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Examining the Correlations Between Gender, Academic Majors, and Students' Perceptions Toward Translanguaging Practices

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ABSTRACT

This cross-sectional study examined the relationships between Saudi university students' perceptions of translanguaging practices (TPs) and two specific demographic variables: their gender and educational majors. The research was conducted using a random sampling technique to recruit a sample of 129 participants. These students completed a 30-item adapted questionnaire designed to measure their attitudes and perceptions towards the use of translanguaging. To analyze the collected data, researchers used statistical methods including correlation coefficients and effect sizes. The findings revealed a weak, but statistically significant, correlation between gender and students' perceptions of TPs, with a correlation coefficient (η) of 0.136 and a corresponding effect size of 0.018. Similarly, the study found a very weak, yet significant, correlation between students' educational majors and their perceptions, indicated by a correlation coefficient (η) of 0.057 and a minuscule effect size of 0.003. The study's results suggest that there is a minimal relationship between a student's gender or academic major and their views on translanguaging. This finding implies that these demographic factors have little influence on students' attitudes toward using multiple languages in the classroom. This insight is significant as it supports the broader implementation of translanguaging practices in educational settings and underscores the need for

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future research to explore other, potentially more influential, factors. The study concludes by discussing recommendations for future research and outlining the pedagogical implications of these findings for language teaching.

Keywords: Translanguaging; Bilingual; Practices; Techniques; Correlation

1. Introduction

Used worldwide for communication purposes, English can facilitate accurate communication with foreigners. Furthermore, English is widely used as a medium of instruction (English-medium instruction; EMI) in many international universities, such as those in Gulf countries, Asian countries, and some European countries, and in disciplines such as medicine, engineering, and computer science. This might be attributed to the idea that English is considered the language of science^[1,2]. Additionally, many universities use EMI in their scientific departments to attract international students and provide learning experiences that prepare students for the world^[3].

According to Wong^[4], who examined the effectiveness of using EMI in Hong Kong universities, using EMI can be seen as a positive element. The results showed that the group that followed the strict English-only policy preferred EMI more and had higher English proficiency than the class that allowed for more use of Cantonese. However, using EMI can be viewed as negative and can affect student performance and confidence. Students with low English proficiency face difficulties communicating with other students and expressing their opinions, because they know that English is the medium of instruction used in these courses. Sometimes, the instructor is a foreigner who does not speak their native language; thus, English is the only way to participate and discuss. In this scenario, students feel anxious and stressed about their performance and grades. Most students know that English is the medium of communication and expressing opinions and thoughts in classes; therefore, those with low English proficiency suffer academically and “are described as underachievers”^[5]. Belhiah and Elhami^[6] examined the effectiveness of EMI in UAE universities. The results demonstrated that students with low English proficiency struggled with their performance, and were less likely to use EMI. Researchers suggest implementing a bilingual curriculum to overcome this issue and maintain students’ identities and

indigenous culture.

In a bilingual curriculum, the instructor can encourage the use of the two languages by presenting subject materials in the target language, while explaining them in the native language. This is called translanguaging practices (TPs), or “Bilingual Teaching Practices”^[1,7]. Additionally, applying TPs is vital for supporting learning in bilingual curricula^[7]. When applying a bilingual curriculum, students can develop techniques to handle the bilingual nature of these subjects. They can use technology to assist with comprehension and translation, or ask family members or classmates^[8]. This would improve the students’ development.

Instructors and stakeholders must study TPs to develop teaching strategies and support the learning of bilingual students. This will allow them to create effective educational policies to meet the needs of university students. Consequently, many studies have focused on TPs^[9,10].

At the national Saudi level, and to the best of the researchers’ knowledge, there has been limited scope for comprehending the influence of gender and educational majors on the perceptions of Saudi university students regarding TPs and the use of English for communication and knowledge in their educational majors. Therefore, this study aims to bridge the gap by examining the correlations among gender, educational majors, and students’ perceptions of TPs at Saudi universities. The findings of this study are expected to enrich the literature and provide a clear understanding of TPs in Saudi Arabia.

This study incorporates gender and academic major as variables grounded in sociocultural and educational frameworks that suggest language attitudes and practices are influenced by individual identity factors and disciplinary cultures. From a sociolinguistic perspective, gender can influence communicative behavior and learning strategies, potentially influencing preferences for or against TPs^[11,12]. Similarly, academic disciplines foster distinct epistemologies and linguistic norms; for instance, science majors frequently encounter higher demands for English-medium content, poten-

tially influencing their views on bilingual instruction^[13,14]. Despite varied literature findings, these variables remain theoretically relevant for investigating how social and academic positioning may influence students' perceptions of translanguaging in EMI contexts.

A few studies in the global context have been conducted on TPs and students' views of them^[15,16]. Furthermore, Al Ahdal^[17] and Auerbach^[18] attempted to discover TPs, yet the potential influence of gender and academic majors on Saudi students' perceptions of TPs remains limited. Therefore, we examine if there are potential correlations between gender and students' perceptions of TPs, and between education majors and students' perceptions of TPs.

Saudi Arabia is a country with distinct regions and cultures, and as mentioned earlier, insufficient attention is given to the Saudi context regarding the influence of gender and education majors on the perceptions of Saudi university students on TPs. Thus, the significance of this study is centered on this specific context by bridging the gap in the literature. This investigation might dive deeper to give comprehensive insights to help policymakers, teachers, and curriculum designers understand the impact of gender and educational majors on TPs and improve the learning outcomes in the Saudi context.

This research is designed to answer the following questions:

1. What is the correlation between university students' perceptions of TPs and their gender?
2. What is the correlation between university students' perceptions of TPs and their education majors?

1.1. Literature Review

1.1.1. Bilingual Language Learning and TPs

The process of including or excluding a native language in the context of teaching a foreign language has long been a matter of debate among researchers and methodologists. This was best reported by Auerbach^[18], who contended that when students started with their mother tongue, they felt comfortable and safe, allowing them to express themselves freely. A large body of research has explored the extent to which native languages contribute to foreign-language education. One study^[19] primarily explored how language instructors deliver information to their students through translanguaging.

The results revealed that both teachers and students prefer to use their native language (Indonesian) when discussing new ideas and concepts. In other words, they used their native language to gain deep insight into the topic of interest, with translation from L2 to L1 being the most common bilingual teaching practice in the classroom. Additionally, the study revealed that teachers fell back on their native language to explain difficult topics encountered by students, particularly in English grammar. This aligns with a study examining teachers' TPs in online classrooms in Saudi Arabia^[20]. Specifically, the study emphasizes the effectiveness of translanguaging education from the perspectives of language instructors and students. The study arrived at the following results. First, bilingual teachers hold positive attitudes toward translanguaging, maintaining that it is a powerful medium of instruction, especially when teaching intricate topics and concepts. Strictly speaking, utilizing both languages (i.e., English and Arabic) is of paramount importance in facilitating teachers' missions when delivering knowledge to their students. The study concluded that bilingual teaching practices were more effective than traditional monolingual teaching practices. This is consistent with a study exploring translanguagism among bilingual EFL learners in Saudi Arabia^[17]. More specifically, this study aimed to investigate TPs among emerging bilingual school students in Saudi Arabia. To this end, 40 grade-six EFL learners in the Qassim region participated in a study in which two English classes were closely observed over two weeks to examine bilingual teaching practices. The results revealed that teachers showed positive attitudes toward bilingual teaching practices, suggesting the need to allocate more effort and time to bilingual education in Saudi Arabia. The study concluded that translanguagism leads to more efficient teaching practices as it accelerates the transfer of knowledge.

Within the scope of higher education, Ha, Phan, and Anh^[21] explored the significance of translanguaging in enhancing speaking skills among non-English major students. To achieve this objective, seventy second-year students participated in the study. The participants engaged in a rigorous eight-week teaching program focused on a translanguaging instructional context. The study's results revealed that translanguaging positively influenced students' speaking proficiency, as classes utilizing two languages showed superior speaking performance compared to monolingual

classes. Additionally, the results reported that integrating the first language within an English context (L2) enhanced students' self-confidence and oral fluency in English learning. This aligns with the findings of Alhaj and Alwadai^[22], who examined the application of translanguaging in English literature lessons for female students in Saudi Arabia. The study participants were exclusively female literature students at King Khalid University. The study aimed to examine students' perceptions of translanguaging in their English drama classroom. The study's results showed mixed perceptions and attitudes regarding the utilization of translanguaging in literature. Some students exhibited a negative inclination towards employing their first language in English literature classrooms, whereas others expressed a favorable attitude towards translanguaging in these lessons. This indicates that using the first language in the English context can be beneficial, enhancing English language skills, overall proficiency, and comprehension of drama among literature students.

1.1.2. Students' Perception of Bilingual Teaching Practices

To evaluate Saudi students' perceptions of teaching practices, Alasmari, Qasem, and Alhamami^[23] examined undergraduate students' perceptions of TPs in English for specific purposes (ESP) programs. Data were obtained from 150 students at B University through a questionnaire, class observations, and interviews. The findings of the study indicated that the students held a positive standpoint toward integrating English and Arabic in teaching ESP courses, perceiving that using both languages in a classroom environment would assist them in disambiguating complex terminology and other terms intrinsic to the study of ESP. Within the realm of pedagogy, this study provides an insightful picture of the integral role played by translanguaging in keeping students actively engaged in the learning process. Sharing a similar view, Zaghlool and Altamimi^[24] conducted a study to investigate EFL learners' and teachers' perspectives on alternating English and Arabic in teaching and learning English in Saudi secondary schools. A random sample of 100 teachers and 122 students from Riyadh were selected and instructed to respond to a five-point Likert scale questionnaire. The findings of the study indicated that both students and teachers believed that using English and Arabic interchangeably in the classroom helps foster students' knowledge and eliminates the opacity of unfamiliar topics. In other words,

mixing two languages (i.e., English and Arabic) is an effective learning strategy for assisting students in comprehending the complex grammatical structures of English. The study concluded that bilingual learning bridges gaps in classroom conversations, which in turn enhances students' comprehension. In line with the results of previously discussed studies, an investigation^[25] of translanguaging in Saudi classrooms from the perspective of upper-secondary students sought to fulfil two major objectives: evaluating the effectiveness of translanguaging in the classroom, and gaining insight into students' perceptions of employing Arabic alongside English in the classroom. Participants were presented with a questionnaire and an interview to assess their stance on bilingual learning. The results indicate that Saudi students have a greater preference for conventional second-language acquisition (SLA) learning. Students favor speaking English only in the classroom, despite the growing body of research supporting translanguaging when learning a foreign language.

Similarly, Kamran, Afzal, and Rafiq^[26] conducted a study to examine students' perceptions of their teachers' teaching methods. A semi-structured interview was conducted with higher education students at the University of Lahore. The study's results indicated that respondents reported numerous perceptions, highlighting effective communication as a fundamental tool in classroom practices. Teachers who exhibited greater leniency and receptiveness towards their students successfully fostered a creative learning environment. Furthermore, it was discovered that students prefer an interactive teaching environment, encompassing group discussions, role-playing, and case studies that may boost their motivation. The study concluded that educators utilizing diverse teaching methods are more effective in promoting learning and maintaining students' engagement and motivation. Parallel to the previous view, Nadeem and Jaffri^[27] conducted a study exploring students' perceptions of teachers' classroom teaching practices in higher education. The study's secondary objective aimed at acquiring insight into the most effective methods for enhancing classroom teaching practices. A survey was employed to gather data from 397 participants in the study. The study concluded that participants showed a positive perception of teachers' classroom teaching practices in higher education. Specifically, teaching practices such as teachers' content knowledge, lesson planning, teaching methods, and classroom management are

favorable to the students. Considering the discussed studies' findings, it is appropriate to indicate that no conclusive conclusion has been established, as some language learners believe that translanguaging is of paramount importance, whereas others favor the use of English solely in L2 education. These results will pave the way for future research.

1.1.3. Gender and TPs

The correlation between gender and students' TPs has yielded varied results in the literature^[11,12,14,28]. Certain studies identified a weak correlation or absence of significant correlation between gender and students' bilingual practices^[14,28], whereas others demonstrated marked gender disparities in the utilization of bilingual learning practices^[11,12]. For example, Vega, Gómez, and Ramírez used Content and Language Integrated Learning (CLIL) to investigate the bilingual practices of 128 undergraduate students (82 female, 46 male) in a Colombian medical program^[14]. The study employed an online survey to investigate students' perceptions of English through the pedagogical approach CLIL that uses English as a foreign language to teach medicine courses, thereby augmenting their academic knowledge and language proficiency. The study's findings indicated no significant disparities in responses between male and female students; their answers indicate that both genders shared similar perceptions and experiences regarding bilingual learning practices in medical education. Most students deemed English essential for learning medicine, while others employed a balanced integration of their foreign language (English) and their native language (Spanish) in presentations, group work, or even expressing personal opinions. However, a limited number of students expressed certain concerns about their oral proficiency in English, leading them to use their first language (Spanish) to enhance their learning processes^[29].

In European contexts, Hastie's study investigated the impact of gender and other factors, such as multilingualism and self-esteem, on children's attitudes towards translanguaging in Dutch classrooms. The research involved an online questionnaire distributed to 44 children, comprising 17 boys and 27 girls ages 8 to 12. The findings revealed a minimal effect size regarding the relationship between gender and children's attitudes towards translanguaging. The difference in girls' attitudes was not statistically significant, implying that gender was a weak predictor, with other factors such as academic self-esteem exerting greater influence. These

findings demonstrate that the intricate interaction of psychological and social factors influences children's language attitudes.

Conversely, other studies identified a substantial correlation between gender and students' perceptions of TPs. For example, Rao^[11] aimed to examine the impact of gender and academic major on the English language learning practices of Chinese university students. The researcher used a questionnaire that was adapted from the Oxford Strategy Inventory for Language Learning to conduct semi-structured interviews with 217 students, comprising 53% male and 47% female participants. The findings indicated that gender affected students' language learning strategies; female students used more metacognitive and communicative strategies in English learning, whereas male students favored functional methods. For example, female students employed the new English words in sentences, whereas male students relied more on functional practice, such as creating new vocabulary or resorting to Chinese when encountering conversational difficulties. The notable difference between male and female students was attributed to their social and educational backgrounds.

Yin^[12] conducted a study investigating gender disparities in translanguaging among ten English teachers (five male and five female), employed in Chinese secondary schools. The researcher used a classroom observation sheet to record the teachers' linguistic usage during class. The findings revealed that male and female teachers exhibited different TPs; male teachers used the body language more frequently than the target language (English), whereas female teachers preferred the target language. Additionally, a minority of English teachers employed all three forms of communication (Chinese, English, and body language). These results underscore that bilingual practices vary not only among learners but also among instructors. Likewise, Martin's^[29] findings indicated a relationship between gender and young bilingual students' practices. The researcher indicated that both genders utilized English in their classes and with their instructors, while they used Panjabi to solve problem-solving in science courses or during play with peers, demonstrating how language choice can be shaped by task type and social context.

These studies demonstrate that the influence of gender on TPs varies according to the context. Some research indi-

cates minimal impact of gender^[14,28], whereas others underscore distinct disparities in utilization of bilingual strategies by male and female learners^[11,29]. This variation is likely attributable to factors such as the educational system, the subject matter, sociocultural norms, and individual learner differences^[11,14,29].

1.1.4. Education Majors and Students' TPs

Previous studies have found a considerable correlation between students' educational majors and their involvement in TPs^[1,30,31]. Academic disciplines significantly influence students' attitudes toward language use in educational contexts^[30,31]. Research indicates that learners from different academic backgrounds interact with bilingual practices in accordance with the communicative and cognitive demands of their respective fields^[11,32,33]. For instance, Rao^[11] discovered that the field of study, particularly the distinction between humanities and science majors among Chinese university students, significantly influenced their language learning practices. Humanity students employed language learning practices (English) more frequently than science students. These findings indicate that disciplinary curricular requirements and overarching academic expectations influence TPs in language learning contexts.

In support of this observation, İnci-Kavak and Kırkgöz^[31] conducted a comparative analysis of translanguaging attitudes among literature and food engineering students at a Turkish university. Their study revealed that students' approaches to translanguaging differed significantly between the humanities and engineering disciplines; while literature students employed translanguaging for communication and interpretation, food engineering students frequently used it to clarify technical terms and follow instructions. These divergent functions of translanguaging further emphasize that academic fields impact both the frequency and the purpose of bilingual practices.

Additional evidence from Chen^[33] emphasized that, even within comparable academic years, the TPs employed by first-year international students in academic writing courses were significantly influenced by their major. The research revealed that university students used various bilingual practices to aid the writing process, including translating from L1 to L2 and soliciting feedback from instructors and peers to enhance their English writing skills. The students'

previous educational majors (e.g., Chinese language and literature, general Chinese writing habits, English linguistics) influenced their approach to academic writing of the new language (e.g., Chinese language and literature, general Chinese writing habits, English linguistics). These findings substantiate the idea that translanguaging and educational majors facilitate understanding of how bilingual learners adapt their linguistic practices to align with disciplinary expectations.

Likewise, Im's^[30] case study on Korean college students majoring in English education provides additional insight. The research demonstrated that frequent exposure to translanguaging in an English radio education program (bilingual programs) equips EFL students with the linguistic knowledge/skills and critical thinking skills, enabling them to reflect on and employ translanguaging more deliberately during educational activities. The study indicated that educational majors significantly impact students' engagement with and perceptions of TPs. In the Saudi context, Alsaawi's^[32] research revealed that senior university students majoring in business programs exhibited positive attitudes towards flexible use of English and Arabic during discussions. This study employed translanguaging strategically to facilitate comprehension, enhance participation, and manage multitasking in bilingual academic environments. The emphasis of the business discipline on real-world applications and task-oriented communication enhanced students' academic success by influencing their bilingual practices. Archila and de Mejía^[1] offered parallel findings in a Colombian university, where science students exhibited a higher frequency of bilingual teaching practices in Biology and Microbiology courses, including the utilization of online translators, reading materials in English, and preparing slides in English while discussing them in Spanish. This study highlights that translanguaging in these contexts served as a pedagogical tool to bridge conceptual gaps and support students' comprehension of complex scientific content.

In conclusion, although contexts vary, previous studies have demonstrated that educational majors significantly shape attitudes and practical engagement with TPs in the educational environment^[11,32,33]. This study examines the correlations between academic majors and TPs to determine if academic majors shape students' language use in bilingual practices.

2. Materials and Methods

2.1. Design and Setting

A quantitative study was conducted at a university in Saudi Arabia. The cross-sectional design was chosen, as it is used to gather data from respondents at a single point in time^[34], which suited this study, which was not longitudinal by nature. Participants in this study had a wide range of English proficiency levels; some had graduated from international or bilingual (e.g., Arabic–English) schools, whereas others had studied English as a subject in school for at least eight years. Participants self-reported their proficiency level on a 5-point Likert scale, with all levels ranging from B1 to B2.

It is important to clarify that in Saudi Arabia, the term “bilingualism” usually refers to the use of Arabic (native language) and English (foreign language). In this context, English is considered a foreign language by the vast majority of students.

2.2. Participants

This study employed random sampling to select a group of Saudi students enrolled at a university in Riyadh, Saudi Arabia. A random sampling technique was adopted to obtain in-depth information from the respondents and ensure fair representation to provide unbiased findings.

Participants were classified as enrolling either in humanities, encompassing disciplines such as English language, administrative sciences, media and communication, and economics, or in sciences, which included computer and information sciences, pure sciences, medicine, and engineering.

The study instrument was available online via Google Forms for two weeks. All necessary ethical considerations regarding confidentiality and anonymity were ensured. Ethical approval was obtained from the Deanship of Scientific Research of the university. Participants were informed that participation was voluntary and that withdrawal was possible at any time. In total, 129 responses were received. The participants are summarized in **Table 1**.

Table 1. Participants’ Demographic Information.

Criteria	n (% = [n/129] × 100)		
	Specifications	Number of Participants	Percentage
Gender	Males	44	34.1%
	Females	85	65.9%
Education Major	Humanities	59	45.7%
	Sciences	70	54.3%

2.3. Instrument

This study utilized a 30-item questionnaire adapted from Archila et al.^[7], originally developed by Archila and de Mejía^[1]. The instrument, designed to investigate university students’ perceptions of specific teaching practices and the beliefs regarding study methods (BSTs), comprised six sections containing a combination of Likert-scale statements, multiple-choice, and open-ended questions.

The original questionnaire’s content validity was determined by six expert reviewers and a pilot test involving 12 students. This study’s questionnaire demonstrated acceptable internal consistency, evidenced by a Cronbach’s alpha coefficient of $\alpha = 0.75$ for the items measuring TPs, aligning with established standards for acceptable reliability^[35].

2.4. Data Analysis

One hundred and twenty-nine responses were obtained and analyzed. The analysis was performed at three levels. In the first level, all the data were extracted from Google Forms™ and subsequently exported to Microsoft Excel. Upon verifying the completeness and appropriateness, they were subsequently coded and analyzed using the Statistical Package for the Social Sciences (SPSS). The second level of analysis concentrated on the participants’ responses to Questions 23, 24, 25, and 26, which were classified according to multiple options, allowing participants to select one or more choices. The third analytical level dealt with potential correlations between students’ perceptions of TPs and their gender and education majors. Eta correlation coefficients were calculated to investigate these correlations. The Eta

correlation coefficient (η) was adopted as the suitable test to examine the relationship between one categorical variable with nominal values (i.e., gender and education majors) and another continuous variable with numerical values (i.e., students' perceptions of TPs)^[36]. The effect sizes of the Eta coefficients were also calculated. According to Larson-Hall^[37], the effect size for correlations is the square of the

correlation.

3. Results

3.1. Students' Perceptions of TPs

The results relating to Saudi students' perceptions of TPs are summarized in **Table 2**.

Table 2. Participants' perceptions of TPs.

Item	n (% = [n/129] × 100)	
	Very Frequently/Fairly Frequently	Never/Infrequently
Item 3: Instructors assign readings in English	76.0%	24.0%
Item 4: Instructors suggest study methods to facilitate understanding of English readings	59.7%	40.3%
Item 6: Instructors interact orally with the students entirely in English	65.9%	34.1%
Item 7: Instructors suggest study methods to facilitate oral comprehension in English	58.1%	41.9%
Item 8: Instructors interact orally with the students partially in English	77.5%	22.5%
Item 9: Instructors use slides in English and discuss them in Arabic	71.3%	28.7%
Item 10: Instructors use slides in Arabic and discuss them in English	41.9%	58.1%
Item 11: Instructors ask you to complete written tasks in English	79.8%	20.2%
Item 12: Instructors suggest study methods to facilitate your written English production	65.9%	34.1%
Item 13: Instructors ask you to deliver oral presentations in English	71.3%	28.7%
Item 14: Instructors suggest study methods to facilitate oral production in English	62.0%	38.0%

The instructors in the study employed several methods to incorporate English into their teaching. Most participants (76.0%) reported that their instructors frequently assigned English readings. More than half (59.7%) of participants indicated that their instructors frequently recommended study techniques to enhance their comprehension of the readings.

Regarding oral communication, 65.9% of respondents reported that their instructors frequently communicated with them exclusively in English. Notably, most students (77.5%) reported that their instructors regularly used both English and Arabic.

Most instructors (71.3%) used English slides while conversing in Arabic. A minority of students (58.1%) reported that their instructors rarely or never used Arabic slides with English discussions.

The research indicated that most participants (79.8%) were frequently assigned written tasks in English. Additionally, 65.9% of participants indicated that their instructors frequently proposed study methods to help them with written English, whereas 34.1% stated their instructors did so infrequently or never.

Finally, most participants (71.3%) were regularly tasked to give oral presentations in English, while 62.0% reported that their instructors frequently suggested study methods to help them with their oral English skills.

3.2. The Correlation Between Gender and Students' Perceptions of TPs

Table 3 presents the Eta correlation coefficients between gender and student perceptions of the TPs.

In this study, gender was considered as an independent variable. Therefore, $\eta = 0.136$ indicated a very weak relationship between gender and students' perceptions of TPs.

The effect size of the correlation between gender and students' perceptions of TPs was $0.136^2 = 0.018$. Based on Plonsky and Oswald's guidelines for the SLA field^[31], the effect size was 0.018.

3.3. The Correlation Between Education Majors and Students' Perceptions of TPs

Table 4 presents the Eta correlation coefficients between education majors and student perceptions of the TPs.

Table 3. Correlation Between Gender and Students' Perceptions of TPs.

			Value
Nominal by Interval	Eta	Perceptions Dependent	0.136
		Gender Dependent	0.938

Table 4. Correlation Between Education Majors and Students' Perceptions of TPs.

			Value
Nominal by Interval	Eta	Perceptions Dependent	0.057
		Education Major Dependent	0.965

Education majors were considered independent variables. Therefore, $\eta = 0.057$ revealed a very weak correlation between education majors and students' perceptions of TPs.

The effect size of the correlation between educational majors and student perceptions of TPs was $0.057 = 0.057 = 0.003$. According to Plonsky and Oswald's guidelines^[32], the effect size was 0.003.

4. Discussion

4.1. Discussion of the First Research Question: "What is the Correlation Between University Students' Perceptions of TPs and Their Gender?"

The study's findings regarding the first research question indicated a negligible correlation between gender and students' perceptions of TPs, with an Eta correlation coefficient of 0.136. This outcome aligns with Hastie^[28], which revealed a minor effect size (weak correlation) between gender and bilingual learning preferences among Dutch schoolchildren. The result of the current research aligns with those of a prior study by Vega et al.^[14], which revealed no significant relationship between gender and university students' attitudes toward bilingual instruction in a Colombian medical program. These results explain that gender may not significantly influence students' perceptions of bilingual practices; rather, factors such as culture and individual differences may have an impact^[14,28,38].

This study's outcome contradicts previous studies that suggest a correlation between gender and participants' perceptions of TPs^[11,12,29]. For instance, Rao^[11] discovered that Chinese female participants used more metacognitive and

communicative strategies when learning English, whereas male students preferred functional approaches. Martin^[29] observed a distinct correlation between gender and young bilingual students, specifically switching between English and Punjabi in social and educational contexts. These results explain that gender may significantly influence students' perceptions of bilingual practices.

This study's results can be interpreted through a socio-cultural perspective, which perceives language learning as a socially mediated process influenced by institutional and cultural forces^[39]. The weak correlation between gender and translanguaging indicates that gender alone is not a key factor in complex educational settings like Saudi Arabia. The recent educational reforms in Saudi Arabia, particularly those introduced under Vision 2030, emphasize gender equality in higher education, potentially resulting in equitable access to linguistic resources, bilingual education, and pedagogical experiences^[38].

A further possible explanation for the absence of gender differences is that gender may interact with additional factors such as disciplinary context, teaching style, or oral proficiency, rendering it an insufficient predictor when evaluated in isolation^[11,14,29]. The limited scope of this study, concentrating solely on Saudi university students and omitting teachers or other stakeholders, may also explain the lack of observed variation. The findings of this study suggest that translanguaging is not inherently linked to gender and is progressively emerging as a prevalent academic approach in Saudi universities. Another potential explanation is the significant efforts by Saudi educational institutions to ensure equity between male and female university students. The Saudi educational system aims to provide education of equivalent quality to both genders.

4.2. Discussion of the Second Research Question: “What is the Correlation Between University Students’ Perceptions of TPs and Their Education Majors?”

The findings of the second question revealed a negligible correlation ($\eta = 0.057$) between education majors and students’ perceptions of TPs. This result contradicts previous studies that reported a strong correlation between students’ educational majors and their perceptions of TPs^[1,30,31,33]. This study’s outcome contradicts previous research, which found that students majoring in humanities or social sciences expressed more favorable attitudes toward employing language learning practices more frequently than those in science fields^[11], suggesting that students’ language-learning practices were influenced by their academic majors. The research of Im^[30], İnci-Kavak and Kırkgöz^[31], and Al-saawi^[32], also reported contradictory results, indicating that students used translanguage differently depending on their academic disciplines, whether in science, humanities, or business. The disparities in TPs across academic disciplines arise from the distinct communicative and cognitive demands of each field, necessitating students to modify their bilingual strategies to effectively engage with academic content and social norms^[11,33].

The contradictory findings can be elucidated by considering how language practices are influenced by disciplinary focus, social, cultural, and institutional factors^[11,32,33]. The weak correlation of academic majors in this research may reflect that Saudi universities implement similar teaching methods and EMI-based curricula across disciplines, minimizing variation in students’ exposure to and use of TPs^[32,38]. Additionally, sociocultural factors, such as the widespread use of English in higher education and the strong role of Arabic in daily life, may influence students’ language preferences than their academic major^[38].

The weak correlation does not diminish the pedagogical role of translanguage; rather, it confirms its value as a cross-disciplinary learning strategy applicable beyond specific majors^[40]. These findings imply that academic practices and language policies across Saudi institutions may have greater influence on students’ perceptions and behavior than disciplinary boundaries^[38]. Therefore, it is necessary to study the interplay between institutional EMI policies and bilingual pedagogies, and the individual language practices of students^[20].

The present study identified extremely small effect sizes for the correlations between gender (0.018) and educational major (0.003) with students’ perceptions of translanguage practices. It is therefore possible that some statistical associations exist, but their impact on students’ perceptions of translanguage is very limited. This small effect is likely to be due to the influence of other, stronger variables, such as EMI curricula, institutional language policies, students’ cultural attitudes, or individual student differences, which seem to play a much greater role than demographic factors, such as gender or educational major. This study highlights the need to explore additional variables that may provide a better explanation of how students perceive and experience bilingual practices in higher educational settings.

In conclusion, this study’s findings indicate that gender and educational majors exhibit only weak correlations with students’ perceptions of bilingual learning. The perceptions of university students may be more strongly influenced by sociocultural factors, institutional settings, and individual learner variances^[14,28,38]. Subsequent research could investigate how these factors interact and whether specific teaching practices or institutional policies support more effective use of translanguage across educational contexts^[20,38].

5. Conclusions

This study examined the correlation between university students’ perceptions of TPs and their education majors and genders within the Saudi Arabian context. The data revealed negligible correlations between gender or academic major and students’ perceptions, suggesting that translanguage is uniformly perceived across student demographics and academic disciplines. These findings indicate that students’ perceptions of TPs are influenced more by educational systems, institutional practices, and cultural attitudes toward bilingualism than by gender or academic specialization^[11,32,33]. However, the study is subject to several limitations, including a limited sample size and its exclusive focus on Saudi university students, which may restrict the generalizability of the results to other populations or contexts. Future research should investigate additional factors influencing translanguage perceptions, such as personal learning strategies, prior educational background, language proficiency, and exposure to bilingual environments. Furthermore, examining

translanguaging implementation across different academic disciplines and exploring the role of institutional policies in supporting or limiting its use would provide valuable insights. These findings highlight the importance of developing bilingual pedagogies that benefit all students in Saudi universities, irrespective of their major or gender. They underscore the necessity for institutional support and culturally responsive teaching practices to effectively use translanguaging as a valuable educational strategy.

5.1. Teaching Implications

This study's findings yield the following teaching implications. First, the study's findings imply that students' utilization of their first language (L1) alongside the second language enhances better comprehension of curriculum content. Teachers ought to cultivate an environment that fosters and amplifies multilingualism, encouraging collaboration and communication among students. Ultimately, the implementation of translanguaging in the classroom can enhance second language proficiency, resulting in cooperative learning outcomes. Second, the study recommends the use of various pedagogical methods, including group discussions, role-playing, peer correction, and case studies.

5.2. Limitations and Future Research

The scope of the analysis in this study was limited to Saudi university students; students from other countries were beyond the scope of the study. Furthermore, the sample size of the study was relatively small, which may have affected generalizability. Future research can thus expand the scope of investigation to cover languages other than English and Arabic, such as Spanish and French, to determine the teaching and studying practices employed by students across various languages. Furthermore, future research should be conducted to compare bilingual teaching and studying practices in Saudi Arabia with those in other Arab countries to gain insight into how foreign languages are taught and studied in countries other than Saudi Arabia.

Author Contributions

All authors contributed equally in conceptualization, writing the original draft, preparation, and reviewing and

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Institutional Review Board Statement

The study was approved by the Ethics Committee of Deanship of Scientific Research (protocol code: 638884112528476213, and date of approval: 28-5-2025).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

Data is unavailable due to privacy and ethical restrictions.

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Conflicts of Interest

The authors declare no conflict of interest.

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