

## **Hemispheric Dominance and Spanish Vocabulary Proficiency Levels in the Five Macro Skills of the Students in Cebu Technological University, Argao Campus**

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### **Abstract**

This study determined the relationship between hemispheric dominance and Spanish vocabulary proficiency levels in the five macro skills of the Students in Cebu Technological University, Argao Campus. This study used the descriptive correlational method in gathering the data. Research findings revealed that 73% of the respondents belonged to the left-brain dominance, 35.20% belonged to the right-brain dominance, and only 6.40% to the whole-brain dominance. In the Listening Comprehension Test, both male and female respondents obtained a mean score of 15.41, which was considered “very good”. In the second macro skill test of Speaking, both male and female respondents got a mean score of 2.84, “average”. In the Reading Comprehension Test, both the male and female respondents got a mean score of 5.49, “poor”. In the fourth macro skill test of writing, both male and female students got a mean score of 2.60, “fair”. Furthermore, in the fifth macro skill test of viewing, both male and female students got a mean score of 10.56, considered “fair”. It was found that there was no significant relationship between the respondents’ hemispheric dominance and Spanish vocabulary proficiency score in the five macro skills. As to the difference between Spanish vocabulary proficiency scores when grouped according to age, it was found that there was no significant difference in the Spanish vocabulary proficiency scores of the different macro skills. However, when students were grouped according to gender, reading skills were significantly different among the five macro skills.

**Keywords:** Hemispheric Dominance, Spanish Vocabulary Proficiency, Macro Skills

### **Introduction**

The concept of hemisphericity of the brain processing system seems to be popular at present. However, there is hardly a study about its relationship with language proficiency in the five macro skills, i.e., reading, writing, listening, speaking, and viewing. As controlling opposites of the body, Walker (2005) postulated that the left and right sides of the brain have different skills. The left side of the brain deals with numbers, words, problem-solving and reasoning, and scientific skills. The right side of the brain deals with creativity, recognition of faces and other three-dimensional shapes, artistic and musical activities, insight and imagination, and understanding things as a whole.

Ellis (in Tendero, 2000) favorably asserted with his Neuro-functional Theory that there is a connection between neutral anatomy and language function. Based on this theory, Breien-Pierson

(in Tendero, 2000) conducted a study on the role of hemisphericity in the area of student composition and found out, among others, that the right-brained students approached the composition process in a different manner than did the left-brained students and that the right-brained students preferred free writing and creating writing, while the left-brained students enjoyed doing research papers and book reports. It was generalized that students' brain hemisphericity influenced the composing process.

Moreover, Lombardino (2012) argued that language processing is a global construct that refers to the ability to translate sounds heard in speech into meaningful units of information and comprehend them within the context in which they occur. Meanwhile, Walker's studies dwell on the relationship between hemisphericity and writing compositions, whereas those of Lombardino's and Breznitz' are on hemisphericity and visualization, which is an aspect of reading.

Based on the prevailing argument above, it can be gleaned that while writing skills and an aspect of reading comprehension skills were investigated in the studies, while the three other macro skills of listening, speaking, and viewing were never covered. In addition, age and gender were neither considered. Because of that, there was a need to pursue the present study to generate a theory that learners' hemisphericity is related to language vocabulary proficiency in the five macro skills. This study is conducted to help learners, specifically, the Spanish two students, attain ultimate success in their learning and for the Spanish professors to teach and motivate students to become their best. Furthermore, this is conducted to reveal the present Spanish two students' perspectives on this issue and for the Spanish teachers to create immediate intervention so as not to waste the two semesters of Spanish class as an elective course. The findings are beneficial in facilitating the teaching-learning process of Spanish classes and help attain the rationale set by CHED in creating memorandum no. 23, series of 2010.

### **Objectives of the Study**

The study determined the relationship between hemispheric dominance and Spanish vocabulary proficiency scores in the five macro skill tests of listening, speaking, reading, writing, and viewing of the students of Cebu Technological University-Argao for the academic year 2013-2014. Specifically, it aimed to answer the following questions:

1. What is the profile of students in terms of age and gender?
2. Which category of hemispheric preference do the students belong:
  - 2.1 right-brain dominance;
  - 2.2. left-brain dominance; or
  - 2.3. whole-brain dominance?
3. What is the level of the respondent's Spanish vocabulary proficiency score in each of the following macro skills as to listening; speaking; reading; writing; and viewing?
4. Is there a significant relationship between the respondents' hemispheric dominance and Spanish vocabulary proficiency score in each of the five macro skills: listening, speaking, reading, writing, and viewing?
5. Is there a significant relationship between the respondents' hemispheric dominance and global Spanish vocabulary proficiency score?

6. Is there a significant difference in the Spanish vocabulary proficiency scores when respondents are grouped according to age and gender?
7. How can an instructional guide for Spanish 2 be formulated based on the obtained results?

### Methodology

This study used the descriptive correlational method in gathering the data. The processes involved data gathering through survey questions, tabulations, data treatment, presentation, analysis and interpretation of results, and concluding. The last was the recommendation based on the result that was found. The research locale of this study is Cebu Technological University-Argao, situated in the mid-south of the island of Cebu. The respondents of this study are the students from those programs who are taking Spanish 2 courses. Using the lists of students from those programs taking up Spanish 2 courses, all students handled by the researcher of this study at CTU Argao Campus are the study's respondents; thus, purposive random sampling is used.

### Results and Discussions

This section presents the data gathered from the survey conducted to the passengers of PUVs with different route. Data will be presented according to the route of the PUV.

Table 1. Distribution of Respondents By Hemispheric Dominance

Hemispheric Preference	Male		Female		Total	
	f	%	f	%	f	%
Right-brain dominance	13	10.40	31	24.80	44	35.20
Left-brain dominance	21	16.80	52	41.60	73	58.40
Whole-brain dominance	0	0.00	8	6.40	8	6.40
<b>Total</b>	<b>34</b>	<b>27.20</b>	<b>91</b>	<b>72.80</b>	<b>125</b>	<b>100.00</b>

As shown in table 1, 58.40 percent of the 125 respondents belonged to the left-brain dominance, 35.20 percent belonged to the right-brain dominance, and 6.40 percent to the whole-brain dominance category. These findings indicate that most of the respondents were left-brained individuals, and few were right-brained and whole-brained. According to Binns (2000), left-handed people are more dexterous with their left hand than with their right hand: they will probably also use their left hand for personal care, cooking, etc. In Binn's (2000) studies, he also found out that approximately 10-13% of the population is left-handed. People who can use both hands equally well are ambidextrous. True ambidexterity is rare. Generally, males are three times more likely to be left-handed than females. Statistically, one pair's twin has a 20% chance of being left-handed. Gay people may be up to 39% as likely to be left-handed as straight people. This further indicates that concerning hemispheric dominance, and evidence suggests specific brain activity between males and females during mental rotation and verbal and visuospatial tasks (Jordan K., *et. al.*,2002).



## Listening Skill

Listening skill is a mental operation involving processing sound waves, interpreting their meaning, and storing their meaning in memory. It is a communication technique requiring listeners to understand, interpret, and evaluate what they hear.

Table 2. Spanish Vocabulary Proficiency Scores in the Listening Skill Test

Level	Male		Female		Total	
	f	%	f	%	f	%
Excellent	10	8.00	23	18.40	33	26.40
Very Good	10	8.00	38	30.40	48	38.40
Average	10	8.00	26	20.80	36	28.80
Fair	4	3.20	4	3.20	8	6.40
Poor	0	0.00	0	0.00	0	0.00
Total	34	27.20	91	72.80	125	100.00
<b>Mean Score</b>	<b>15.21</b>		<b>15.60</b>		<b>15.41</b>	

<i>Legend:</i>	<i>Raw Score</i>	<i>Proficiency Level</i>
	18 – 20	Excellent
	15 – 17	Very Good
	12 – 14	Average
	6 – 11	Fair
	0 – 5	Poor

It can be gleaned from the Table that in the 20-item Listening Comprehension Test, the males obtained a mean score of 15.21 which was considered "very good"; while the female respondents got a mean score of 15.60 meaning "very good" also. Thus, both the male and female respondents obtained a mean score of 15.41, considered "very good".

The result showing the respondents' "very good" proficiency level in listening skills has supported the opinion of Denham (2010), who asserted that the brain, an organ made up of more than 100 billion neurons, controls virtually everything we do. He said that "dichotic listening demonstrates how, ... this task, two different sounds (or words) are played simultaneously, one into each ear through earphones". For example, the word *cat* may be played into the right ear and *cup* into the left. ... The right ear even seems to have an advantage for decoding linguistic stimuli; even nonsense words, single syllables, and even words played backward seem to be processed more quickly through the right ear and hence through the left hemisphere for processing, resulting in the slight delay.

## Speaking Skill

Speaking is talking to someone, making an utterance with intentional and unintentional dealings, or a discourse of a person who speaks. Oral communication is a vicious cycle involving two persons or more: a decoder and an encoder; the message, the channel, and the feedback.

Speaking is used mainly when people have face-to-face communication, but it can also be over the phone and now over technology such as webcams and video calling.

Table 3. Spanish Vocabulary Proficiency Scores in the Speaking Skill Test

Level	Male		Female		Total	
	f	%	F	%	f	%
Excellent	0	0.00	0	0.00	0	0.00
Very Good	2	1.60	3	2.40	5	4.00
Average	22	17.60	55	44.00	77	61.60
Fair	10	8.00	33	26.40	43	34.40
Poor	0	0.00	0	0.00	0	0.00
Total	34	27.20	91	72.80	125	100.00
<b>Mean Score</b>	<b>2.89</b>		<b>2.78</b>		<b>2.84</b>	

<i>Legend:</i>	<i>Weighted Mean Interval</i>	<i>Description</i>
	4.21 – 5.00	Excellent
	3.41 – 4.20	Very Good
	2.61 – 3.40	Average
	1.81 – 2.60	Fair
	1.00 – 1.80	Poor

In the second macro skill test of speaking, out of the total score of 25, the male students obtained a mean score of 2.89 which means "average". The female respondents got a mean score of 2.78, which was also considered "average", and male and female respondents got a mean score of 2.84, which still means "average". Although Spanish is a foreign language, both gender got an "average score since for Wechsler (2003) verbal comprehension aptitude is the most commonly assessed domain of language processing. Hence, as Senechal et al. (2006) opined, there is a need to learn how to speak the language for one to become proficient.

### Reading Skill

Reading is another important communication skill. It is the way a person gets information from written letters and words.

In the Reading Comprehension Test, the data revealed that the male students obtained a mean score of 4.88, which was considered "poor" and the female students had a mean score of 6.10 which means "fair". Both male and female respondents got a mean score of 5.49 which means "poor". It, therefore, implied that female respondents had a higher proficiency level than males in terms of reading skill tests.

Various researchers support the finding of the study. As to the differences between females and males in terms of various abilities: Concerning motor abilities, Wulf (2007) concluded that men do better at such tasks as throwing things at a target (e.g., a game of darts) or catching objects (e.g., ball games), whereas women have an advantage at the so-called subtle motor activities (e.g., performing movement sequences using fingers, like in weaving, knitting or sewing). Moreover, they (*women*) are better at spelling, reading, and tests in which they have to generate words according to a particular rule (e.g., words that start with a specific letter).

Table 4. Spanish Vocabulary Proficiency Scores in the Reading Skill Test

Level	Male		Female		Total	
	f	%	f	%	f	%
Excellent	0	0.00	0	0.00	0	0.00
Very Good	0	0.00	0	0.00	0	0.00
Average	0	0.00	0	0.00	0	0.00
Fair	12	9.60	52	41.60	64	51.20
Poor	22	17.60	39	31.20	61	48.80
Total	34	27.20	91	72.80	125	100.00
<b>Mean Score</b>	<b>4.88</b>		<b>6.10</b>		<b>5.49</b>	

<i>Legend:</i>	<i>Raw Score</i>	<i>Proficiency Level</i>
	18 – 20	Excellent
	15 – 17	Very Good
	12 -14	Average
	6 – 11	Fair
	0 – 5	Poor

## Writing Skill

Writing is a skill that needs to practice at all times. It is a thinking process that is characterized by a purposeful selection and organization of experience. It is an act of discovery, of communication, of joy.

Table 5. Spanish Vocabulary Proficiency Scores in the Writing Skill Test

Level	Male		Female		Total	
	f	%	f	%	f	%
Excellent	0	0.00	1	0.80	1	0.80
Very Good	1	0.80	1	0.80	2	1.60
Average	15	12.00	45	36.00	60	48.00
Fair	17	13.60	40	32.00	57	45.60
Poor	1	0.80	4	3.20	5	4.00
Total	34	27.20	91	72.80	125	100.00
<b>Mean Score</b>	<b>2.58</b>		<b>2.62</b>		<b>2.60</b>	

<i>Legend:</i>	<i>Weighted Mean Interval</i>	<i>Description</i>
	4.21 – 5.00	Excellent
	3.41 – 4.20	Very Good
	2.61 – 3.40	Average
	1.81 – 2.60	Fair
	1.00 – 1.80	Poor

In the fourth macro skill test of writing, as reflected in Table 5, the data disclosed that the males obtained a mean score of 2.58, which meant "fair", and the females had a mean score of

2.62, which meant "average". However, when combined, both male and female students got a mean score of 2.60, which meant "fair". Here, it is evident that if a person is poor in vocabulary in a particular language, i.e., Spanish vocabulary, he is undoubtedly also poor in writing skills of that language. Along this line, Stahl & Nagy (2006) stated that writing skills include knowledge of meaning conveyed through words (i.e., vocabulary) since vocabulary is central to learning one's native language, learning additional languages, and typical acquisition of reading and writing.

### Viewing Skill

Of all the communication skills, viewing can help the global audiences watch their favorite shows either in movies or on televisions and other viewing devices.

Table 6. Respondent's Spanish Vocabulary Proficiency Scores in the Viewing Skill Test

Level	Male		Female		Total	
	f	%	f	%	f	%
Excellent	0	0.00	0	0.00	0	0.00
Very Good	3	2.40	13	10.40	16	12.80
Average	11	8.80	30	24.00	41	32.80
Fair	18	14.40	37	29.60	55	44.00
Poor	2	1.60	11	8.80	13	10.40
Total	34	27.20	91	72.80	125	100.00
<b>Mean Score</b>	<b>10.82</b>		<b>10.3</b>		<b>10.56</b>	

*Legend:*

<i>Raw Score</i>	<i>Proficiency Level</i>
18 – 20	Excellent
15 – 17	Very Good
12 -14	Average
6 – 11	Fair
0 – 5	Poor

In the fifth macro skill test of viewing, as reflected in Table 6, the data disclosed that both male and female students got a mean score of 10.56, which was considered "fair". The males obtained a mean score of 10.82, meaning "fair", and the females had a mean score of 10.3 which still meant "fair".

This viewing result implying both male and female students' performing "fair" in the Viewing Skill Test shows an agreement with the Center for Media Literacy statement, "reading and critical viewing, literacy and television literacy, are synonymous". This meant that if one has a "fair" or "poor" literacy in reading, he or she also has a "fair" or "poor" literacy rate in the viewing skill. The reason behind is that, accordingly, both the reader and the viewer learn to be active - to challenge, analyze, react, explore, and understand the medium, whether it is a printed page or an illuminated TV set. Rebecca Oxford (2001), a renowned scholar in language learning, described the concept of viewing like a tapestry. As a tapestry is woven from many strands, which must be interwoven in positive ways to produce a colorful and robust piece, so are the strands of the tapestry in Spanish as a Foreign Language teaching.

At this point, it can be stated that viewing is one of the essential skills in communication because it is a way of portraying information in the database. However, it is not surprising that the respondents got a low score in this skill because, as what Cain & Oakhill (2007) stated, “weaknesses in verbal communication have been linked to reading difficulties and other skills, i.e., viewing skill.

### Significant Relationship Between the Respondents’ Hemispheric Dominance and Global Spanish Vocabulary Proficiency Score

Table 7. Relationship Between the Respondents’ Hemispheric Dominance and Global Spanish Vocabulary Proficiency Score

Hemispheric Dominance versus	$\chi^2$	Critical $\chi^2$ value	Decision	Interpretation
Global Score	2.77	15.51	Accept $H_0$	Not Significant

As shown in Table 7, the global Spanish vocabulary proficiency score was correlated with the students’ hemispheric dominance. The global Spanish vocabulary proficiency score has a computed chi-square of 2.77. The computed value was below the critical value of 15.51 at a 0.05 level of significance; thus, the hypothesis of no significant relationship was accepted. This means that there was no significant relationship between the global Spanish vocabulary proficiency score and students’ hemispheric dominance. This would imply that the students’ global Spanish vocabulary proficiency score was not affected by the kind of hemispheric preference. As Tendero (2000) postulated, there was no significant relationship between the learning style of males and females and the hemispheric preference. Males and females were not different regarding right-left brain dominance in the cognitive style.

### The difference in Spanish Vocabulary Proficiency Scores When Grouped According to Age

As reflected in Table 8, the p-values were greater than 0.05, and the F-values were less than the corresponding F-critical value of 1.88, thus, the null hypothesis was accepted. Thus, there was no significant difference in the respondents’ Spanish vocabulary proficiency scores when grouped according to age.

This finding is in line with Ellis (2008), who postulated that there is little consensus about how far individuals of the same age group of learners follow a similar and linear pattern of language acquisition. Furthermore, Mayberry & Lock(2003) postulated that it is generally believed that younger learners have certain advantages over older learners in language learning. However, as reflected in the data, there is no much difference regarding age bracket; thus, the finding has been further proven that there was no significant difference in the Spanish vocabulary proficiency scores of the different macro skills when the respondents were grouped according to age.



Table 8. Significant Difference on the Spanish Vocabulary Proficiency Scores According to Age

Macro Skills		Sum of Squares	df	Mean Square	F	p-value	Critical F value	Decision	Inter-pretation
Reading	Between Groups	36.151	10	3.615	.896	.540	1.88	Accept Ho	Not Significant
	Within Groups	460.121	114	4.036					
	Total	496.272	124						
Listening	Between Groups	79.588	10	7.959	1.207	.294	1.88	Accept Ho	Not Significant
	Within Groups	751.660	114	6.594					
	Total	831.248	124						
Writing	Between Groups	37.970	10	3.797	.722	.702	1.88	Accept Ho	Not Significant
	Within Groups	599.155	114	5.256					
	Total	637.125	124						
Speaking	Between Groups	57.304	10	5.730	1.673	.096	1.88	Accept Ho	Not Significant
	Within Groups	390.487	114	3.425					
	Total	447.790	124						
Viewing	Between Groups	70.934	10	7.093	.509	.881	1.88	Accept Ho	Not Significant
	Within Groups	1587.866	114	13.929					
	Total	1658.800	124						

Significant at  $p < 0.05$

### The difference in Spanish Vocabulary Proficiency Scores When Grouped According to Gender

Table 9. Significant Difference on the Spanish Vocabulary Proficiency Scores According to Gender

Macro Skills		Sum of Squares	df	Mean Square	F	p-value	Critical F value	Decision	Inter-pretation
Reading	Between Groups	36.633	1	36.633	9.803	.002	3.92	Do not Accept	Significant
	Within Groups	459.639	123	3.737				Ho	
	Total	496.272	124						
Listening	Between Groups	3.931	1	3.931	.584	.446	3.92	Accept	Not Significant
	Within Groups	827.317	123	6.726				Ho	
	Total	831.248	124						
Writing	Between Groups	1.452	1	1.452	.281	.597	3.92	Accept	Not Significant
	Within Groups	635.673	123	5.168				Ho	
	Total	637.125	124						
Speaking	Between Groups	7.855	1	7.855	2.196	.141	3.92	Accept	Not Significant
	Within Groups	439.935	123	3.577				Ho	
	Total	447.790	124						
Viewing	Between Groups	6.870	1	6.870	.512	.476	3.92	Accept	Not Significant
	Within Groups	1651.930	123	13.430				Ho	
	Total	1658.800	124						

Significant at  $p < 0.05$ 

As reflected in Table 9, reading skills differed significantly when students were grouped according to gender among the five macro skills. Since the F value was more significant than the critical F-value and the p-value was less than 0.05; thus students differ in their reading skills when grouped according to gender. This further implies that females were better readers than males.

For listening, writing, speaking, and viewing skills, it was evident that there was no significant difference among these skills when students were grouped according to gender. This finding is consistent with the finding of studies conducted by Aslan, (2009), who concluded that in terms of verbal abilities, girls usually start speaking earlier than boys; they use longer sentences. Their articulation and grammar are more correct. Consequently, they have a richer vocabulary. Moreover, they are better at spelling, reading, and tests in which they have to generate words according to a specific rule (e.g., words that start with a particular letter).

## Conclusions

The third-year Education and Agriculture students' "poor" or, better yet "fair" Spanish vocabulary proficiency in the five macro skills indicates an immense need for them to get to know more Spanish vocabulary and the Spanish language in general in order to improve their proficiency level. A good and sound Spanish instructional material with attainable objectives through varied activities is undoubtedly one of the effective strategies to aid the students' poor Spanish vocabulary proficiency. Thus, there is a need to develop an instructional guide for Spanish 2 which could be in a form of prototype Spanish vocabulary activities in the five macro skills so that the students may be effectively aided in their studies of Spanish, a foreign language.

Based on the study's findings, a prototype Spanish vocabulary activity in the five macro skills must be utilized. Spanish instructors should help and support students develop study skills to improve students' Spanish vocabulary proficiency levels. Spanish instructors should aim to develop students' understanding of the essential Spanish vocabulary exercises in educational practice. Struggling students should be given much attention by employing creative scheduling to give these students extra assistance during study sessions, after school, weekends, or summer sessions. As part of professional development, Spanish instructors must constantly use the Spanish language to build richer vocabulary and acquire more knowledge and skills about Spanish. Hence, school administrators should provide Spanish instructors with further training, seminars, and workshops focused on Spanish teaching to keep pace with the new trends, issues, and practices in teaching a foreign language.

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