Investigating the Relationships Among Explicit and Implicit Language Bias, Reading Motivation, and Reading Comprehension Among Bilingual College Students

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INVESTIGATING THE RELATIONSHIPS AMONG EXPLICIT AND

IMPLICIT LANGUAGE BIAS, READING MOTIVATION

AND READING COMPREHENSION AMONG

BILINGUAL COLLEGE STUDENTS

A Thesis

by

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ABSTRACT

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This study explored the relationship between language attitudes in reading motivation and reading comprehension in 243 voluntary English-Spanish bilingual college students. The current study focused on addressing two primary research questions: investigating the relationships between explicit and implicit language bias and reading motivation in English and Spanish and the relationships between explicit and implicit language bias and reading comprehension in English and Spanish. A multivariate multiple regression analysis revealed the dscore and Spanish Explicit Attitude to be significant on multiple outcome variables, English Explicit Attitude did not. Subsequent univariate analyses identified numerous individual effects that were statistically significant.

DEDICATION

I want to thank my mom and sister for being my biggest supporters. Special thanks to my best

friends and family for always being there. *Mamá, todos mis logros son gracias a ti*. Sister, thank

you for being my best friend. *Las amo con todo mi corazón*.

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CHAPTER I

INTRODUCTION

Reading plays a crucial role in human life as it is considered the 'basic tool of education' (Chettri & Rout, 2013. Reading contributes to the development of rhetorical genre awareness and is also by it (Gogan, 2013). When it comes to reading, college students are the ones that benefit the most from it. Reading as a college student opens a pathway to gaining new knowledge, expand their horizons, and improve their skills (Wang et al, 2022). At the college level, reading goes deeper than what an average person might be used to. In other words, reading consists of having more purpose, direct instruction, and personal and "real-world" connections (Hollander et al, 2022). In fact, reading, and therefore interpreting the text and materials, is considered a highly critical component when it comes to success at the university level (Ntereke & Ramoroka, 2017). Ntereke and Ramoroka (2017) concluded that 51.1% of students averaged a C grade, meaning their reading level is at satisfactory. This highlights that most of the students entering the college level have poorly developed reading skills that lead to reading difficulties. These difficulties include the failure to interpret and associate the texts.

Bilingual students, specifically those who are Latinos who have English as a second language are faced with a limited English vocabulary and require a long period of time to learn a second language efficiently to obtain academic success (Jiménez, 1994). Furthermore, Jiménez states that proficient bilingual readers tend to adjust their reading strategies according to the text

and perceived proficiency language. In fact, bilingual readers often find themselves paying extra attention when reading in the weakest of the two languages. In a study conducted by Babino and Muñoz (2023) on bilingual teacher preparation students, it was found that their coursework program provided limited opportunities when it came to Spanish language development. This was due to the fact that although the teachings are regarding bilingual education, the majority of the coursework and textbooks were in only English. Subsequently, the professors for said classes do not possess the appropriate training not the instructional materials needed to meet the variable linguistic needs of heritage learners (Babino & Muñoz, 2023).

Although reading is important in college students' academic success, there has been a decrease in the amount of reading among American college students. When compared to Chilean students, U.S. students reported to have spent 4.94 hours on academic reading, as opposed to 13.74, illustrating a large gap at the college level. Furthermore, for the most part, the incoming college freshman seem to lack close reading skills (Scholes, 2002). This is generally due to the literacy transition from the high school level to the college one and the belief that learning will be simple just as they are used to (Armstrong & Newman, 2011).

The motivation to read is crucial in enhancing college students' engagement and the amount of their reading. Motivation comes from choices, persistence, and effort (Khan et al., 2017). Motivation involves a comprehensive process to achieve the set goal or task. Reading motivation depicts how a student puts effort into and becomes engaged when it comes to a reading task through a set of beliefs and values (Guthrie & Humenick, 2004). Combining reading with motivation, hence reading motivation, can push an individual to fully grasp a concept and apply the different skills and strategies learned in an academic or professional setting (Wigfield,

Gladstone, & Turci, 2016). Thus, implicit attitudes tend to be strong predictors of behavior, and explicit attitudes measure behavioral intentions (Jost, 2018). Furthermore, reading motivation can impact an individual's reading comprehension and the amount of reading done (Kambara, et al., 2022). However, there it is salient to note that there is minimal to no research on the importance of implicit bias and how exactly it affects reading motivation as well as reading comprehension. Consequently, the same can be said for explicit bias and how it affects both reading motivation and comprehension.

CHAPTER II

LITERATURE REVIEW

Dimensions of Reading Motivation

Schutte and Malouff (2007) identified that reading motivation in adults consists of four dimensions: Reading as Part of the Self, Reading Efficacy, Reading for Recognition, and Reading to Do Well in Other Realms. Reading as Part of the Self prioritizes on how much an individual values reading and highlights the importance of it. Moreover, it focuses on an avid reader relating to others as a reader. Reading Efficacy refers to being a successful and confident reader, as well as being open to learning and mastering new subjects. Reading for Recognition is when one seeks recognition from others when it comes to tasks that are related to reading. Lastly, Reading to Do Well in Other Realms alludes to using reading as a means to be successful in areas not related to reading at all.

Reading as Part of the Self and Reading Efficacy both fall under intrinsic motivation. More specifically, intrinsic motivation can be described as the action of reading for pleasure and engagement. In other words, they read because they genuinely enjoy it. Students that tend to be categorized under intrinsic motivation are higher achieving regarding reading assessments and make the decision to read on a regular basis outside of school (Chettri & Rout, 2013). Aside from students, teachers can also push for and improve situational interest by assigning reading activities, which can lead to a long-term intrinsic motivation (Alfatihah & Tyas, 2022).

According to Wang and Guthrie (2004), there were three constructs associated with intrinsic motivation. The three constructs include: curiosity, involvement, and preference for challenge. This furthers the belief of intrinsic motivation, explaining that readers are motivated to learn topics and materials of interest to them personally and obtain satisfaction when understanding texts that appeared to be of a challenge. In fact, Huang & Reynolds (2022) stated that intrinsic reading motivation may result in more reading engagement and more reading based on curiosity. In Huang and Reynold's (2022) study of Characteristics of American College Students' Motivation to Read, the mean score of the intrinsic motivation scale showed that they were strongly motivated to read through intrinsic motivation, depicting the importance of it when it comes to learning in a variety of school contexts. Therefore, intrinsic motivation for reading has a positive association with reading achievement results, as aforementioned. Overall, intrinsic motivation comes from one's inner desire to engage in reading activities.

Reading for Recognition and Reading to Do Well in Other Realms are both categorized under extrinsic motivation. Extrinsic motivation refers to reading in terms of self-development, future careers, or education (Olmez, 2015). Extrinsic motivation focuses on external factors such as rewards, internal feelings, and social values. The other constructs identified by Wang and Guthrie (2004), were related to extrinsic motivation. The remaining constructs are categorized as: competition, compliance, recognition for reading, grades, and social. Readers that fall under extrinsic motivation tend to read to fulfill requirements, outperform others, obtain good grades as well as recognition, and share their findings with others (Komiyama, 2013). In fact, students often expect to receive benefits from reading, attempt to avoid challenging reading materials, and aim to meet their goals with minimal effort (Huang & Reynolds, 2022). As previously mentioned, in Huang and Reynold's (2022) study of Characteristics of American College

Students' Motivation to Read, the descriptive statistics showed higher mean scores for extrinsic motivation when compared to self-efficacy, intrinsic motivation, and social motivation. This suggests that extrinsic motivation played a positive and significant role in college students' motivation to read. Thus, extrinsic motivation refers to participation in an activity based on external criteria and incentives (Guthrie & Coddington, 2009). For instance, part of these criteria and incentives includes parental or teacher's approval, prizes, threat of punishment, a good grade, etc. (Huang, 2012). Furthermore, according to Huang (2012), extrinsic motivation can come from social situations, cultural influence, as well as families and educational conditions.

College Students' Reading Motivation

College students need to engage in reading for their academic success. College students have to deepen their reading and expand their thinking (Alfatihah & Tyas, 2022). Ölmez (2015) found that college students reading motivation comes from the linguistic use of texts, extrinsic and intrinsic values of reading, and reading. This further demonstrates their reasoning for reading, which is used to improve their skills in the education setting rather than for personal reasons. In other words, they see reading motivation as a benefit towards their overall English gain. Therefore, through reading motivation, reading comprehension can be achieved. In fact, motivation is one of the five aspects that influence comprehension, along with linguistic competence, interest, text characteristics, and environment influence (Alfatihah & Tyas, 2022). Through interest, one of the items mentioned previously, comes motivation as well. Interest leads to students to become participative in school activities, allowing them to pay more attention in their studies. Because a college student finds motivation through interest, better reading and

comprehension skills are developed, allowing them to grasp the complete context of their classes through the materials provided in class.

Unfortunately, there has been a noticeable decrease in college students' reading activities in the United States, dropping down to 51.7% as it was reflected through research conducted by National Endowment for the Arts (NEA) in 2008. In a more recent study, Huang et al (2016) findings reported that that the amount of time college students spend on standard academic reading has decreased from a bit under 16 hours a week back in 2012 to 4.94 hours a week. This is seemingly important to take note of due to the heavy workload university courses consist of, mainly through reading. In other words, students are expected to engage in substantial reading, especially since this is the way they are to master the course content as a whole (Clair-Thompson, Graham, & Marsham, 2018). It is especially true in the college students transitioning from high school. The motivation to read kicks in because of their realization in the complexity of the texts they are to read for class. Different literacy practices are expected of them at the college level, which often requires conceptual change related to their views of reading and writing (Armstrong & Newman, 2011).

Continuously, it has been found that college students who spend more time reading reflect to have achieved higher academic results, more class discussion involvement, and better comprehension skills (Sappington, Kinsey & Munsayac, 2002, Leeming, 2002). Huang & Reynolds (2022) concluded that grades serve as a significant role in motivating students to read, as well as recognition and competition. In collective studies, college students have noted that they are learning to appreciate reading for the reason being that it is important when it comes to obtaining good grades. Clair-Thompson et al., (2018) found that course structure serves as a

motivation for students. The students themselves suggested they would be more involved in reading if quizzes were to follow the material assigned. Further in their study, 86% of students reported they are confident when it comes to reading the required textbooks and 79% on journal articles. This confidence further motivates them throughout the completion of their degrees. Additionally, Huang (2012) stated that the majority of English students have a strong motivation towards English reading.

Bilingual Reading Comprehension

Pollard-Durodola et al (2006) concluded that grammatically and typologically are comparable and bear a resemblance to one another when it comes to developing reading skills that lead to reading comprehension. Furthermore, alphabetic knowledge is another matter that creates a link between Spanish and English (Proctor et al, 2010). Continuously, English oral language proficiency, as well as vocabulary and listening comprehension, directly and strongly predicted bilingual students' English reading comprehension. Additionally, when Spanish literacy variables were taken into consideration, it was concluded that Spanish vocabulary, specifically for the students who were highly fluent in English, was significantly predictive of English reading comprehension. Overall, Proctor et al (2010) concluded that English reading comprehension was significantly associated with Spanish reading comprehension.

On a study conducted on the practices of bilingual educator preparation program (BEPP), it was found that professors had not focused on preparing students for listening and reading comprehension sections, despite labeling the reading section as the easiest, which came as a shock to both students and professors (Guana et al, 2023). In fact, when taking the BEPP practice test, students consistently scored an average of less than 70%, leading to them growing in

frustration. This came to the realization that when practicing Spanish reading comprehension, the faculty simply referred to it as reading textbooks and articles in said language. This is due to the students receiving the questions prior to doing the reading, defeating the purpose of comprehension and instead looking for the direct answer.

Bilingual Participants' Language Attitudes

Research on bilingual as a language bias is very limited. Castro et al. (2023) reported that bilinguals with higher language-use experience scores, meaning those who can balance the use of languages and switch between them more often, expressed fewer biases, as well as bilinguals with lower language-learning experience scores. Furthermore, their findings suggest that having contact with different languages and cultures at any point in life can lead to a less explicit bias. A study focusing on accents and how Americans perceive them, despite being placed in the same category, indicated that speakers with heavy foreign accents are led to be viewed and rated more negatively as opposed to those with just mild accents (Dragojevic et al, 2017). This is explained that the stronger a Spanish speakers' accent got, the evaluations became less favorable. Furthermore, due to the heavy accent, the speech becomes more difficult to process and understand, therefore resulting in the ignorance of the context and viewing it in a negative way, even much so when compared to the mild accents.

Stevenson (2015) studied the use of language in a science classroom and a laboratory within Latino/a students and identified the students' awareness of their own bilingualism, their preference for speaking Spanish, and their view of the English language as it relates to academic success, specifically how it all results in an implicit institutionalized bias against Spanish. It was reported that within peer conversations in the laboratory the students spoke Spanish 72% of the

time, but while the class was in session and the teacher was speaking, they only spoke the language 27% of the time. However, the students did highlight the importance of learning English as it relates to their academic success and take part of programs and school activities. Through her study, Stevenson (2015) identified an unexpressed bias against Spanish in the school and practiced by the teachers. Moreover, it was a repeated pattern of English being the preferred interaction language for the students, dissuading them from practicing their native language to the point that they feared repercussions from it. Winnes (2022) stated that minority language speakers do tend to view English positively, which can occur during the adolescent years, where they can be easily swayed by peer pressure to conform to the norms of the larger society, thus preferring English over their native language. In her study, Winnes (2022) determined that language attitudes demonstrate by fifth-grade Latino students have overall positive attitudes toward Spanish, English, and Spanish-English bilingualism.

Ogunnaike et al (2010) tested Spanish-English bilinguals using identical IATs in Spanish and English, consisting of recognizable Hispanic and Anglo-American names along with positive and negative words in each language. The results indicated that when administered in Spanish, participants showed a small but significant preference for Hispanic names over Anglo names, but when administered in English, participants showed no preference for either Hispanic or Anglo names, and indeed trended in the opposite direction. Therefore, the study reported that there is a clear implicit intergroup bias across both Mexican and US-American participants as suggested by Antonov (2021).

CHAPTER III

RESEARCH QUESTIONS

1. What are the relationships between explicit and implicit language bias and reading
   motivation in English and Spanish?

2. What are the relationships between explicit and implicit language bias and reading
   comprehension in English and Spanish?

CHAPTER IV

METHODS

Participants

489 voluntary participants were gathered from an English-Spanish bilingual college, all belonging to the Psychology department. However, 246 of those participants did not speak Spanish, meaning their responses were withdrawn from the study. After the deduction in the participants, there were 243 English-Spanish bilingual participants whose responses were utilized for the current study. The participants were both male and female, to which their mean age was 19.69 ($SD = 2.87$). The research was conducted in a major public university near the U.S.-Mexico border in Texas. This university is considered to be one of the largest Hispanic-Serving Institutions (HSIs) in the United States, with its student body population being around 90% being Latinx, as per the 2021 university report. The majority of the students attending this institution are first-generation, and about 66% are eligible for Federal Pell Grant programs, known for offering financial aid to low-income undergraduates. In general, the region where this university is located is considered to be highly multilingual, with Spanish, English, and Tex-Mex being the most common languages spoken.

Procedures

Once receiving the approval from the Institutional Review Board (IRB), the participants were recruited from the University of Texas Rio Grande Valley. After the participants were recruited, they received an online anonymous link through Qualtrics. Each participant was individually administered a series of tasks consisting of: the language attitude Implicit Association Test, the Bilingual language profile, English and Spanish versions of the Adult Motivation Reading Scale, and the English and Spanish versions of passage comprehension texts.

Measures

Implicit Language Bias

An Implicit Association Test (IAT) was developed and used to assess implicit language bias toward the English and Spanish languages. The methodology for this test was completed by conducting a survey-based approach, which included pictorial and written word stimuli. The seven English neural words (Door, Window, Chair, Corner, Iron, yellow, and item) were selected from Sereno et al.s' (2015) study. The seven Spanish neural words (reloj [clock], ventana [window], brazo [arm], tambor [drum], sombra [shadow], tenedor [fork], mantequilla [butter]) were selected from crossfield and Damian (2021). The five pleasant (porpoise, couple, flowers, cake, and hot air balloon) and five unpleasant pictures (rat, roach on pizza, cemetery, garbage, fire) were selected from the International Affective Picture System (Lang et al., 2008).

The test construction was facilitated by the R package iatgen (Carpenter et al., 2019), and the actual testing occurred on the Qualtrics online survey platform. The IAT was to evaluate the

relationship between mental associations and target words (e.g., Spanish word versus English word) and attribute images (e.g., pleasant image versus unpleasant image). Basing it off the guidelines defined by Greenwald et al. (1998) and Carpenter et al. (2019), this IAT task is made up of seven blocks, including all combinations of target words and categories. Each IAT block consisted of either 20 or 40 trials (block 1: 20; block 2: 20; block 3: 20; block 4: 40; block 5: 40; block 6: 20; block 7: 40). Each trial included a stimulus for participants to see on their screen, along with either a word or image. The stimuli itself delineated one of the two: a "target word" or the specified category. In order to categorize the stimuli as quick as possible, the participants were instructed to press either the "E" or "I" keys on the keyboard with their left or right hands, respectively. To further detail the instructions, the participants were told to press the "E" key quickly when the word was meant to be in the category on the left. On the other hand, participants had to press the "I" key when it belonged to the contralateral category.

This IAT is aimed to depict the way participants tend to respond at a faster pace when their sorting associate with their implicit language bias towards English and Spanish. An example of this would be participants sorting all English words with the pleasant pictorial stimuli with one hand and Spanish words with unpleasant pictorial stimuli with the other. This represents how an individual's response times is faster due to their implicit mental associations when sorting the specific target words to the specific attribute image. On the contrary, when the category pairings are reversed, the participants have a hard time to dominate the associations, leading to the response times being slower.

When the task is being conducted, participants take both of these combined formats, and the difference in response times between both methods is what concludes the presence of implicit

bias. If an error were to be committed, a red X will appear on the screen, encouraging participants to correct the error by pressing the opposite key. In order to advance to the next trial, participants are required to remediate their error, reinforcing preciseness throughout the test. The IAT is scored by producing a "*D* score" for each participant (Carpenter et al., 2019). A "*D* score" is a scaled estimate of the dissimilarity in the mean reaction times in in stereotype-congruent and -incongruent matching tasks and are shown as point estimates (Klein, 2020). Klein (2020) further states the standard cutoffs for the confidence intervals that allows one to understand whether the *D* scores are 'slight (.15),' 'moderate (.35),' or 'strong (.65).'

Explicit Language Attitudes

The language attitudes (Birdsong et al., 2012) is measured through a four item self-report questionnaire. This questionnaire assesses the participants' explicit language attitude towards to English and Spanish. The scale is composed of one of the four subscales of the Bilingual Language Profile (BLP). The language attitudes subcomponent portion of the BLP asks participants to what extent they feel like themselves when they speak each language, how much they identify with cultures relating to each language, how important it is for them to make use of each language like a native (L1) speaker, and how important it is for them to be observed as a native (L1) speaker of each language (Olson, 2023). Based on these questions, the participants will be asked to rate each from 0 to 6. The score for the language attitudes will be gathered by adding up the raw response for all four items.

Adult Motivation Reading Scale

In order to evaluate for reading motivation, the scale developed by Schutte and Malouff in 2007, known as the Adult Motivation for Reading Scale (AMRS), was used. The scale is made up of 21 items whose goal is to assess four distinct dimensions of reading motivation: Reading as Part of Self (8 items), Reading Efficacy (6 items), Reading for Recognition (3 items), and Reading to Do Well in Other Realms (4 items). The AMRS scale uses a 5-point Likert scale, one being 'strongly disagree,' to five, which is 'strongly agree.' Overall, the 21 items had good internal consistency, indicated by its alpha of .85, which provides some evidence of validity as well (Schutte and Malouff, 2007). Subsequently, individually each subscale had sufficient to good reliability. When focusing on Reading Efficacy and Reading to Do Well in Other Realms, they both had the weakest internal consistency, the first being at .72 and the latter at .70. On the last two subscales, Reading as Part of Self and Reading for Recognition, they each had good internal consistency at .87 and .83, correspondingly.

Passage Comprehension Texts

The Woodcock-Munoz language survey III, comprising a total of 38 questions, was used to assess for passage comprehension. More specifically, the English portion will consist of 22 items, while the Spanish one by 24 items. In general, the passage comprehension consists of silently reading a written passage and completing the passage with a single word (Schrank et al., 2010).

CHAPTER V

DATA ANALYSIS

Results

When it comes to the IAT, a "dscore," or implicit language bias, is to be calculated. The

dscore is the measurement used to evaluate the strength of the implicit associations between

concepts being tested or studied. Because the IAT relies heavily on reaction times, this score is

calculated based on reaction times participants have as they are taking the test, which correlates

and reflects how strong their automatic associations are. Specific to this study, the dscore is

calculated based on the differences in reaction times when categorizing different combinations of

the pairs. It reflects how strongly a participant associates certain concepts (English vs. Spanish,

positive vs. negative). Reaction times themselves are reported by how rapid and accurate a

participant is able to categorize words or images with both English and Spanish. Based on the

current study, a positive *D* value indicates association in the form of (*English + positive target*

word; *Spanish + negative target word*) (Carpenter et al, 2018). A positive dscore refers to a

stronger association between English words and positive targets (or negative targets for Spanish

words), therefore suggesting a bias towards associating English with positive concepts and

Spanish with negative concepts. On the other hand, a negative *D* value indicates the opposite

bias (*English + negative target word*; *Spanish + positive target word*), associating English with

negative concepts (or positive for Spanish). A zero score indicates no significant bias between the associations tested.

Overall Effects

For the current study, a multivariate multiple regression, or MMR, was ran in order to analyze the effects of the dscore and two other predictors. A multivariate multiple regression is a statistical technique used to examine multiple dependent variables with a single set of predictor variables (Ford, 2017). In other words, the MMR is able to examine how multiple predictors can infer multiple outcomes. The predictors, or independent variables, used in the current study include the dscore, English Explicit Attitudes, and Spanish Explicit Attitudes and how they affect several outcome variables. The ten outcome variables, otherwise known as the dependent variables, identified in this study include: English as Part of the Self, English Reading Efficacy, English Ready for Recognition, English Extrinsic Motivation, English Reading Comprehension Accuracy Rate, Spanish Reading Comprehension Accuracy Rate, Spanish Reading as Part of the Self, Spanish Reading Efficacy, Spanish Reading for Recognition, and Spanish Extrinsic Motivation. The significance of each predictor was examined by utilizing Pillai's Trace, which is a statistic test that depicts the overall strength of the relationship between said predictors and the outcome variables. As seen on Table 1, it was reported and revealed there were two significant effects, one being for dscore (Pillai's Trace = 0.178, $F(10, 132) = 2.86$, $p = .002$) and the second one for Spanish Explicit Attitudes (Pillai's Trace = 0.198, $F(10, 132) = 3.27$, $p < .001$). As for the remaining predictor, English Explicit Attitudes, it did not depict a significant overall effect (Pillai's Trace = 0.096, $F(10, 132) = 1.40$, $p = .186$).

Individual Effects

Further univariate analyses depicted multiple significant individual effects. Dscore was shown to be a significant predictor in three instances. When looking at Table 4, the first instance of being a predictor of English Reading for Recognition (β = -0.348, p = .046) can be seen. When it comes to Reading for Recognition in English, the high dscore is associated with a lower performance in such task. Continuously, Table 6 shows how the dscore was a predictor of English Reading Comprehension Accuracy Rate (β = 0.440, p < .001). What this shows is that the higher the implicit association bias is, the higher the English Reading Comprehension performance. Lastly, Table 9 depicts it was a predictor for Spanish Reading Efficacy (β = -0.516, p = .004). The high dscore here explains that it is associated with a lower performance in Spanish Reading Efficacy.

As to Spanish Explicit Attitudes, it significantly predicted six outcome variables. One outcome variable it predicted was English Reading as Part of the Self (β = 0.242, p = .015), which is shown on Table 2. Table 4 indicates the next outcome variable predicted, which was English Reading for Recognition (β = 0.270, p = .005). Table 8 represents how Spanish Explicit Attitudes also predicted Spanish Reading as Part of the Self (β = 0.411, p < .001). Further, Spanish Reading Efficacy (β = 0.221, p = .024) was also significantly predicted and can be seen on Table 9. Another variable predicted, and seen on Table 10, was Spanish Reading for Recognition (β = 0.331, p < .001). The final outcome variable predicted was Spanish Extrinsic Motivation (β = 0.417, p < .001), as identified in Table 11. Overall, there was a positive relationship and effect between Spanish Explicit Attitudes and English Reading as Part of the Self, English Reading for Recognition, Spanish Reading as Part of the Self, Spanish Reading

Efficacy, Spanish Reading for Recognition, and Spanish Extrinsic Motivation. Remarkably, English Explicit Attitude did not reveal to have any significant individual effects on the outcome variables (all p > .05).

English Language Outcomes

When looking into the outcomes for the English language, English as Part of the Self showed a significant overall model fit $F(3, 141) = 3.77$, $p = .012$, $R^2 = .07$. Spanish Explicit Attitudes emerged as a significant positive predictor ($\beta = 0.24$, $p = .015$), whereas dscore showed a trend toward significance as a negative predictor ($\beta = -0.34$, $p = .058$). However, the model for English Reading Efficacy did not reach statistical significance, $F(3, 141) = 1.44$, $p = .233$, $R^2 = .03$, yet the dscore approached significance as a negative predictor ($\beta = -0.35$, $p = .052$). Turning attention to English Reading for Recognition, the model yielded significance, $F(3, 141) = 4.10$, $p = .008$, $R^2 = .08$. Both dscore ($\beta = -0.35$, $p = .046$) and Spanish Explicit Attitudes ($\beta = 0.27$, $p = .005$) proved to be significant predictors, with dscore showing a negative association and Spanish Explicit Attitudes displaying a positive association with English Reading for Recognition. Regarding English Extrinsic Motivation, neither the model nor any of its predictors reached statistical significance $F(3, 141) = 1.24$, $p = .297$, $R^2 = .03$. Finally, in the case of English Reading Comprehension Accuracy Rate, the model showed significance, $F(3, 141) = 6.88$, $p < .001$, $R^2 = .13$. Dscore emerged as a significant positive predictor ($\beta = 0.44$, $p < .001$), while English Explicit Attitudes approached significance as a predictor ($\beta = 0.24$, $p = .052$).

Spanish Language Outcomes

Turning the focus on Spanish language outcomes, Spanish Reading Comprehension Accuracy Rate did not prove to be significant, $F(3, 141) = 0.23$, $p = .872$, $R^2 = .005$, as it did not have any significant predictors. For Spanish Reading as Part of the Self, the model showed significance, $F(3, 141) = 6.51$, $p < .001$, $R^2 = .12$ with Spanish Explicit Attitudes appearing as a significant predictor ($\beta = 0.41$, $p < .001$). The model for Spanish Reading Efficacy achieved significance, $F(3, 141) = 4.70$, $p = .004$, $R^2 = .09$. Both dscore ($\beta = -0.52$, $p = .004$) and Spanish Explicit Attitudes ($\beta = 0.22$, $p = .024$) were proven to being significant predictors, with dscore showing a negative association and Spanish Explicit Attitudes showing a positive association when it came to Spanish Reading Efficacy. For Spanish Reading for Recognition, the model demonstrated significance $F(3, 141) = 3.94$, $p = .010$, $R^2 = .08$, with Spanish Explicit Attitudes indicating to be a significant positive predictor ($\beta = 0.33$, $p < .001$). The Spanish Extrinsic Motivation model showed to be significant $F(3, 141) = 6.33$, $p < .001$, $R^2 = .12$, in which Spanish Explicit Attitudes was indicated to be a significant positive predictor ($\beta = 0.42$, $p < .001$). Overall, Spanish Explicit Attitudes consistently emerged as a positive predictor across various outcomes in both English and Spanish contexts. Dscore exhibited varied effects by predicting some outcomes negatively (e.g., Spanish Efficacy), as well as predicting others positively (e.g., English Reading Comprehension Accuracy Rate). Interesting enough, English Explicit Attitudes did not significantly predict any of the outcomes under examination.

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CHAPTER VI

DISCUSSION

The current study explored both the positive and negative impacts of implicit language

biases on reading motivation and comprehension within English and Spanish contexts. The

results reported in the study suggest that both dscore and Spanish Explicit Attitude can in fact

impact the roles in predicting various outcomes related to English and Spanish language

learning. The dscore results imply that the unconscious associations have a measurable impact on

English Reading for Recognition, English Reading Comprehension, and Spanish Reading

Efficacy. The findings underscore the impact of implicit associations measured by the dscore on

reading abilities in both English and Spanish. Furthermore, implicit biases can impact cognitive

processes and performance outcomes in a way that individuals express 'implicit' features of

cognitive because they lack the relevant awareness of their behaviors, meaning they are not

responsible for behaving in ways that manifest implicit bias (Holroyd, 2014). Despite its ability

to predict outcomes in Spanish contexts, Explicit Attitudes had minimal impact on English

reading outcomes variables. Kulaç (2011) also observed this limitation, reporting that students

held neutral attitudes towards reading in English. He highlighted that their negative perception of

encountering unfamiliar words in reading materials had a detrimental effect on their overall

attitude towards English reading. This suggests that when students come across unfamiliar

words, they struggle to manage them effectively and often decide to abandon the entire text. This

creates a feeling of failure in comprehending texts, negatively impacting their motivation,

leading to a pessimistic outlook on reading. Consequently, their reading skills and success, as well as their enthusiasm for reading, are hindered.

The findings of English Reading for Recognition align with those of Al-Hoorie (2017), which suggest that the correlation between motivation and the selection of English as a language for learning has diminished, indicating that studying English is increasingly seen as an inherent aspect of education. Implicit language bias impacting English Reading Comprehensions correlates to previous research which indicates that having good reading skills lead to better performances on reading tasks, meaning that better readers are able to better retain and comprehend the (Johnson & Arnold, 2021). As to the relationship between dscore and Spanish Reading Efficacy, the lower performance in such area agrees with the findings from Ianos et al. (2024) which state that implicit attitudes indicate a preference in the native language over Spanish, decreasing the usage and performance in the language.

Spanish Explicit Attitudes indicate that explicit attitudes towards Spanish have a meaningful influence on English Reading as Part of the Self, English Reading for Recognition, Spanish Reading as Part of the Self, Spanish Reading Efficacy, Spanish Reading for Recognition, and Spanish Extrinsic Motivation. The relationships between Spanish Explicit Attitudes and English Reading as Part of the Self, as well as Spanish Explicit Attitudes and Spanish Reading as Part of the Self implies that individuals with positive attitudes towards Spanish also tend to view English reading and Spanish reading as a more integral part of their self-identity or self-concept. The positive effect Spanish Explicit Attitudes has on Spanish Reading Efficacy suggests that individuals tend to perceive themselves as more effective or competent when it comes to their Spanish reading abilities. English Reading as Part of the Self,

Spanish Reading as Part of the Self, and Spanish Reading Efficacy all fall under intrinsic

motivation. The findings in this study concur with previous research as to the individuals being

higher achieving in English and Spanish, as well choosing to practice the languages outside of

school due to them feeling more comfortable in doing so, which enables the constructs of

curiosity, involvement, and preference for challenge ((Chettri & Rout, 2013) (Alfatihah & Tyas,

2022)).

What the impact Spanish Explicit Attitude has on English Reading for Recognition

suggests is that individuals who have a more positive attitudes towards Spanish are more likely

to engage in English reading tasks for the sole purpose of recognition or acknowledgement from

others. Subsequently, Spanish Explicit Attitude impacts Spanish Reading for Recognition in a

way that individuals who have a more positive attitudes towards Spanish are more likely to

engage in Spanish reading activities in order to gain recognition or acknowledgement from

others. This can also be seen in Huang & Reynolds' (2022) and Guthrie & Coddington's (2009)

studies, which both reported that students expect something in return, such as benefits and

rewards, for practicing the task of reading, even if it is with doing it with the most minimal

effort, thus allowing it to play a significant role in the motivation to read based on external

incentives.

Finally, the positive relationship between Spanish Explicit Attitudes and Spanish

Extrinsic Motivation demonstrates that individuals with positive attitudes towards Spanish have

the tendency to be motivated by external factors when engaging in Spanish-related activities.

Through reading motivation, students are able to endeavor and engage in reading tasks, allowing

them to work to fully comprehend the task at hand and apply those behavioral intentions ((Guthrie & Humenick, 2004), (Wigfield, Gladstone, & Turci, 2016), (Jost, 2018)).

Implications

Based on the dscore, Spanish Explicit Attitudes, and English Explicit Attitudes, future research can inform interventions or strategies aimed at addressing or leveraging the attitudes and associations in relevant contexts, thus guide interventions aimed at fostering positive language attitudes, thereby improving reading effectiveness among diverse student groups. It is noteworthy that all participants in the current study were from the Psychology department. For future research, exploring participants from various majors would be intriguing to observe potential variations in their responses. Moreover, conducting a multiple regression analysis could also yield results for the study. The results presented in the study highlight the complexity of how implicit associations can affect academic skills, and they provide insights into potential areas for intervention or further research to understand and mitigate the effects of implicit biases on academic outcomes. Based on the current study, it is important to note the significant correlation between vocabulary mastery and reading comprehension, which underscores the necessity of instructing students in a broader range of words by implementing new teaching strategies that focus on vocabulary understanding and how to apply it when reading texts. Focusing on the English Explicit Attitudes, researchers should consider exploring further as to why there was no significant effect, which can be done by examining additional variables. A way to do this is by creating a positive attitude toward reading among learners, which can be achieved through effective reading instruction. Furthermore, teaching students contextual inferencing strategies can significantly enhance their enthusiasm for reading, helping to improve their

attitudes overall. Lastly, taking into account variables such as socio-economic status may offer

further insights into the intricate relationship between attitudes and reading outcomes.

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APPENDIX

Table 1

Type III MANOVA Tests: Pillai test statistic

Predictor	Df	Test stat	Approx. F	Num Df	Den Df	Pr(>F)
(Intercept)	1	0.130789	1.9862	10	132	0.039603
dscore	1	0.178154	2.8614	10	132	0.002942
EN_Attitude	1	0.096082	1.4031	10	132	0.185578
SP_Attitude	1	0.198469	3.2685	10	132	0.000836

Table 2

English Reading as Part of the Self

Predictor	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-0.05812	0.19613	-0.296	0.7674
dscore	-0.33869	0.17752	-1.908	0.0584
EN_Attitude	0.20873	0.20159	1.035	0.3022
SP_Attitude	0.24229	0.09799	2.473	0.0146

Table 3

English Reading Efficacy

Predictor	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.13559	0.19896	0.682	0.4967
dscore	-0.35320	0.18008	-1.961	0.0518
EN_Attitude	0.01309	0.20449	0.064	0.9491
SP_Attitude	0.06785	0.09940	0.683	0.4960

Table 4

English Reading for Recognition

Predictor	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.04034	0.19072	0.211	0.83281
dscore	-0.34762	0.17262	-2.014	0.04594
EN_Attitude	0.07240	0.19603	0.369	0.71245
SP_Attitude	0.26966	0.09529	2.830	0.00534

Table 5

English Extrinsic Motivation

Predictor	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-0.15355	0.20010	-0.767	0.444
dscore	-0.13920	0.18112	-0.769	0.443
EN_Attitude	0.26140	0.20567	1.271	0.206
SP_Attitude	0.11055	0.09997	1.106	0.271

Table 6

English Reading Comprehension Accuracy Rate

Predictor	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.25409	0.11784	2.156	0.0328000
dscore	0.44008	0.10666	4.126	0.0000628
EN_Attitude	0.23787	0.12112	1.964	0.0515000
SP_Attitude	0.04492	0.05887	0.763	0.4467000

Table 7

Spanish Reading Comprehension Accuracy Rate

Predictor	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.25409	0.11784	2.156	0.0328000
dscore	0.44008	0.10666	4.126	0.0000628
EN_Attitude	0.23787	0.12112	1.964	0.0515000
SP_Attitude	0.04492	0.05887	0.763	0.4467000

Table 8

Spanish Reading as Part of the Self

Predictor	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.03779	0.19138	0.197	8.44e-01
dscore	-0.14440	0.17322	-0.834	4.06e-01
EN_Attitude	-0.18980	0.19671	-0.965	3.36e-01
SP_Attitude	0.41147	0.09562	4.303	3.13e-05

Table 9

Spanish Reading Efficacy

Predictor	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.36149	0.19466	1.857	0.0654
dscore	-0.51562	0.17619	-2.926	0.0040
EN_Attitude	-0.22420	0.20008	-1.121	0.2644
SP_Attitude	0.22130	0.09726	2.275	0.0244

Table 10

Spanish Reading for Recognition

Predictor	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-0.12520	0.19618	-0.638	0.524366
dscore	-0.08707	0.17756	-0.490	0.624643
EN_Attitude	0.05477	0.20164	0.272	0.786320
SP_Attitude	0.33083	0.09801	3.375	0.000952

Table 11

Spanish Extrinsic Motivation

Predictor	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-0.128421	0.191442	-0.671	5.03e-01
dscore	0.003369	0.173278	0.019	9.85e-01
EN_Attitude	-0.069489	0.196772	-0.353	7.25e-01
SP_Attitude	0.416542	0.095646	4.355	2.54e-05

Network of Significant Relationships
Based on regression coefficients with p < 0.05
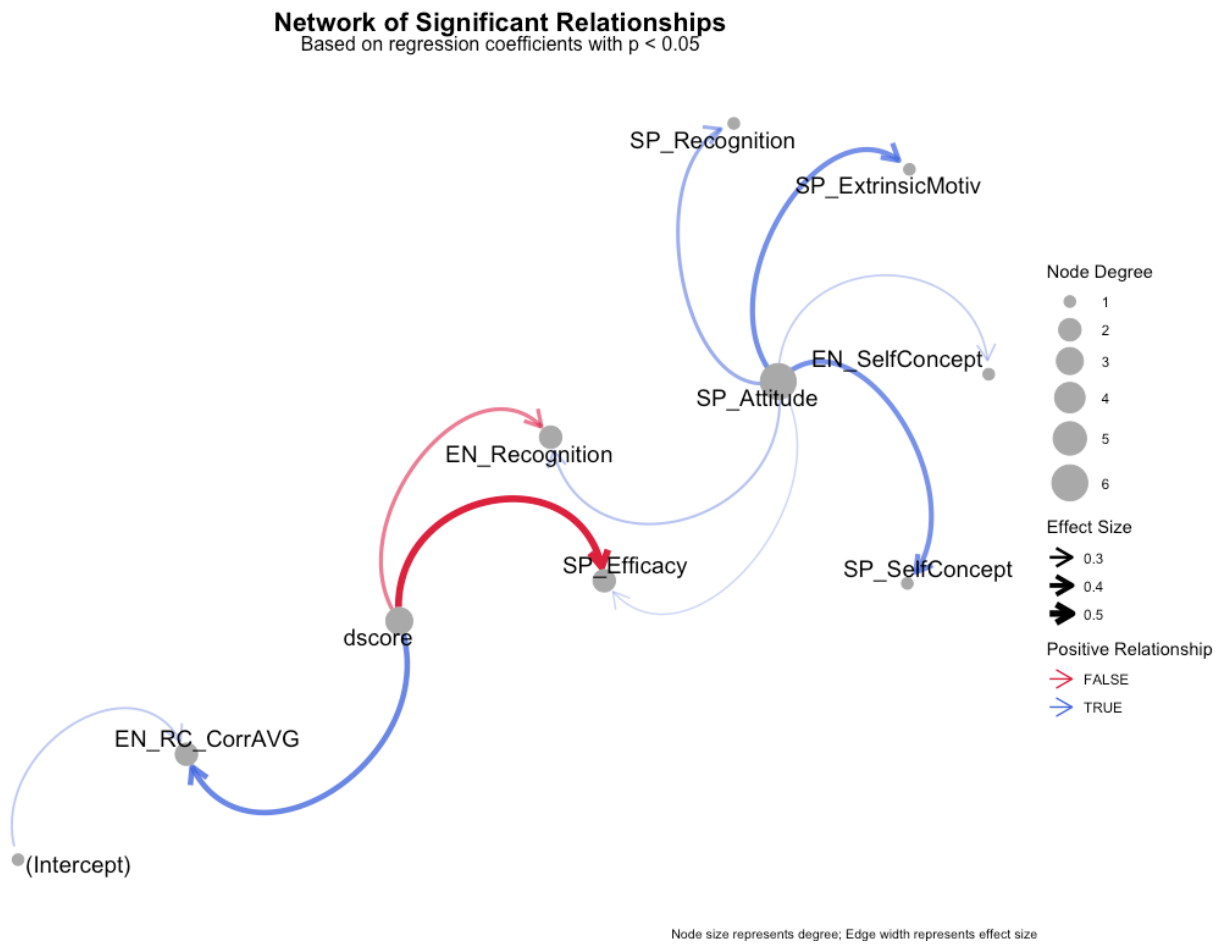
Figure 1

Network of Significant Relationships

Coefficient Estimates Across Outcomes

Error bars represent ± 1 standard error
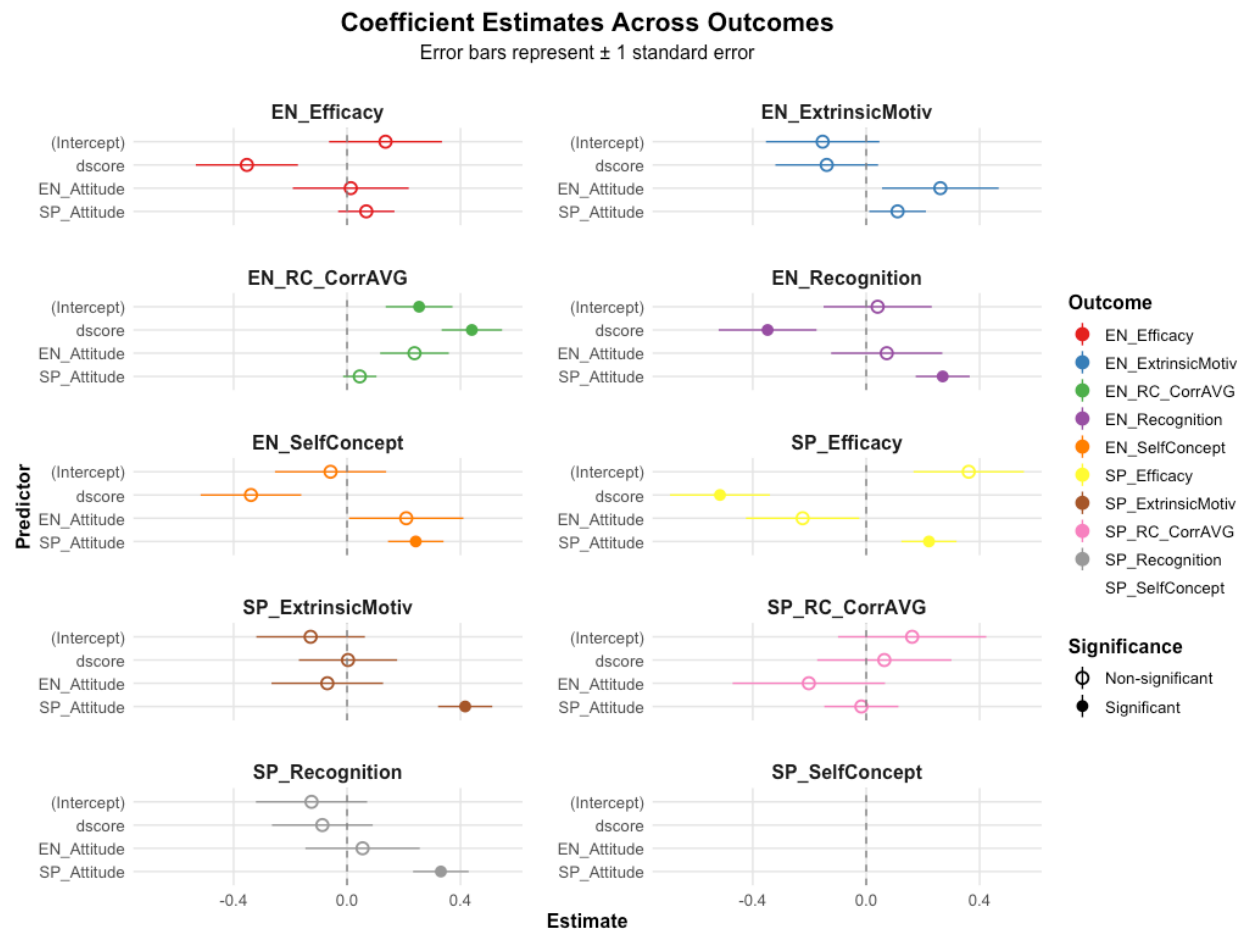
Figure 2

Coefficient Estimates Across Outcomes

Correlation Matrix

	SP_RC_CorrAVG	EN_RC_CorrAVG	SP_Attitude	EN_Attitude	SP_ExtrinsicMotiv	SP_Recognition	SP_IntrinsicMotiv	SP_Efficacy	SP_SelfConcept	SP_OverallMotiv	EN_ExtrinsicMotiv	EN_Recognition	EN_IntrinsicMotiv	EN_Efficacy	EN_SelfConcept	EN_OverallMotiv
dscore	0.06	0.71***	0.65***	0.84***	7.98e-03	-0.04	-0.13	-0.23	-0.06	-0.09	-0.06	-0.15	-0.17	-0.14	-0.15	-0.17
EN_OverallMotiv	-9.42e-03	-0.16	0.19	0.12	0.13	0.23	0.30*	0.32*	0.26	0.27	0.65***	0.69***	0.94***	0.64***	0.90***	
EN_SelfConcept	-0.04	-0.12	0.18	0.11	0.11	0.24	0.29*	0.26	0.26	0.26	0.44***	0.56***	0.91***	0.40***		
EN_Efficacy	0.06	-3.82e-03	0.08	0.06	0.08	0.04	0.14	0.17	0.11	0.12	0.30**	0.17	0.74***			
EN_IntrinsicMotiv	-5.33e-03	-0.09	0.17	0.10	0.11	0.19	0.27	0.27	0.24	0.24	0.46***	0.49***				
EN_Recognition	-0.04	-0.15	0.19	0.07	0.05	0.25	0.20	0.20	0.17	0.19	0.36***					
EN_ExtrinsicMotiv	0.02	-0.22	0.11	0.12	0.13	0.12	0.25	0.32**	0.17	0.21						
SP_OverallMotiv	0.14	-0.25	0.33**	-0.03	0.87***	0.83***	0.98***	0.79***	0.97***							
SP_SelfConcept	0.13	-0.21	0.33**	-0.05	0.82***	0.82***	0.95***	0.67***								
SP_Efficacy	0.15	-0.39***	0.18	-0.06	0.54***	0.48***	0.87***									
SP_IntrinsicMotiv	0.15	-0.31*	0.30*	-0.06	0.78***	0.75***										
SP_Recognition	0.04	-0.21	0.27	0.04	0.64***											
SP_ExtrinsicMotiv	0.14	-0.06	0.35**	-7.23e-03												
EN_Attitude	0.04	0.76***	0.64***													
SP_Attitude	0.03	0.48***														
EN_RC_CorrAVG	0.11															

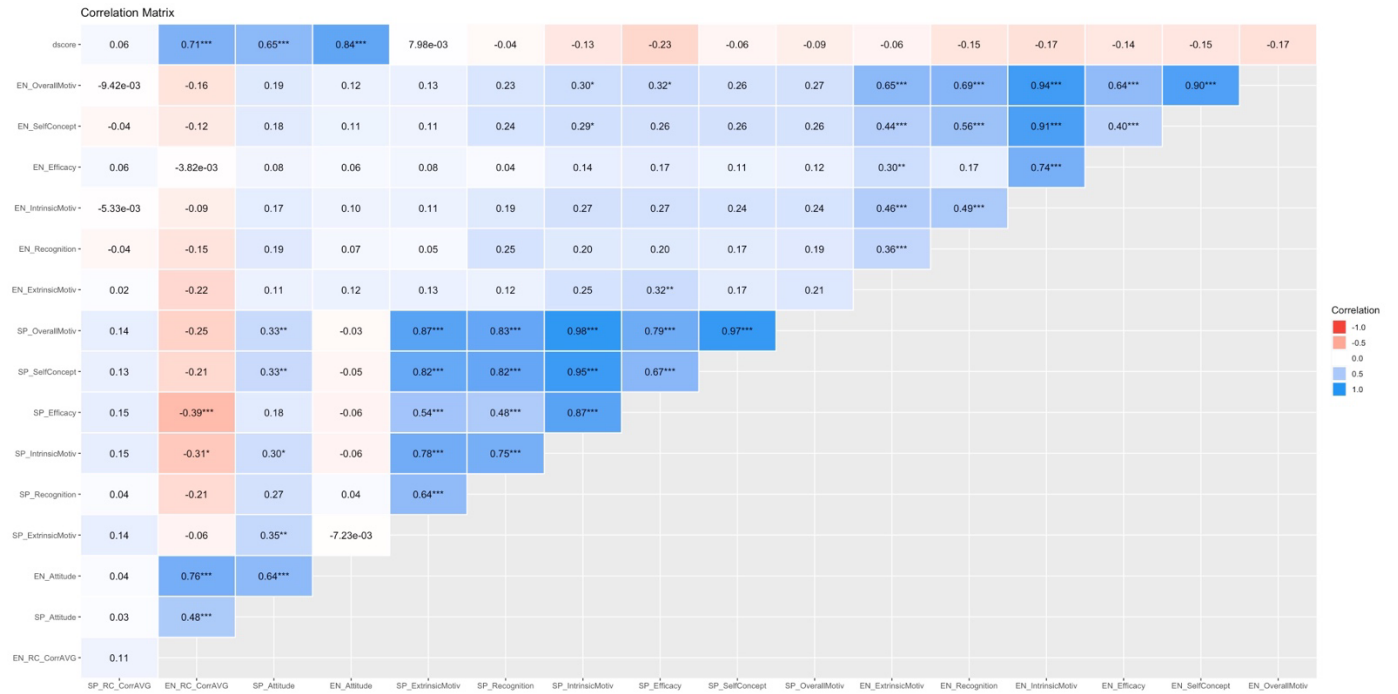Correlation

- -1.0
- -0.5
- 0.0
- 0.5
- 1.0

Figure 3

Correlation Matrix

VITA

Erika V. Garza enrolled at the University of Texas at Rio Grande Valley in the fall of 2019 where she received a Bachelor of Science in Criminal Justice with a minor in Spanish Translations/Interpretation in the fall of 2021. In 2022, she decided to apply to the Master of Arts in Experimental Psychology program at the University of Texas Rio Grande Valley, which she started in the fall of that year and finished her degree in August of 2024. During her academic years, Erika worked as a paralegal at a law firm, as well as a data collector for UTHealth Houston, and an academic coach of excellence in the University of Texas at Rio Grande Valley. Erika can be reached at erikav.gza00@gmail.com.