COMPARING THE NEW HYBRID COURSE SPAN 115 WITH THE OLD SEQUENCE CORE CLASSES SPAN 110 AND SPAN 120

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1. Abstract

a. Objective

This survey was conducted to assess the attitudes of students taking Spanish in the Department of Communication, Languages and Cultures of Coastal Carolina University. The objective was to compare the attitudes of students in the legacy sequence of Spanish Core classes (Spanish 110 and Spanish 120 -SPAN 110 and SPAN 120 hereafter) with a new hybrid course (Spanish 115 –SPAN 115 hereafter) that combines the content of two legacy core classes.

b. Methods

A self-administered questionnaire was given to a sample of Spanish students. The survey was administered at mid-term and the end of the Fall 2015 term for students in SPAN 115, the hybrid course. For the two legacy classes, the survey was administered at the end of the same term.

c. Results

A total of 478 students responded to the survey – 52 students in SPAN 110, 135 students in SPAN 120, and 291 students in the hybrid course SPAN 115.

d. Conclusions

The results of this survey demonstrate that the hybrid experience (SPAN 115) is a better option for their language core than its face-to-face counterparts SPAN 110 and SPAN 120 in terms of vocabulary and grammar acquisition. Students also recognize the hybrid experience as

clearly better than its face-to-face counterparts for acquiring oral abilities and cultural knowledge.

Furthermore, students recognized that the hybrid experience makes them have more interest in further study in Spanish than its face-to-face counterparts.

The study also confirmed that students who chose Spanish voluntarily will have a higher level of grammar acquisition, a higher level of vocabulary acquisition, a higher level of oral ability, a higher level of written ability, more cultural knowledge, a greater interest in pursuing Spanish, and more likelihood of choosing a Spanish major or minor.

The last confirmation is that instructor does make a significant difference in the student's acquisition score.

2. Background

Prior to 2015, the Department offered three courses – SPAN 110 was the introductory course I, SPAN 120 the introductory course II, and SPAN 130 the introductory course III. Each of them was three credit courses. In Fall 2014, the Department introduced a new 5-credit hybrid course – two credits are online, the other three are classroom-based.

The hybrid course introduced several innovations. First, the content of introductory I and II two semester classes was combined into one semester omnibus course. Second, the teaching method combines online learning with classroom instruction. Classroom instruction is devoted for students to practice what they have learnt online (grammar, vocabulary, and pronunciation acquisition). Third, grammar and vocabulary were reduced in a considerable manner, for student to have strong cultural content add to the class which will increase students' interest in the study of Hispanic language and culture.

The survey seeks to compare the attitudes of students in the different courses. Ultimately, the aim is to determine whether the new hybrid course is as effective, or perhaps more effective, than the legacy classes.

3. Methods

a. Survey Groups

The survey was administered to three groups of students. The first group are those enrolled in the introductory course I -SPAN 110. The second group are those enrolled in the introductory course II – SPAN 120. Both groups were surveyed at the end of the term.

The third group of students were those enrolled in the hybrid course –SPAN 115. The survey was administered to them at mid-term and end of term. The mid-term results are comparable to SPAN 110 course content and the end-term results to SPAN 120 course content.

b. Survey Instrument

A self-administered questionnaire was used – the same survey form for all three groups. The survey has 4 sections, as follows:

b.1 Language knowledge – students were asked if they had studied English, Spanish or another language. They were also asked to assess their degree of knowledge, on a five-point scale of 1) none; 2) poor; 3) average; 4) good; and 5) very good

b.2 Previous language studies – students were asked how many language courses they had taken prior to the current semester. The first question asked how many Spanish courses the student had taken at CCU. The second asked how many semesters of foreign language instruction the student had at the college level. The third question asked how many years of foreign language instruction the student had at K-12 level, or outside the formal school environment.

b.3 Reasons for taking the current Spanish course – students were asked why they chose the Spanish class they were taking. The survey posed six specific reasons, and one open-ended reason. The students were asked to indicate their level of agreement on a five-point Likert scale, from 1) strongly disagree to 5) strongly agree. The reasons were:

- To complete a foreign language requirement
- An interest in Hispanic language and culture

- An interest in the content of the class
- An interest in a particular instructor
- Their advisor's decision, over which they had no choice
- The class was the only option available to them.
- The seventh reason was an open-ended question.

b.4 Attitude toward language – students were asked what they think they will have acquired after completing the Spanish class. Eight specific outcomes of the Spanish class were posed, with answers on the same 5-point Likert scale as the previous question:

- To acquire the vocabulary needed to use Spanish
- To acquire the grammar needed to use Spanish
- To acquire the oral abilities of listening and speaking Spanish
- To acquire the written abilities of reading and speaking Spanish
- To acquire cultural knowledge related to Hispanic counties
- Because of an interest in learning about Hispanic culture and language
- Because of an interest in majoring in Spanish
- Because of an interest in minoring in Spanish.

b.5 Demographics – students were asked seven demographic questions: age, gender, class level, their college of enrollment, major, minor and home state. In addition to the demographic questions, two items of information were collected as part of the survey administration – the class section, and their instructor.

c. Respondents

A total of 478 students responded to the survey – 52 students in SPAN 110, 135 students in SPAN 120, and 291 students in the hybrid course SPAN 115. The students who took the survey were not selected by random sample.

d. Analytical Methods

The survey results were analyzed using SPSS v. 22, a widely accepted standard for analyzing survey results. The hypotheses enumerated in Section 4, below, were tested using a two-tailed T-Test that compares the relevant student groups.

- The mid-term group of SPAN 115 students are compared to SPAN 110 students;
- The end-of-term SPAN 115 group is compared to SPAN 120 students.

e. Analysis of Survey Data

The survey data include dependent and independent variables as described below

Groups – independent variables

The hypotheses enumerated in Section 4, below, compare two groups, as follows:

- For hypotheses 1-3 below, one group is SPAN 110 students, the other group is SPAN 115 students at mid-term;
- For hypotheses 4-6 below, one group is SPAN 120 students, the other group is SPAN 115 students at end of term.
- For hypothesis 7 below, one group are those students who voluntarily chose to take Spanish, as contrasted to students who did not choose the Spanish class.

In all hypotheses the independent variable is the group, whilst the dependent variables are student's attitudes toward the Spanish classes.

Attitudes – Dependent variables

As listed above, the survey posed 8 questions that seek to measure student perception of their language classes. In all the hypotheses, these attitudes are considered as dependent variables.

For the analysis of the effect of gender, class level and instructor on students' perception of knowledge and skill acquisition, we constructed a summary variable that computes an 'acquisition' score for each student. We computed this score by calculating the mean 'acquisition' score for each student – we summed up the score for all 8 dependent variables and computed the mean value of that score.

This mean score was especially necessary for the analysis of the effect of 'instructor' on the student's acquisition level – with 8 instructors and 8 individual scores it would be unwieldy.

Statistical tests – T-test

For all hypotheses, the first statistical test applied was a two-tailed T-Test that compares two groups. This test was used to determine whether to accept, or reject the null hypotheses.

For the tests in which the null hypothesis was rejected, we 'drilled down' with further analysis using cross tabulations and the Chi-square measure of significance. These crosstabs demonstrate:

- Are the dependent and independent variables correlated? This is tested with the Chi-square measure of significance, in which any value less than .05 denotes a significant correlation.
- If the variables are correlated, in which "direction" does the correlation go? For example, do more students in SPAN 115 perceive that they acquire cultural knowledge than the students in SPAN 110? This determination is direct – we compare the percentages in one group to the other group.
- For the 'instructor' hypothesis we used analysis of variance – a test that compares means and determines whether a statistically significant difference in a dependent variable is correlated with the independent variable. In this case, we seek to establish whether significantly different acquisition scores are associated with the instructor.

Statistical reliability – Cronbach's Alpha analysis

In an attitude survey such as this, we want to ensure that the answers are not merely random choices by the respondents. We want to ensure that the results are internally consistent, to show that the responses by students were an accurate reflection of their perceptions.

The statistical test to determine the reliability of results is Cronbach's alpha, "…is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability." We performed a reliability analysis of the 8 items

in the 'student acquisition' score. The results are included in the table below:

Table 1 Cronbach's Alpha Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.899	.905	8

Most researchers agree that a reliability coefficient of .70 or higher is considered acceptable in social science research. The result of .905 shows that the items are highly consistent. This gives us a measure of confidence that the results of this survey are reliable.

f. Interpretation of the Results

We note at the outset our assumptions and descriptive terminology in interpretation of results:

- In all cases, the dependent variables are student perceptions – each question asked the student's agreement or disagreement with a statement, on a scale of 1 to 5.
- In all cases, correlation is not causation. For example, more students in SPAN 115 may perceive that they acquired oral abilities. This does not mean, however, that enrollment in the class is the cause for the higher level of oral ability acquisition. This is a general characteristic of all attitude survey research – not unique to this study.
- In many places, we use 'shorthand' phrases rather than more precise phrases. The 'shorthand' is a way to avoid awkward and confusing sentences. For example:
  - Precise formulation: "More students in SPAN 115 agreed that they acquired oral ability in their class."
  - 'Shorthand' formulation: "More students in SPAN 115 acquired oral ability."
  - We use the 'shorthand' in places where the phrasing becomes so convoluted that the meaning is obscured or lost.

4. HYPOTHESES

We explored ten hypotheses in our analysis:

1 Students in SPAN 115 will have a higher level of grammar and vocabulary acquisition than students in SPAN 110. The Department believes that hybrid course students will acquire these two abilities because they are self-paced, and also because we reduced grammar and vocabulary content in a considerable manner.

2 Students in SPAN 115 will have a higher level of oral ability, written ability and cultural knowledge than the comparable SPAN 110 students. If the hypothesis is sustained, the Department believes that it is because SPAN 115 places greater emphasis on oral ability and cultural knowledge.

3 Students in SPAN 115 will have greater interest in pursuing Spanish studies and in election of a Spanish major or minor than students in SPAN 110.

4 Students in SPAN 115 will have a higher level of grammar and vocabulary acquisition than students in SPAN 120. The Department believes that hybrid course students will acquire these two abilities because they are self-paced, and also because we reduced grammar and vocabulary content in a considerable manner.

5 Students in SPAN 115 will have a higher level of oral ability, written ability and cultural knowledge than the comparable SPAN 120 students. If the hypothesis is sustained, the Department believes that it is because SPAN 115 places greater emphasis on oral ability and cultural knowledge.

6 Students in SPAN 115 will have greater interest in pursuing Spanish studies and in election of a Spanish major or minor than students in SPAN 120.

7 Students who chose Spanish voluntarily will have a higher level of grammar acquisition, a higher level of vocabulary acquisition, a higher level of oral ability, a higher level of written ability, more cultural knowledge, a greater interest in pursuing Spanish, and more likelihood of choosing a Spanish major or minor.

8 Students of different gender will have different levels

in the 8 dependent variables of grammar acquisition, vocabulary acquisition, oral ability, written ability, cultural knowledge, interest in pursuing Spanish, and choosing a Spanish major or minor. The null hypothesis is that gender of the student does not make a difference in their perception of the knowledge and skills they acquired.

9 Students in different class levels will have different levels of the 8 dependent variables. The null hypothesis is that class level does not matter.

10 Students taking Spanish from different instructors will have different levels in the 8 dependent variables. The null hypothesis is that the instructor does not matter.

5. RESULTS

a. Hypothesis 1 – online learning and classroom training, compared to SPAN 110 students

We first test the null hypothesis – that hybrid learning makes no difference in the students' acquisition of grammar and vocabulary – against the alternative hypothesis – that hybrid learning makes a difference.

We test two dependent variables – perceived vocabulary acquisition and perceived grammar acquisition. The independent variable is hybrid learning, students in SPAN 115 use online learning, whereas students in SPAN 110 do not. The association of these variables is tested using the 'Independent Samples T-Test'. One sample is students who are enrolled in SPAN 110, without hybrid learning. The other sample is students who are enrolled in SPAN 115, with hybrid learning.

We can reject the null hypothesis that the variance between SPAN 110 and SPAN 115 students is equal. The significance level of .004 for vocabulary acquisition demonstrates that it is unlikely the variances in these two groups are equal.

Table 2 - Hybrid Course Learning-SPAN 115 and SPAN 110

Levene's Test for Equality of Variances		F	Sig.
Acquired vocabulary	Equal variances assumed	8.375	.004
Acquired grammar	Equal variances assumed	8.529	.004

As a result of the T-test, we accept the alternative hypothesis – students in SPAN 110 and SPAN 115 show differences in perception of vocabulary acquisition and grammar acquisition.

Since the null hypothesis was rejected, we did further testing to determine the size and direction of the differences between the two groups of students. We want to know 1) how much difference we see between them, and 2) whether more students in SPAN 115 perceive that they acquired vocabulary and grammar.

Vocabulary acquisition

Table 3 Crosstabs of Course with Vocabulary Acquisition-SPAN 115 and SPAN 110

			SPAN110	SPAN115	Total
Acquired vocabulary	Strongly disagree	Count	1	1	2
		% within Acquired vocabulary	50.0%	50.0%	100.0%
	Disagree	Count	3	4	7
		% within Acquired vocabulary	42.9%	57.1%	100.0%
	Not sure or neutral	Count	4	15	19
		% within Acquired vocabulary	21.1%	78.9%	100.0%
	Agree	Count	25	96	121
		% within Acquired vocabulary	20.7%	79.3%	100.0%
	Strongly agree	Count	19	26	45
		% within Acquired vocabulary	42.2%	57.8%	100.0%
Total		Count	52	142	194
		% within Acquired vocabulary	26.8%	73.2%	100.0%

Chi-Square Test for Table 3

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.568[a]	4	.048
N of Valid Cases	194		

For vocabulary acquisition, the Chi-Square test significance of .048 leads us to conclude that vocabulary acquisition is correlated with the Spanish class.

In plain English, we can understand the results as follows:

- Four out of five (79.3%) of SPAN 115 students acquired vocabulary, as compared to only one in five (20.7%) of SPAN 110 students.

- More than half (57.8%) of those students who strongly agree that they acquired vocabulary are in SPAN 115, as compared to two out of five (42.2%) of SPAN 110 students.
- The direction of the difference is clear – more hybrid course students than classroom students perceive that they acquired vocabulary.
- The magnitude of the difference is also clear – To more easily interpret the results, we add the 'agree and strongly agree' responses together:
  - 74% of students who agree or strongly agree they acquired vocabulary are in SPAN 115
  - 26% of students who agree or strongly agree they acquired vocabulary are in SPAN 110.

Grammar acquisition

Based on the T-test, we reject the null hypothesis that the variance between SPAN 110 and SPAN 115 students is equal. The significance level of .004 for grammar acquisition demonstrates that it is unlikely the variances are equal.

Table 4 Crosstabs of Course with Grammar Acquisition-SPAN 115 and SPAN 110

			SPAN110	SPAN115	Total
Acquired grammar	Strongly disagree	Count	1	1	2
		% within Acquired vocabulary	50.0%	50.0%	100.0
	Disagree	Count	4	6	10
		% within Acquired vocabulary	40.0%	60.0%	100.0
	Not sure or neutral	Count	2	15	17
		% within Acquired vocabulary	11.8%	88.2%	100.0
	Agree	Count	23	97	120
		% within Acquired vocabulary	19.2%	80.8%	100.0
	Strongly agree	Count	21	23	44
		% within Acquired vocabulary	47.7%	52.3%	100.0
Total		Count	52	51	142
		% within Acquired vocabulary	26.8%	26.4%	73.6%

Chi-Square Test for Table 4			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.920[a]	4	.002
N of Valid Cases	193		

For grammar acquisition, the Chi-Square test significance of .002 shows that the two variables are correlated.

In plain English, we can understand the results as follows:

- Four out of five (80.8%) of SPAN 115 students acquired grammar, as compared to only one in five (19.2%) of SPAN 110 students.
- More than half (52.3%) of those students who strongly agree that they acquired grammar are in SPAN 115, as compared to less than half (47.7%) of SPAN 110 students.
- The direction of the difference is clear – more hybrid course students than classroom students perceive that they acquired grammar.
- The magnitude of the difference is also clear. To more easily interpret the results, we add the 'agree and strongly agree' responses together:
  - 73% of students who agree or strongly agree they acquired grammar are in SPAN 115
  - 27% of students who agree or strongly agree they acquired grammar are in SPAN 110.

b. Hypothesis 2 – oral & written ability, cultural knowledge compared to SPAN 110 students

We now turn to a test of the null hypothesis that hybrid learning makes no difference in the students' acquisition of oral ability, written ability and cultural knowledge – against the alternative hypothesis – that hybrid learning makes a difference.

We test three dependent variables – perceived oral ability, perceived written ability and perceived acquisition of cultural knowledge. Again, the independent variable is hybrid learning - students in SPAN 115 use hybrid learning, whereas students in SPAN 110 do not. The association of these variables is tested using the 'Independent Samples T-Test'. One sample is students who are enrolled in SPAN 110, without hybrid learning. The other sample is students who are enrolled in SPAN 115, with hybrid learning.

For simplicity of presentation we will present both T-tests together.

- We can reject the null hypothesis that the variance in acquisition of oral abilities between SPAN 110 and SPAN 115 is equal. The significance level of .004 demonstrates that it is unlikely the variances are equal.
- We accept the null hypothesis that the variances in written ability are equal;
- We can reject the null hypothesis that the variance in acquisition of cultural knowledge between SPAN 110 and SPAN 115 is equal. The significance level of .004 demonstrates that it is unlikely the variances are equal.

Table 5 - Hybrid Course Learning with Oral Ability, Written Ability and Cultural Knowledge-SPAN 115 and SPAN 110

Levene's Test for Equality of Variances		F	Sig.
Acquired oral abilities	Equal variances assumed	13.442	.000
Acquired written abilities	Equal variances assumed	.177	.674
Acquired cultural knowledge	Equal variances assumed	8.151	.005

As a result of the T-test, we accept the alternative hypothesis – students in SPAN 110 and SPAN 115 show differences in perception of oral ability and cultural knowledge acquisition.

Since the null hypothesis was rejected, we did further testing to determine the size and direction of the differences between the two groups of students. We want to know 1) how much difference we see between them, and 2) whether more students in SPAN 115 perceive that they acquired oral ability and cultural knowledge.

Oral ability acquisition

The cross tabulation of oral ability acquisition with the course groups of SPAN 110 and SPAN 115 is presented in Table 6 below:

Table 6 Crosstabs of Course with Oral Ability Acquisition-SPAN 115 and SPAN 110

			SPAN110	SPAN115	Total
Acquired oral abilities	Strongly disagree	Count	2	1	3
		% within Acquired vocabulary	66.7%	33.3%	100.0%
	Disagree	Count	4	6	10
		% within Acquired vocabulary	40.0%	60.0%	100.0%
	Not sure or neutral	Count	8	17	25
		% within Acquired vocabulary	32.0%	68.0%	100.0%
	Agree	Count	18	85	103
		% within Acquired vocabulary	17.5%	82.5%	100.0%
	Strongly agree	Count	19	33	52
		% within Acquired vocabulary	36.5%	63.5%	100.0%
Total		Count	51	142	193
		% within Acquired vocabulary	26.4%	73.6%	100.0%

Chi-Square Test for Table 6			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.825	4	.029
N of Valid Cases	193		

For oral ability acquisition, the Chi-Square test significance of .029 again tells us that the two variables are correlated.

In plain English, we can understand the results as follows:

- Four out of five (82.5%) of those students who agree that they acquired oral ability are in SPAN 115, as compared to less than one in five (17.5%) of SPAN 110 students.
- Two out of three (63.5%%) of those students who strongly agree that they acquired oral ability are in SPAN 115, as compared to one out of three (36.5%) of SPAN 110 students.
- The direction of the difference is clear – more hybrid course students than classroom students perceive that they acquired oral ability.
- The magnitude of the difference is also clear – To more easily interpret the results, we add the 'agree and strongly agree' responses together:
  - 76% of students who agree or strongly agree they acquired oral ability are in SPAN 115
  - 24% of students who agree or strongly agree they acquired oral ability are in SPAN 110.

Cultural Knowledge acquisition

For cultural knowledge acquisition, the Chi-Square test significance of .053 again leads us to conclude that cultural knowledge acquisition is correlated with the students' course.

Table 7 Crosstabs of Course with Cultural Knowledge Acquisition-SPAN 115 and SPAN 110

			SPAN110	SPAN115	Total
Acquired cultural knowledge	Strongly disagree	Count	1	10	11
		% within Acquired vocabulary	9.1%	90.9%	100.0%
	Disagree	Count	9	18	27
		% within Acquired vocabulary	33.3%	66.7%	100.0%
	Not sure or neutral	Count	10	29	39
		% within Acquired vocabulary	25.6%	74.4%	100.0%
	Agree	Count	89	44	133
		% within Acquired vocabulary	66.9%	33.1%	100.0%
	Strongly agree	Count	36	33	69
		% within Acquired vocabulary	52.2%	47.8%	100.0%
Total		Count	51	145	134
		% within Acquired vocabulary	26.4%	52.0%	48.0%

Chi-Square Test for Table 7			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	34.596[a]	4	.000
N of Valid Cases	279		

In plain English, we can understand the results as follows:

- Four out of five (80.2%) of those students who agree that they acquired cultural knowledge are in SPAN 115, as compared to only one in five (19.2%) of SPAN 110 students.
- Two in three (67.4%) of those students who strongly agree that they acquired cultural knowledge are in SPAN 115, as compared to one in three (32.8%) of SPAN 110 students.
- The direction of the difference is clear – more hybrid course students than classroom students perceive that they acquired cultural knowledge.
- The magnitude of the difference is also clear. To more easily interpret the results, we add the 'agree and strongly agree' responses together:
  - 77% of students who agree or strongly agree they acquired cultural knowledge are in SPAN 115.
  - 23% of students who agree or strongly agree they acquired cultural knowledge are in SPAN 110.

c. Hypothesis 3 – Pursuing Spanish studies and election of a Spanish major/minor, compared to SPAN 110 students

We now turn to a test of the null hypothesis that hybrid learning makes no difference in the students' interest in pursuing Spanish studies and election of a Spanish major or minor – against the alternative hypothesis – that hybrid learning makes a difference.

We test three dependent variables – interest in pursuing Spanish studies and election of a Spanish major, and election of a Spanish minor. Again, the independent variable is hybrid learning - students in SPAN 115 use hybrid learning, whereas students in SPAN 110 do not. The association of these variables is tested using the 'Independent Samples T-Test'. One sample is students who are enrolled in SPAN 110, without hybrid learning. The other sample is students who are enrolled in SPAN 115, with hybrid learning.

For simplicity of presentation we will present all three T-tests together.

- We can reject the null hypothesis that the variance in acquisition of an interest to learn more about Spanish between SPAN 110 and SPAN 115 is equal. The significance level of .009 demonstrates that it is unlikely the variances are equal.
- We can reject the null hypothesis that the variance in interest in a Spanish major between SPAN 110 and SPAN 115 is equal. The significance level of .000 demonstrates that it is unlikely the variances are equal.
- We must accept the null hypothesis that the variance in interest in a Spanish minor between SPAN 110 and SPAN 115 is equal. The significance level of .212 shows us that it is likely the variances are equal.

Table 8 - Hybrid course learning with Interest in Learning More, in a Spanish major/minor-SPAN 115 and SPAN 110

Levene's Test for Equality of Variances		F	Sig.
Acquired interest to learn more	Equal variances assumed	7.065	.009
Acquired interest in Spanish major	Equal variances assumed	12.678	.000
Acquired interest in Spanish minor	Equal variances assumed	1.570	.212

As a result of the T-test, we accept the alternative hypothesis for two variables – students in SPAN 110 and SPAN 115 show differences in an interest to learn more and to take up a Spanish major.

Since the null hypothesis was rejected in these two variable, we did further testing to determine the size and direction of the differences between the two groups of students. We want to know 1) how much difference we see between them, and 2) whether more students in SPAN 115 perceive that they want to learn more and to take up a Spanish major.

For the third variable – interest in a Spanish minor – the acceptance of the null hypothesis means that it is pointless to pursue further analysis.

Pursuing Spanish Studies

For further pursuit of Spanish studies, the Chi-Square test significance of .020 again leads us to reject the null hypothesis that the data are independent.

The cross tabulation of further pursuit of Spanish studies with the course groups of SPAN 110 and SPAN 115 is presented in Table 9 below:

Table 9 Crosstabs of Course with Pursuing Spanish Studies-SPAN 115 and SPAN 110

			SPAN110	SPAN115	Total
Acquired interest to pursue Spanish studies	Strongly disagree	Count	5	7	12
		% within Acquired vocabulary	41.7%	58.3%	100.0
	Disagree	Count	5	13	18
		% within Acquired vocabulary	27.8%	72.2%	100.0
	Not sure or neutral	Count	9	34	43
		% within Acquired vocabulary	20.9%	79.1%	100.0
	Agree	Count	15	67	82
		% within Acquired vocabulary	18.3%	81.7%	100.0
	Strongly agree	Count	16	19	35
		% within Acquired vocabulary	45.7%	54.3%	100.0
Total		Count	51	50	140
		% within Acquired vocabulary	26.4%	26.3%	73.7%

Chi-Square Test for Table 9			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.636[a]	4	.020
N of Valid Cases	190		

In plain English, we can understand the results as follows:

- Four out of five (81.7%) of those students who agree that they are interested in further pursuit of Spanish studies are in SPAN 115, as compared to less than one in five (18.3%) of SPAN 110 students.
- More than half (54.3%) of those students who strongly agree that they are interested in further pursuit of Spanish studies are in SPAN 115, as compared to less than half (45.7%) of SPAN 110 students.
- The direction of the difference is clear – more hybrid course students than classroom students perceive an interest in further pursuit of Spanish studies.
- The magnitude of the difference is also clear – to more easily interpret the results, we add the 'agree and strongly agree' responses together:
  - 74% of students who agree or strongly agree they are interested in further pursuit of Spanish studies are in SPAN 115
  - 26% of students who agree or strongly agree are interested in further pursuit of Spanish studies are in SPAN 110.

Interest in a Spanish major

For interest in a Spanish major, the Chi-Square test significance of .037 again leads us to reject the null hypothesis that the data are independent.

Table 10 Crosstabs of Course with Interest in a Spanish Major-SPAN 115 and SPAN 110

			SPAN110	SPAN115	Total
Acquired interest in Spanish major	Strongly disagree	Count	13	40	53
		% within Acquired vocabulary	24.5%	75.5%	100.0%
	Disagree	Count	16	64	80
		% within Acquired vocabulary	20.0%	80.0%	100.0%
	Not sure or neutral	Count	11	27	38
		% within Acquired vocabulary	28.9%	71.1%	100.0%
	Agree	Count	6	7	13
		% within Acquired vocabulary	46.2%	53.8%	100.0%
	Strongly agree	Count	2	0	2
		% within Acquired vocabulary	100.0%		100.0%
Total		Count	48	138	186
		% within Acquired vocabulary	25.8%	74.2%	100.0%

Chi-Square Test for Table 10			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.217[a]	4	.037
N of Valid Cases	186		

In plain English, we can understand the results as follows:

- A little more than half (53.8%) of those students who agree that they are interested in a Spanish major are in SPAN 115, as compared to less than half (46.2% of SPAN 110 students.
- However, none of those students who strongly agree that they are interested in a Spanish major are in SPAN 115, as compared to the SPAN 110 students.
- The direction of the difference is clear – more hybrid course students than classroom students agree that they are interested in a Spanish major.
- The magnitude of the difference is also clear. To more easily interpret the results, we add the 'agree and strongly agree' responses together:
  - 47% of students who agree or strongly agree that they are interested in a Spanish major are in SPAN 115
  - 53% of students who agree or strongly agree that they are interested in a Spanish major are in SPAN 110.
- These results are somewhat anomalous, probably because of the low number of students who 'strongly agree' that they would pursue a Spanish major. Only 2 students fall into this category – the small absolute number skews the results.

d. Hypothesis 4 – online course learning and classroom training, compared to SPAN 120 students

We first test the null hypothesis – that hybrid course learning makes no difference in the students' acquisition of grammar and vocabulary – against the alternative hypothesis – that hybrid course learning makes a difference. In this test, we compare SPAN 120 students to SPAN 115 at the end of term.

We test two dependent variables – perceived vocabulary acquisition and perceived grammar acquisition. The independent variable is hybrid course learning, students in SPAN 115 use hybrid course learning, whereas students in SPAN 120 do not. The association of these variables is tested using the 'Independent Samples T-Test'. One sample is students who are enrolled in SPAN 120, without hybrid course learning. The

other sample is students who are enrolled in SPAN 115, with hybrid course learning.

We can reject the null hypothesis that the variance between SPAN 120 and SPAN 115 students is equal. The significance level of .000 for vocabulary acquisition demonstrates that it is unlikely the variances are equal.

Table 11 - Hybrid Course Learning–SPAN 115 and SPAN 120

Levene's Test for Equality of Variances		F	Sig.
Acquired vocabulary	Equal variances assumed	17.249	.000
Acquired grammar	Equal variances assumed	13.065	.000

As a result of the T-test, we accept the alternative hypothesis – students in SPAN 120 and SPAN 115 show differences in perception of vocabulary acquisition and grammar acquisition.

Since the null hypothesis was rejected, we did further testing to determine the size and direction of the differences between the two groups of students. We want to know 1) how much difference we see between them, and 2) whether more students in SPAN 115 perceive that they acquired vocabulary and grammar, when compared to SPAN 120.

Vocabulary acquisition

For vocabulary acquisition, the Chi-Square test significance of .005 again leads us to reject the null hypothesis that the data are independent.

Table 12 Crosstabs of Course with Vocabulary Acquisition-SPAN 115 and SPAN 120

			SPAN115	SPAN120	Total
Acquired vocabulary	Strongly disagree	Count	3	7	10
		% within Acquired vocabulary	30.0%	70.0%	100.0
	Disagree	Count	5	11	16
		% within Acquired vocabulary	31.3%	68.8%	100.0
	Not sure or neutral	Count	16	15	31
		% within Acquired vocabulary	51.6%	48.4%	100.0
	Agree	Count	103	68	171
		% within Acquired vocabulary	60.2%	39.8%	100.0
	Strongly agree	Count	19	34	53
		% within Acquired vocabulary	35.8%	64.2%	100.0
Total		Count	146	135	281
		% within Acquired vocabulary	52.0%	48.0%	100.0

Chi-Square Test for Table 12			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.883[a]	4	.005
N of Valid Cases	281		

In plain English, we can understand the results as follows:

- Three out of five (60.2%) of those students who agree that they acquired vocabulary are in SPAN 115, as compared to only two in five (39.8%) of SPAN 120 students.
  - The differences are not as great as those for SPAN 110.
- Two out of three (64.2%) of those students who strongly agree that they acquired vocabulary are in SPAN 115, as compared to one in three (35.8%) of SPAN 120 students.
  - The differences are somewhat greater than those for SPAN 110.
- The direction of the difference is clear – more hybrid course students than classroom students perceive that they acquired vocabulary.
- The magnitude of the difference is also clear – To more easily interpret the results, we add the 'agree and strongly agree' responses together:
  - 54% of students who agree or strongly agree they acquired vocabulary are in SPAN 115
  - 46% of students who agree or strongly agree they acquired vocabulary are in SPAN 120.

Grammar acquisition

We reject the null hypothesis that the variance between SPAN 120 and SPAN 115 students is equal. The significance level of .015 for grammar acquisition demonstrates that it is unlikely the variances are equal.

Table 13 Crosstabs of Course with Grammar Acquisition-SPAN 115 and SPAN 120

			SPAN115	SPAN120	Total
Acquired grammar	Strongly disagree	Count	2	8	10
		% within Acquired vocabulary	20.0%	80.0%	100.0
	Disagree	Count	9	11	20
		% within Acquired vocabulary	45.0%	55.0%	100.0
	Not sure or neutral	Count	22	18	40
		% within Acquired vocabulary	55.0%	45.0%	100.0
	Agree	Count	94	65	159
		% within Acquired vocabulary	59.1%	40.9%	100.0
	Strongly agree	Count	19	32	51
		% within Acquired vocabulary	37.3%	62.7%	100.0
Total		Count	146	134	280
		% within Acquired vocabulary	52.1%	47.9%	100.0

Chi-Square Test for Table 13			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi- Square	12.31[a]	4	.015
Likelihood Ratio	12.611	4	.013
N of Valid Cases	280		

For grammar acquisition, the Chi-Square test significance of .015 again leads us to reject the null hypothesis that the data are independent.

In plain English, we can understand the results as follows:

- Three out of five (59.1%) of those students who agree that they acquired grammar are in SPAN 115, as compared to two in five (40.9%) of SPAN 120 students.
  - The differences are not as marked as those for SPAN 110.
- Only one in three (37.3%) of those students who strongly agree that they acquired grammar are in SPAN 115, as compared to two in three (62.7%) of SPAN 120 students.
  - The differences for 'strongly agree' are in the opposite direction: more SPAN 120 students strongly agree that they acquired grammar.
- The direction of the difference becomes clearer when we group the responses. To more easily interpret the

results, we add the 'agree and strongly agree' responses together:

- 54% of students who agree or strongly agree they acquired grammar are in SPAN 115
- 46% of students who agree or strongly agree they acquired grammar are in SPAN 120.

e. Hypothesis 5 – oral ability, written ability, and cultural knowledge, compared to SPAN 120 students

We now turn to a test of the null hypothesis that hybrid course learning makes no difference in the students' acquisition of oral ability, written ability, and cultural knowledge – against the alternative hypothesis – that hybrid course learning makes a difference. Again, we compare SPAN 120 students to SPAN 115 at end of term.

We test two dependent variables – perceived oral ability, perceived written ability, and perceived acquisition of cultural knowledge. The independent variable is hybrid course learning - students in SPAN 115 use hybrid course learning, whereas students in SPAN 120 do not. The association of these variables is tested using the 'Independent Samples T-Test'. One sample is students who are enrolled in SPAN 120, without hybrid course learning. The other sample is students who are enrolled in SPAN 115, with hybrid course learning.

For simplicity of presentation we will present both T-tests together.

- We can reject the null hypothesis that the variance in acquisition of oral abilities between SPAN 120 and SPAN 115 is equal. The significance level of .000 demonstrates that it is unlikely the variances are equal.
- Unlike the SPAN 110 group, with SPAN 120 we can reject the null hypothesis that the variance in acquisition of written between SPAN 120 and SPAN 115 is equal. The significance level of .014 demonstrates that it is unlikely the variances are equal.
- We can reject the null hypothesis that the variance in acquisition of cultural knowledge between SPAN 120 and SPAN 115 is equal. The significance level of .000 demonstrates that it is unlikely the variances are equal.

Table 14 - Hybrid Course Learning with Oral Ability and Cultural Knowledge-SPAN 115 and SPAN 120

Levene's Test for Equality of Variances		F	Sig.
Acquired oral abilities	Equal variances assumed	25.699	.000
Acquired written abilities	Equal variances assumed	6.141	.014
Acquired cultural knowledge	Equal variances assumed	50.687	.000

As a result of the T-test, we accept the alternative hypothesis – students in SPAN 120 and SPAN 115 show differences in perception of oral ability, written ability and cultural knowledge acquisition.

Since the null hypothesis was rejected, we did further testing to determine the size and direction of the differences between the two groups of students. We want to know 1) how much difference we see between them, and 2) whether more students in SPAN 115 perceive that they acquired oral ability, written ability and cultural knowledge.

Oral ability acquisition

The cross tabulation of oral ability acquisition with the course groups of SPAN 120 and SPAN 115 is presented in Table 15 below:

Table 15 Crosstabs of Course with Oral Ability Acquisition-SPAN 115 and SPAN 120

			SPAN115	SPAN120	Total
Acquired oral abilities	Strongly disagree	Count	3	9	12
		% within Acquired vocabulary	25.0%	75.0%	100.0
	Disagree	Count	5	14	19
		% within Acquired vocabulary	26.3%	73.7%	100.0
	Not sure or neutral	Count	27	24	51
		% within Acquired vocabulary	52.9%	47.1%	100.0
	Agree	Count	87	53	140
		% within Acquired vocabulary	62.1%	37.9%	100.0
	Strongly agree	Count	24	34	58
		% within Acquired vocabulary	41.4%	58.6%	100.0
Total		Count	146	134	280
		% within Acquired vocabulary	52.1%	47.9%	100.0

Chi-Square Test for Table 16			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi Square	16.938	4	.002
N of Valid Cases	280		

For oral ability acquisition, the Chi-Square test significance of .002 again leads us to reject the null hypothesis that the data are independent.

In plain English, we can understand the results as follows:

- Two out of three (62.1%) of those students who agree that they acquired oral ability are in SPAN 115, as compared to one in three (37.9%) of SPAN 120 students.
- Two out of five (41.4%%) of those students who strongly agree that they acquired oral ability are in SPAN 115, as compared to three out of five (58.6%) of SPAN 120 students.
  - The differences for 'strongly agree' are in the opposite direction as they were for SPAN 110: more SPAN 120 students strongly agree that they acquired oral ability.
- The direction of the difference becomes clearer when we group the responses. To more easily interpret the results, we add the 'agree and strongly agree' responses together:
  - 56% of students who agree or strongly agree they acquired oral ability are in SPAN 115
  - 44% of students who agree or strongly agree they acquired oral ability are in SPAN 120.

Written ability acquisition

The cross tabulation of written ability acquisition with the course groups of SPAN 120 and SPAN 115 is presented in Table 16 below:

Table 16 Crosstabs of Course with Written Ability Acquisition-SPAN 115 and SPAN 120

			SPAN115	SPAN120	Total
Acquired written abilities	Strongly disagree	Count	1	6	7
		% within Acquired vocabulary	14.3%	85.7%	100.0%
	Disagree	Count	14	13	27
		% within Acquired vocabulary	51.9%	48.1%	100.0%
	Not sure or neutral	Count	34	24	58
		% within Acquired vocabulary	58.6%	41.4%	100.0%
	Agree	Count	82	61	143
		% within Acquired vocabulary	57.3%	42.7%	100.0%
	Strongly agree	Count	17	31	48
		% within Acquired vocabulary	35.4%	64.6%	100.0%
Total		Count	148	135	283
		% within Acquired vocabulary	52.3%	47.7%	100.0%

Chi-Square Test for Table 18			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi Square	11.928[a]	4	.018
N of Valid Cases	280		

For written ability acquisition, the Chi-Square test significance of .018 again leads us to reject the null hypothesis that the data are independent.

In plain English, we can understand the results as follows:

- Only two in five (42.7%) of those students who agree that they acquired written ability are in SPAN 115, as compared to almost three out of five (57.3%) of SPAN 120 students.
- Only one out of three (35.4%) of those students who strongly agree that they acquired written ability are in SPAN 115, as compared to two out of three (64.6%) of SPAN 120 students.
- The direction of the difference becomes less clear when we group the responses. To more easily interpret the results, we add the 'agree and strongly agree' responses together:
  - Only 48.2% of students who agree or strongly agree they acquired written ability are in SPAN 120;
  - 51.8% of students who agree or strongly agree they acquired written ability are in SPAN 115.

Cultural Knowledge acquisition

For cultural knowledge acquisition, the Chi-Square test significance of .000 again leads us to reject the null hypothesis that the data are independent.

Table 17 Crosstabs of Course with Cultural Knowledge Acquisition-SPAN 115 and SPAN 120

			SPAN115	SPAN120	Total
Acquired cultural knowledge	Strongly disagree	Count	1	10	11
		% within Acquired vocabulary	9.1%	90.9%	100.0
	Disagree	Count	9	18	27
		% within Acquired vocabulary	33.3%	66.7%	100.0
	Not sure or neutral	Count	10	29	39
		% within Acquired vocabulary	25.6%	74.4%	100.0
	Agree	Count	89	44	133
		% within Acquired vocabulary	66.9%	33.1%	100.0
	Strongly agree	Count	36	33	69
		% within Acquired vocabulary	52.2%	47.8%	100.0
Total		Count	145	134	279
		% within Acquired vocabulary	52.0%	48.0%	100.0

Chi-Square Test for Table 17			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi Square	34.596[a]	4	.000
N of Valid Cases	280		

In plain English, we can understand the results as follows:

- Two out of three (66.9%) of those students who agree that they acquired cultural knowledge are in SPAN 115, as compared to one in three (33.1%)in SPAN 120.
- Slightly more than half (52.2%) of those students who strongly agree that they acquired cultural knowledge are in SPAN 115, compared to 47.8% of SPAN 120 students.
  - The differences for 'strongly agree' are in the opposite direction as they were for SPAN 110: more SPAN 120 students strongly agree that they acquired cultural knowledge.
- The direction of the difference becomes clearer when we group the responses. To more easily interpret the

results, we add the 'agree and strongly agree' responses together:

- 52% of students who agree or strongly agree are in SPAN 115 compare to 48% of students in SPAN 120.
- As was the case with acquisition of oral abilities, we find a puzzling difference – whereas more students in SPAN 120 'agree' that they acquired cultural knowledge, comparatively fewer students 'strongly agree.'

f. Hypothesis 6 – Pursuing Spanish studies and election of a Spanish major/minor, compared to SPAN 120 students

We now turn to a test of the null hypothesis that hybrid course learning makes no difference in the students' interest in pursuing Spanish studies and election of a Spanish major or minor – against the alternative hypothesis – that hybrid course learning makes a difference.

We test three dependent variables – interest in pursuing Spanish studies and election of a Spanish major, and election of a Spanish minor. Again, the independent variable is hybrid course learning - students in SPAN 115 use hybrid course learning, whereas students in SPAN 120 do not. The association of these variables is tested using the 'Independent Samples T-Test'. One sample is students who are enrolled in SPAN 120, without hybrid course learning. The other sample is students who are enrolled in SPAN 115, with hybrid course learning.

For simplicity of presentation we will present all three T-tests together.

- We can reject the null hypothesis that the variance in acquisition of an interest to learn more about Spanish between SPAN 120 and SPAN 115 is equal. The significance level of .000 demonstrates that it is unlikely the variances are equal.
- We can reject the null hypothesis that the variance in interest in a Spanish major between SPAN 120 and SPAN 115 is equal. The significance level of .026 demonstrates that it is unlikely the variances are equal.
- We can reject the null hypothesis that the variance in interest in a Spanish minor between SPAN 120

and SPAN 115 is equal. The significance level of .014 shows us that it is unlikely the variances are equal.

Table 18 - Hybrid course learning with interest in learning more-SPAN 115 and SPAN 120

Levene's Test for Equality of Variances		F	Sig.
Acquired interest to learn more	Equal variances assumed	19.341	.000
Acquired interest in Spanish major	Equal variances assumed	5.022	.026
Acquired interest in Spanish minor	Equal variances assumed	6.128	.014

As a result of the T-test, we accept the alternative hypothesis for two variables – students in SPAN 120 and SPAN 115 show differences in an interest to learn more and to take up a Spanish major. For the third variable – interest in a Spanish minor – unlike the comparison to SPAN 110, the null hypothesis is also rejected.

Since the null hypothesis was rejected in these three variables, we did further testing to determine the size and direction of the differences between the two groups of students. We want to know 1) how much difference we see between them, and 2) whether more students in SPAN 115 perceive that they acquired want to pursue more Spanish studies or to take up a Spanish major.

Pursuing Spanish Studies

For further pursuit of Spanish studies, the Chi-Square test significance of .029 again leads us to reject the null hypothesis that the data are independent.

The cross tabulation of further pursuit of Spanish studies with the course groups of SPAN 120 and SPAN 115 is presented in Table 19 below:

Table 19 Crosstabs of Course with Pursuing Spanish Studies·SPAN 115 and SPAN 120

			SPAN115	SPAN120	Total
Acquired interest to learn more	Strongly disagree	Count	6	15	21
		% within Acquired vocabulary	28.6%	71.4%	100.0
	Disagree	Count	14	22	36
		% within Acquired vocabulary	38.9%	61.1%	100.0
	Not sure or neutral	Count	33	25	58
		% within Acquired vocabulary	56.9%	43.1%	100.0
	Agree	Count	68	38	106
		% within Acquired vocabulary	64.2%	35.8%	100.0
	Strongly agree	Count	25	32	57
		% within Acquired vocabulary	43.9%	56.1%	100.0
Total		Count	146	132	278
		% within Acquired vocabulary	52.5%	47.5%	100.0

Chi-Square Test for Table 19			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi Square	15.423[a]	4	.004
N of Valid Cases	280		

In plain English, we can understand the results as follows:

- Two out of three (64.2%) of those students who agree that they are interested in further studies are in SPAN 115, compared to one in three (35.8%) of SPAN 120 students.
- Slightly more than two out of five (43.9%) of those students who strongly agree that they are interested in further pursuit of Spanish studies are in SPAN 115, as compared to almost three in five (56.1%) of SPAN 120 students.
  - The differences for 'strongly agree' are in the opposite direction as they were for SPAN 110: more SPAN 120 students strongly agree that they want to pursue further studies in Spanish.
- The direction of the difference becomes clearer when we group the responses. To more easily interpret the results, we add the 'agree and strongly agree' responses together:
  - 57% of students who agree or strongly agree are in SPAN 115, compared to 43% of students in SPAN 120.
  - As was the case with acquisition of oral abilities, we find a puzzling difference – whereas more stu-

dents in SPAN 120 'agree' that they want to pursue further studies in Spanish, comparatively fewer students 'strongly agree.'

Interest in a Spanish major

With regard to interest in a Spanish major, the Chi-Square test significance of .345 leads us to accept the null hypothesis that the data are independent. This is the opposite result from the T-Test, an anomaly that will require further analysis.

Interest in a Spanish minor

With regard to interest in a Spanish minor, the Chi-Square test significance of .166 leads us to accept the null hypothesis that the data are independent. This is also the opposite result from the T-Test, an anomaly that will require further analysis.

g. Hypothesis 7

Another hypothesis we explore in this report is that students who chose Spanish voluntarily will have a higher level of grammar acquisition, a higher level of vocabulary acquisition, a higher level of oral ability, a higher level of written ability, more cultural knowledge, a greater interest in pursuing Spanish, and more likelihood of choosing a Spanish major or minor.

The results of this survey lead us to reject the null hypothesis for all dependent variables, as can be seen in Table 20 below:

Table 20 Voluntary Choice of Spanish

Levene's Test for Equality of Variances		F	Sig.
Acquired vocabulary	Equal variances	31.551	.000
Acquired grammar	Equal variances	41.690	.000
Acquired oral abilities	Equal variances	49.295	.000
Acquired written abilities	Equal variances	23.889	.000
Acquired cultural knowledge	Equal variances	38.872	.000
Acquired interest to learn more	Equal variances	24.670	.000
Acquired interest in Spanish	Equal variances	7.349	.007
Acquired interest in Spanish	Equal variances	12.940	.000

We present a summary of the results of the cross tabulations for each of the dependent variables in Table 21 below; the details are in Appendix 7.A.

Table 21 Impact of Voluntary Choice of Spanish

Student Perception	Spanish not the student's choice	Spanish chosen by the student	Pearson Chi-Square
Acquired Vocabulary	30.4%	69.6%	.000
Acquired grammar	27.6%	72.4%	.000
Acquired oral abilities	27.6%	72.4%	.000
Acquired written abilities	30.7%	69.1%	.000
Acquired cultural knowledge	27.4%	72.6%	.000
Acquired interest to learn more	17.7%	82.3%	.000
Acquired interest in Spanish major	16.7%	83.3%	.000
Acquired interest in Spanish minor	13.8%	86.2%	.000

- For all eight of the study variables, the Chi-Square significance level of .000 demonstrates that the choice of Spanish is correlated with all eight study variables.
- In all cases, the voluntary choice of Spanish is correlated with a more positive outcome - a higher level of grammar acquisition, a higher level of vocabulary acquisition, a higher level of oral ability, a higher level of written ability more cultural knowledge, a greater interest in pursuing Spanish, and more likelihood of choosing a Spanish major or minor.
- The size of the differences is large in most cases – ranging from 86.2% of voluntary students who acquired an interest in a Spanish minor, to 69.6% of voluntary students who acquired grammar.

Hypothesis 8 – Gender

To analyze the impact that demographic variables have on the results of this survey, we performed T-Tests on all 8 dependent variables. The null hypotheses are that gender of the student will have no impact on grammar acquisition, vocabulary acquisition, oral ability, written ability, cultural knowledge, an interest in pursuing Spanish, or the choosing of a Spanish major or minor.

In all 8 dependent variables, the null hypotheses is accepted. Gender has no impact on the variance in student attitudes toward grammar acquisition, vocabulary acquisition, oral abili-

ty, written ability, cultural knowledge, an interest in pursuing Spanish, or choosing a Spanish major or minor.

Table 22 T-Tests of Dependent Variables by Gender

Levene's Test for Equality of Variances		F	Sig.
Acquired vocabulary	Equal variances assumed	.690	.407
Acquired grammar	Equal variances assumed	.015	.903
Acquired oral abilities	Equal variances assumed	.228	.633
Acquired written abilities	Equal variances assumed	1.765	.185
Acquired cultural knowledge	Equal variances assumed	.041	.839
Acquired interest to learn more	Equal variances assumed	.022	.882
Acquired interest in Spanish major	Equal variances assumed	3.663	.056
Acquired interest in Spanish minor	Equal variances assumed	.999	.318

h. Hypothesis 9 – Class Level

We also analyzed the impact of class level on the 8 dependent variables. The null hypotheses are that class level of the student will have no impact on grammar acquisition, vocabulary acquisition, oral ability, written ability, cultural knowledge, an interest in pursuing Spanish, or the choosing of a Spanish major or minor.

Table 23 T-Tests of Dependent Variables by Class Level

Levene's Test for Equality of Variances		F	Sig.
Acquired vocabulary	Equal variances assumed	2.487	.116
Acquired grammar	Equal variances assumed	.152	.697
Acquired oral abilities	Equal variances assumed	3.586	.059
Acquired written abilities	Equal variances assumed	3.173	.076
Acquired cultural knowledge	Equal variances assumed	6.385	.012
Acquired interest to learn more	Equal variances assumed	.307	.580
Acquired interest in Spanish major	Equal variances assumed	2.139	.144
Acquired interest in Spanish minor	Equal variances assumed	.009	.924

Table 23 T-Tests of Dependent Variables by Class Level

Levene's Test for Equality of Variances		F	Sig.
Acquired vocabulary	Equal variances assumed	2.487	.116
Acquired grammar	Equal variances assumed	.152	.697
Acquired oral abilities	Equal variances assumed	3.586	.059
Acquired written abilities	Equal variances assumed	3.173	.076
Acquired cultural knowledge	Equal variances assumed	6.385	.012
Acquired interest to learn more	Equal variances assumed	.307	.580
Acquired interest in Spanish major	Equal variances assumed	2.139	.144
Acquired interest in Spanish minor	Equal variances assumed	.009	.924

Given the results of the T-tests, the null hypothesis is accepted in all but one of the cases – acquisition of cultural knowledge.

Given this result, we performed a further test – cross tabulation of class level with acquisition of cultural knowledge. The Chi Square result of .015 indicates a correlation between class level and acquisition of cultural knowledge.

Table 24 Crosstabs of class level with acquisition of cultural knowledge

			Freshman or sophomore	Junior or senior	No answer	Total
Acquired cultural knowledge	Strongly disagree	Count	4	11	0	15
		% within Acquired vocabulary	26.7%	73.3%	0.0%	100.0%
	Disagree	Count	22	18	0	40
		% within Acquired vocabulary	55.0%	45.0%	0.0%	100.0%
	Not sure or neutral	Count	39	22	1	62
		% within Acquired vocabulary	62.9%	35.5%	1.6%	100.0%
	Agree	Count	129	87	1	217
		% within Acquired vocabulary	59.4%	40.1%	.5%	100.0%
	Strongly agree	Count	42	60	2	104
		% within Acquired vocabulary	40.4%	57.7%	1.9%	100.0%
Total		Count	236	198	4	438
		% within Acquired vocabulary	53.9%	45.2%	.9%	100.0%

Chi-Square Test for Table 24			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi Square	19.018[a]	8	.015
N of Valid Cases	438		

In plain English:

- Three of five (59.4%) freshmen or sophomore state they acquired cultural knowledge.
- When we collapse the two population results into one – "agree and strongly agree", 53.3% of freshman/sophomores agree, compared to 45.8% of upperclassmen.

i. Hypothesis 10 – Instructor

The last hypothesis that we tested was whether the instructor has a significant impact on students' perceptions of what they acquired in their Spanish class.

The results of the test show that instructor does make a difference in the student's acquisition score.

Table 25 Analysis of Variance of Hypothesis 10 - Instructor

			Sum of Squares	Mean Square	F	Sig.
Acquisition score	Between groups	Combined	3846.675	7	549.525	24.977
			10340.647	470	22.001	
			14187.323	477		

Measures of Association		
	Eta	Eta Squared
Acquisition Score	.521	.271

In Table 25, the Eta Squared measure of association tells us that 27% of the variance in 'acquisition' score for the student is correlated with the instructor. In statistics, it is generally accepted that an effect size of 0.2 is small, 0.5 is medium, and 0.8 is large. Using this rule, known as the 'Cohen effect size', it is clear that instructor has a small effect on the student acquisition score, albeit statistically significant.

The details of the differences in acquisition scores are included in the table below:

Table 26 Differences in Acquisition Score by Instructor

Instructor	Mean	N	Std. Deviation
Instructor A	29.7482	69	4.49962
Instructor B	27.6829	41	2.85251
Instructor C	26.9403	44	3.26656
Instructor D	25.9135	13	3.13971
Instructor E	25.6631	105	4.31320
Instructor F	24.4529	69	4.32493
Instructor G	23.2679	63	5.41382
Instructor H	20.3632	74	6.45042
All Instructors	25.2395	478	5.45370

The mean 'acquisition score for all instructors is 25.2. The range is from Instructor A with a high score of 29.7 to Instructor H with a low of 20.4.

6. Reliability of the survey data and correlation of items

As noted in Section 3.E above, the results of the survey are highly reliable, with a Cronbach's alpha value of .905. With this analysis, we also conducted an inter-item correlation analysis, to see which items are most closely correlated. The resulting inter-item correlation matrix is in the table below:

Table 27 Inter-item correlation matrix for 8 dependent variables

	Acquired vocabulary	Acquired grammar	Acquired oral abilities	Acquired written abilities	Acquired cultural knowledge	Acquired interest to learn more	Acquired interest in Spanish major	Acquired interest in Spanish minor
Acquired vocabulary	1.000	.909	.814	.741	.666	.592	.265	.306
Acquired grammar	.909	1.000	.808	.737	.633	.566	.263	.301
Acquired oral abilities	.814	.808	1.000	.726	.707	.627	.287	.321
Acquired written abilities	.741	.737	.726	1.000	.598	.551	.259	.287
Acquired cultural knowledge	.666	.633	.707	.598	1.000	.729	.337	.353
Acquired interest to learn more	.592	.566	.627	.551	.729	1.000	.465	.521
Acquired interest in Spanish major	.265	.263	.287	.259	.337	.465	1.000	.833
Acquired interest in Spanish minor	.306	.301	.321	.287	.353	.521	.833	1.000

The most closely correlated results are 'acquisition of vocabulary' and 'acquisition of grammar', with a .909 cor-

relation. Please note that 1.0 is a 'perfect' correlation, as can be seen by the correlation of items with themselves. The least closely correlated items are acquisition of an interest in a Spanish major with acquisition of written abilities – a value of .259.

7. Conclusions

a. Hybrid course learning

The Department believes that with the hybrid course students will acquire a higher level of grammar and vocabulary acquisition because they are self-paced, and completely in charge of this part of the learning process.

Through hypothesis 1 and 4 where we tested the hybrid course component, students recognized the hybrid experience (SPAN 115) as better option for their language core than its face-to-face counterparts SPAN 110 and SPAN 120 in terms of vocabulary and grammar acquisition.

We compared hybrid course students (SPAN 115) with classroom students in SPAN 110 with hypothesis 1. Results show that the direction of the difference is clear: more hybrid students than classroom students perceive that they acquired vocabulary and grammar (74% agree or strongly agree they acquired vocabulary in SPAN 115 against 26% in SPAN 110; and 73% agree or strongly agree they acquired grammar in SPAN 115 against 27% in SPAN 110).

We also compared hybrid course students (SPAN 115) with classroom students in SPAN 120 with hypothesis 4. Results show that the direction of the difference is also clear, although it is not as marked as compared with SPAN 110: more hybrid course students than classroom students perceive that they acquired vocabulary and grammar (54% agree or strongly agree they acquired vocabulary and grammar in SPAN 115 against 46% in SPAN 120).

b. Course content

The content of the hybrid SPAN 115 class went through several innovations in comparison to the previous sequence of SPAN 110 and 120. First, the content of SPAN

110 and 120 two semester classes was combined into one semester omnibus course in SPAN 115. Second, the teaching method combines online learning with classroom instruction. Classroom instruction is devoted for students to practice what they have learnt online (grammar, vocabulary, and pronunciation acquisition). Third, grammar and vocabulary were reduced in a considerable manner, for student to have much more practice in oral abilities and add strong cultural content to the class which will increase students' interest in the study of Hispanic language and culture.

The Department believes that with the hybrid course students will acquire a higher level of oral ability, and cultural knowledge because classroom times are devoted fundamentally to these areas of study.

Perception of the course content was tested in hypothesis 2 and 5 in terms of oral ability, written ability and cultural knowledge acquisition. Students recognized the hybrid experience (SPAN 115) as clearly better than its face-to-face counterparts SPAN 110 and SPAN 120 in general. We compared hybrid course students (SPAN 115) with classroom students in SPAN 110 with hypothesis 2. Results show that the direction of the difference is clear: more hybrid students than classroom students perceive that they acquired oral ability and cultural knowledge (76% agree or strongly agree they acquired oral ability in SPAN 115 against 24% in SPAN 110; and 77% agree or strongly agree they acquired cultural knowledge in SPAN 115 against 23% in SPAN 110), while the written ability are equal in both groups. We also compared hybrid course students (SPAN 115) with classroom students in SPAN 120 with hypothesis 5.

Survey results show that the direction of the difference is also clear, although it is not as marked as compared with SPAN 110: more hybrid course students than classroom students perceive that they acquired oral ability, written ability and cultural knowledge (56% agree or strongly agree they acquired oral ability in SPAN 115 against 44% in SPAN 120; 51.8% agree or strongly agree they acquired written ability in SPAN 115 against 48.2% in SPAN 120; and 52% agree or strongly agree they

acquired cultural knowledge in SPAN 115 against 48% in SPAN 120). Since SPAN 115 has a strong oral practice component and cultural knowledge, it is somewhat surprising that students in SPAN 115 perceived they have acquired more written ability than its counterparts in SPAN 120.

c. Interest in further study

The Department believes that with the hybrid course students will want to pursue more Spanish studies, Spanish Major or Minor, because it will make Spanish studies more appealing to them.

This interest in further study was tested in hypothesis 3 and 6. Students recognized the hybrid experience (SPAN 115) makes them have more interest in further study in Spanish than its face-to-face counterparts SPAN 110 and SPAN 120. We compared hybrid course students (SPAN 115) with classroom students in SPAN 110 with hypothesis 3. Results show that the direction of the difference is clear: more hybrid students than classroom students perceive an interest in further pursuit of Spanish studies (74% agree or strongly agree they want to pursue Spanish studies SPAN 115 against 26% in SPAN 110. We also compared hybrid course students (SPAN 115) with classroom students in SPAN 120 with hypothesis 6. Results show that the direction of the difference is also clear: more hybrid course students than classroom students perceive an interest in further pursuit of Spanish studies (57% agree or strongly agree they acquired oral ability in SPAN 115 against 43% in SPAN 120).

Interest in a Spanish major and minor will require further analysis, because Chi-Square tests give opposite results from the T-Test, an anomaly that will require more data to verify the differences (with SPAN 115 vs SPAN 110 only 2 students falls into the 'strongly agree' category, the small absolute number skews the results).

d. Voluntary choice of Spanish courses

The Department believes that students who chose Spanish voluntarily will have a higher level of grammar acquisition, a higher level of vocabulary acquisition, a

higher level of oral ability, a higher level of written ability, more cultural knowledge, a greater interest in pursuing Spanish, and more likelihood of choosing a Spanish major or minor.

For all eight of the study variables, the Chi-Square significance level of .000 demonstrates that the choice of Spanish is correlated with all eight study variables.

In all cases, the voluntary choice of Spanish is correlated with a more positive outcome – a higher level of grammar acquisition, a higher level of vocabulary acquisition, a higher level of oral ability, a higher level of written ability, more cultural knowledge, a greater interest in pursuing Spanish, and more likelihood of choosing a Spanish major or minor.

The size of the differences is large in most cases – ranging from 86.2% of voluntary students who acquired an interest in a Spanish minor, to 69.6% of voluntary students who acquired grammar.

e. The influence of the instructor

The last hypothesis that we tested was whether the instructor has a significant impact on students' perceptions of what they acquired in their Spanish class.

The results of the test show that instructor does make a difference in the student's acquisition score. 27% of the variance in 'acquisition' score for the student is correlated with the instructor. In statistics, it is generally accepted that an effect size of 0.2 is small, 0.5 is medium, and 0.8 is large. Using this rule, it is clear that instructor has a small effect on the student acquisition score, albeit statistically significant. The mean 'acquisition score for all instructors is 25.2. The range is from Instructor A with a high score of 29.7 to Instructor H with a low of 20.4.

8. needs for further study

As we have seen above, interest in a Spanish major and minor will require further analysis, because Chi-Square tests give opposite results from the T-Test, an anomaly that will require more data to verify the differences. Since this study revealed that the influence of the instructor is

fundamental for the learning experience, I am interested in pursuing a deeper analysis about it.

For further study, I will incorporate the pronunciation acquisition component to the analysis.

Two semesters ago, the department implemented SPAN 115 completely online. In further study, I will compare the hybrid SPAN 115 with the completely online course, to determine if attitudes about the learning experience differ.

NOTAS

[1] http://www.ats.ucla.edu/stat/spss/faq/alpha.html