography reported the most benefit through TELL writing activities probably because of extended exposure and practice.

The research questions reported above do not tell the whole story of what we learned in this study. Responses to open-ended survey questions revealed that TELL, in participants' minds, was almost always synonymous with computer-related applications. In other words, perceptions of benefits and descriptions of activities almost always related to computers, the Internet, the lab, and other types of CALL. It is possible that this stemmed from the fact that the pre-study training did not model any non-computer forms of technology, as we assumed the instructors were already well familiar with more traditional forms of technology. However, it may well also be that as computers have been able to perform functions previously related to non-computer forms of technology (e.g., cassette recorders, DVD players, and video cameras), users have begun to perceive the instructional use of computers, and of technology in general, as one and the same.

Future studies should focus on studying the effects of particular TELL tasks. Research studies should look at tasks designed to develop one of the four specific skill areas, culture, motivation, or test preparation. These tasks need to be clearly defined and instructors and tutors need to be trained to implement them effectively as Hubbard (2008), Bush (2008), and Sanders (2005) have suggested. In the case of Vietnamese or possibly other non-Roman alphabet languages, more studies should be done to replicate the results reported here regarding students' greater perceived benefits in practicing Vietnamese orthography for developing writing skills.

Proper training is the key to success with TELL. Universities that wish to integrate TELL more extensively for the benefit of their students should invest time and effort in instructor and tutor training. In spite of pressures from institutions to use technology to save costs, language programs must always keep this in mind. This training should focus on teaching instructors and/or tutors to specifically state the purposes for TELL tasks as well as plan adequate time to implement TELL tasks, provide clear explanations about how to complete TELL tasks, and have reasonable expectations about what TELL tasks can and cannot do in the second language classroom. More instruction also needs to be provided about how to integrate and sequence TELL materials completed in the language laboratory with regular classroom materials. Without question, a department also needs to provide

excellent technical support and assign appropriate student-computer ratios when scheduling the language laboratory. As Egbert and Hanson-Smith (2007) state, "...perhaps the best way, if there is one, to teach in a CALL classroom is to create an optimal language learning environment for each learner" (p. 19). As universities investigate how to incorporate TELL—whether using more traditional forms of technology, CALL, or other emerging technologies—many of these issues need to be addressed to satisfy learner needs.

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***Acknowledgements:*** The authors would like to express appreciation to Katherine Martinez, our research assistant, for her help with inputting and interpreting the data.

## APPENDIX A

### *Pre-Survey for Instructors*

Please check here if you have signed the Informed Consent form.

Fall 2008

**Definition:** *TELL – Technology-enhanced Language Learning refers to second language instructional practices which use word processing, the internet, language software, multi-media, etc. in conjunction with other regular learning activities.*

**I. Please fill in or check the appropriate information.**

1. Age: \_\_\_\_\_ years
2. Sex:    Male    Female
3. Race/ Ethnicity    American Indian    African American    Latino/ Hispanic    Asian    White    Other, Please describe: \_\_\_\_\_
4. Course Number(s) (e.g. Spanish 101, section 2) \_\_\_\_\_
5. How confident do you feel about using the following? (Check each item with an X.)

	Very confident	Somewhat confident	Not very confident	Not at all confident
A computer				
Microsoft Word				
Email				
The Internet				
Blackboard software				
PowerPoint				
Quia software				

**II. Rate your opinion on the following items: 1 2 3 4 (1=not much or none and 4 = a lot or a great deal)**

What do you predict the benefit of using TELL in beginning language classes will be for....

1. general language acquisition	1	2	3	4
2. developing listening	1	2	3	4
3. developing speaking	1	2	3	4
4. developing reading	1	2	3	4
5. developing writing	1	2	3	4
6. learning culture	1	2	3	4
7. developing student motivation to learn	1	2	3	4
8. preparing students for class tests and quizzes	1	2	3	4

**III. Rate your opinion on the following items: 1 2 3 4 (1=not much or none and 4 = a lot or a great deal)**

*Perceived Benefits of TELL...*

9. How much do you enjoy using TELL?	1	2	3	4
10. What is the degree of comfort you feel using TELL?	1	2	3	4
11. How much experience have you had using TELL personally?	1	2	3	4
12. How much experience have you had using TELL as a teacher?	1	2	3	4
13. How useful will you be as a facilitator in the TELL environment?	1	2	3	4

III. Briefly describe your experiences:

Using TELL as a teacher:

Using TELL personally:

## APPENDIX B

### Pre-Survey for Students

Please check here if you have signed the Informed Consent form.

Fall 2008

**Definition:** *TELL – Technology-enhanced Language Learning refers to second language instructional practices which use word processing, the internet, language software, multi-media, etc. in conjunction with other regular learning activities.*

#### I. Please fill in or check the appropriate information.

1. Campus-wide

ID \_\_\_\_\_

2.

Major \_\_\_\_\_

\_\_\_\_\_

3. Age: \_\_\_\_\_ years

4. Sex:  Male  Female

5. Race/ Ethnicity  American Indian  African American  Latino/ Hispanic

Asian  White  Other, Please describe: \_\_\_\_\_

6. Course Number (e.g. Spanish 101, section

2) \_\_\_\_\_

7. Reason for studying language: Check all that apply with an X.

\_\_\_ GE requirement

\_\_\_ relates to travel plans

\_\_\_ relates to career plans

\_\_\_ relates to family heritage

\_\_\_ general interest in language

\_\_\_ other \_\_\_\_\_

\_\_\_\_\_

8. How confident do you feel about using the following? (Check each item with an X.)

	Very confident	Somewhat confident	Not very confident	Not at all confident
A computer				
Microsoft Word				
Email				
The Internet				
Blackboard software				
PowerPoint				
Quia software				

**II. Rate your opinion on the following items: 1 2 3 4 (1=not much or none and 4 = a lot or a great deal)**

What do you predict the benefit of using TELL in your class will be for \_\_\_\_?:

1. general language acquisition	1	2	3	4
2. developing listening	1	2	3	4
3. developing speaking	1	2	3	4
4. developing reading	1	2	3	4
5. developing writing	1	2	3	4
6. learning culture	1	2	3	4
7. developing motivation to learn	1	2	3	4
8. preparing for class tests and quizzes	1	2	3	4

**III. Rate your opinion on the following items: 1 2 3 4 (1=not much or none and 4 = a lot or a great deal)**

9. How much do you enjoy using TELL to learn?	1	2	3	4
10. What is the degree of comfort you feel using TELL?	1	2	3	4
11. How much experience have you had using TELL as a student?	1	2	3	4

III. Briefly describe your experiences using TELL as a student.

## APPENDIX C

### *Post-Survey for Instructors*

**Definition:** *TELL – Technology-enhanced Language Learning refers to second language instructional practices which use word processing, the internet, language software, multi-media, etc. in conjunction with other regular learning activities.*

**I. Please fill in or circle the appropriate information.**

1. Course Number(s) (e.g. Spanish 101, section \_\_\_\_\_)
- 2) \_\_\_\_\_
2. How confident do you feel about using the following? (Check each item with an X.)

	Very confident	Somewhat confident	Not very confident	Not at all confident
A computer				
Microsoft Word				
Email				
The Internet				
Blackboard software				
PowerPoint				
Quia software				

**II. Rate your opinion on the following items: 1 2 3 4 (1=not much or none and 4 = a lot or a great deal) AFTER the lab visits.**

What was the benefit of using TELL in your beginning language class for \_\_\_\_\_?:

1. general language acquisition	1	2	3	4
2. developing listening	1	2	3	4
3. developing speaking	1	2	3	4
4. developing reading	1	2	3	4
5. developing writing	1	2	3	4
6. learning culture	1	2	3	4
7. developing student motivation to learn	1	2	3	4
8. preparing students for class tests and quizzes	1	2	3	4

**III. Rate your opinion on the following items: 1 2 3 4 (1=not much or none and 4 = a lot or a great deal) AFTER the lab visits.**

9. How much did you enjoy using TELL?	1	2	3	4
10. What was the degree of comfort you felt using TELL?	1	2	3	4
11. How useful were you as a facilitator in the TELL environment?	1	2	3	4
12. How much do you plan to use TELL beyond course requirements to enhance your own learning?	1	2	3	4
13. How much do you plan to use TELL in future teaching?	1	2	3	4

14. What interest would you have in recommending that other instructors incorporate technology into their beginning level language classes?	1	2	3	4
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**IV. Please answer the following questions.**

1. Have you taught this same class before? YES NO
2. **If yes**, circle the correct answer in the following statement:

I used the lab MORE LESS ABOUT THE SAME in this class compared to the other class(es) at the same level.

3. How many hours did your class meet in the lab this semester?

4. Did you use **Quia** software this semester? YES NO

If you used Quia, please answer the next three questions:

- a. What were the **positive** aspects of using **Quia**?
- b. What were the **negative** aspects of using **Quia**?
- c. Would you recommend **Quia** for future classes? YES NO

5. Briefly describe how you used other types of TELL this semester (text-based reinforcement materials, email, culture websites, typing assignments, recording voices, Blackboard quizzes, etc.)
6. What were the positive aspects of using TELL?
7. What were the negative aspects of using TELL?
8. Briefly describe how you plan to use TELL in the future.

## APPENDIX D

### *Post-Survey for Students*

**Definition:** *TELL – Technology-enhanced Language Learning refers to second language instructional practices which use word processing, the internet, language software, multi-media, etc. in conjunction with other regular learning activities.*

**I. Please fill in or circle the appropriate information.**

1. Campus-wide ID Number \_\_\_\_\_
2. Course Number (e.g. Spanish 101, section 2) \_\_\_\_\_
3. Did you attend elementary school (including kindergarten) in a non-English speaking country? YES NO
4. Did you graduate from a junior high school or high school in a non-English speaking country? YES NO
5. When you were growing up, which language did you usually speak at home? \_\_\_\_\_ (If Chinese, please specify Mandarin, Cantonese, Taiwanese, etc.)
6. How confident do you feel about using the following?

	Very confident	Somewhat confident	Not very confident	Not at all confident
A computer				
Microsoft Word				
Email				
The Internet				
Blackboard software				
PowerPoint				
Quia software				

**II. Rate your opinion on the following items: 1 2 3 4 (1=not much or none and 4 = a lot or a great deal) AFTER the lab visits.**

What was the benefit of using TELL in your class for \_\_\_\_\_?:

1. general language acquisition	1	2	3	4
2. developing listening	1	2	3	4
3. developing speaking	1	2	3	4
4. developing reading	1	2	3	4
5. developing writing	1	2	3	4
6. learning culture	1	2	3	4
7. developing motivation to learn	1	2	3	4
8. preparing for class tests and quizzes	1	2	3	4

**III. Rate your opinion on the following items: 1 2 3 4 (1=not much or none and 4 = a lot or a great deal) AFTER the lab visits.**

9. How much did you enjoy using TELL to learn?	1	2	3	4
10. What was the degree of comfort you felt using TELL?	1	2	3	4
11. Beyond the required TELL activities by your instructor, how much did you use TELL for your personal language learning purposes?	1	2	3	4
12. How much do you plan to use TELL beyond beginning level language course requirements to enhance your own learning?	1	2	3	4

**IV. Please answer the following questions.**

1. Did you use **Quia** software this semester? YES NO

If you used Quia, please answer the next three questions:

- a. What were the **positive** aspects of using **Quia**?
- b. What were the **negative** aspects of using **Quia**?
- c. Would you recommend **Quia** for future classes? YES NO

2. Briefly describe how your instructor used other types of TELL this semester (text-based reinforcement materials, email, culture websites, typing assignments, recording voices, Blackboard quizzes, etc.)

3. What were the positive aspects of using TELL?

4. What were the negative aspects of using TELL?

5. Briefly describe how you plan to use TELL in the future.