



## EXPLORING THE IMPACT OF BIOLOGICAL GENDER ON L1 NEGATIVE TRANSFER IN ENGLISH PREPOSITION LEARNING: AN EXPLANATORY STUDY

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### | Abstract

*This study investigates the influence of biological gender on L1 negative transfer in learning English prepositions. Interviews were conducted with 12 English language learners, revealing that males performed better in spatial prepositions but struggled with other types. A mixed-methods approach was used, combining qualitative and quantitative research. Female participants demonstrated higher performance, and the study was conducted in Luxembourg, a multilingual country. Ethical considerations were addressed, achieving a 91.08% response rate. Results indicated females generally outperformed males in prepositional accuracy. Language transfer from L1 impacted preposition acquisition, with replacement errors being common. Females showed greater syntactic maturity, while males exhibited advanced linguistic skills. Stylistic differences in writing styles were observed. The study highlights the influence of gender in language acquisition and contributes to understanding gender disparities in second language learning.*

### | Keywords

*Biological gender, L1 negative transfer, English prepositions, Language acquisition, Gender differences*

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### 1. Introduction

Gender is widely recognized as a significant Second Language Acquisition (SLA) factor. Extensive research in the relevant field has identified several factors, such as age, linguistic aptitude, motivation, personality type, and gender, that have been found to have a substantial impact on learners' success in acquiring the target language over an extended period (Alahmadi & Lahlali, 2019). Gender has been extensively examined, particularly within the context of language learning methodologies, and has emerged as a critical aspect of SLA. Studies have been conducted to establish a solid foundation in this area. The transfer of one's first language (L1) has long been regarded as a pivotal component in second language acquisition (SLA), language teaching, and learning (Nghi, 2020).

Prepositions in the English language play a vital role in facilitating language acquisition and effective communication by aiding students in constructing well-organized sentences. Prepositions express various elements such as position, movement, time, and manner of action. The absence of prepositions hampers sentence clarity and objective fulfillment. Prepositions are intricate and polysemous, presenting challenges

in understanding their multiple senses within complex semantic and syntactic contexts. Particularly for non-native English learners in non-English speaking countries, prepositions' high frequency and polysemous nature pose significant difficulties. Although these challenges have been explored to some extent, recent research (Hoang & Boers, 2018) provides valuable insights, enhancing learners' proficiency. Phan and Locke (2015) emphasize the research's role in promoting language efficiency among students. However, the identified papers do not explicitly address the factors that impact language acquisition, especially concerning prepositions. Heydari and Bagheri (2012) highlight numerous challenges English learners face in using prepositions, a theory supported by Gvarishvil (2012), who considers prepositions the most difficult aspect of learning the English language.

Scholars have identified two types of language transfer: positive and negative transfers (Saville-Troike & Barto, 2017). Positive transfer occurs when the first language and other known languages are utilized within the context of the second language, resulting in the correct usage of the second language (L2). On the other hand, negative transfer refers to the application of the L1 in the background of the L2, resulting in the adoption of the L2's structure (Khurriyati, 2013). In simpler terms, positive transfer happens when the learner's native language (NL) and target language (TL) exhibit similarities, while negative transfer occurs when the two languages are dissimilar. Identifying negative transfer is relatively straightforward, as it is associated with mistakes that hinder SLA. Conversely, positive transfer facilitates the acquisition of L2 forms.

Saville-Troike and Barto (2017) emphasize the significance of transfer from the L1 in influencing the acquisition of L2 structures. They argue that language transfer is a crucial phenomenon that should be considered in the second language learning process. Therefore, research on SLA should acknowledge the influence of the NL on the outcome of second language learning, a perspective supported by Sari (2009), who asserts that L1 has a substantial impact on SLA. This study examines the impact of gender on learners' consistent mistakes in SLA, particularly in the context of learning English prepositions. The question of whether gender and L2 learning are related remains unresolved, as certain aspects of the relationship between gender and L2 learning are subject to debate.

The term "facilitation" or "positive transfer" refers to the ability of a first language to aid the learning of the L2. It happens when the first and second languages have a lot in common. The overall objective of this study is to discuss biological gender as a source of L1 negative transfer in learning English prepositions.

Specific Objectives include :

- (i) *To investigate the role of gender in the uniformity L1 negative transfer in learning English prepositions.*
- (ii) *To establish the specific gender disparities in the L1 negative transfer in learning English prepositions.*

## 2. Literature Review

Previous studies conducted by Karim and Nassaji et al. (2013) have explored language transfer and the association between brain functioning and gender differences. Their findings indicate that there are cognitive disparities between males and females in terms of language representation. For instance, female stroke survivors are less likely to experience verbal impairment following left hemisphere damage compared to males. Karim et al. (2013) also observed that the asymmetry of the plenum temporale, which overlaps with Wernicke's area, is less pronounced in males than females. However, the exact explanation for the relationship between brain and gender differences remains unclear.

Gender research in second language acquisition and learning has been a contentious topic in the past few decades, as highlighted by Alahmadi and Lahlali (2019), and Alkhudiry (2020). Differences in language

performance between males and females have been regarded as significant factors in achievement theories, training approaches, individual exploration, and gender differences in second language learning (Daukšaitė, 2019). However, Phuc, Thang and Nghi (2019) noted a lack of research on the association between language learners' error rates and stable individual variations such as gender. Daukšaitė (2019), in her examination of the relationship between gender and learning behavior, discovered notable differences in mental activities, social behaviors, and overall oral interactions associated with gender.

Psychologists investigating the connection between gender and learning behavior have identified substantial differences in cognitive processes, societal behavior, and overall verbal proficiency (Alahmadi & Lahlali, 2019). However, Daukšaitė (2019) highlights the limited number of studies that specifically examine these characteristics in the field of SLA. SLA research often encompasses various factors such as individual traits, age, ethnicity, and race, yet gender is not consistently included in the considerations. Research conducted by Alahmadi and Lahlali (2019) has explored the impact of these factors on the SLA system, with a particular focus on age and personality (Alahmadi & Lahlali, 2019). Individual differences are regarded as strong indicators of L2 performance and are crucial in understanding variations in SLA (Nghi, 2020). These factors and other variables significantly influence the three stages of SLA: input, intake, and processing. While some studies acknowledge the distinct roles played by individuals in shaping SLA across different learning contexts, the findings are inconsistent. This inconsistency is partially attributed to varying elements such as anxiety, motivation, and gender, as well as the lack of consistency, reliability, and validity in measurement tools.

In examining theories of SLA and the relationship between gender and learners' performance, various studies have shed light on potential differences between genders in language usage (Sari, 2019). Cabrera et al. (2014) have specifically focused on the influence of the learners' L1 and its impact on language learning. Both Cabrera's and Sari's research share a common ground in exploring the interplay of language, gender, and learning, whether in L1 or L2 contexts. While the findings do not suggest that the relationship between the learning process and gender is irrelevant, further research is needed to better understand this connection. For instance, Cabrera et al. (2014) found that females generally outperformed males, suggesting a potential advantage for the former gender. However, they also highlighted that factors beyond gender, such as motivation, play a significant role in L2 performance (Sari, 2019). Furthermore, Sari (2019) examined the role of motivation in both genders and found that females tend to exhibit higher levels of motivation compared to males.

Regarding the motives behind language learning, Ludwig (1983) highlighted that males tend to pursue L2 studies for practical reasons, while females are driven by their personal interest in the language. However, it is important to recognize that motivation and gender intertwine and significantly influence students' performance. Kim and Piper (2019) suggest that there is a logical assumption that males excel in L2 communication, leading to lower language proficiency and accuracy compared to females. However, gender studies on language ability have yielded contradictory results based on this assumption (Koul et al., 2009). Nevertheless, SLA research related to gender in L2 learning has shown gradual progress.

One notable study in the field explores the semantics of English prepositions in Vietnamese students' learning process. Gedik and Hung (2017) employed a Cognitive Perspective approach to teach English prepositions, utilizing vivid imagery to convey different meanings of prepositions. The study involved thirty-eight students divided into two groups: one receiving innovative cognitive-linguistic instructions and the other following standard instructions. The participants expressed their understanding of ten

prepositions, including *above, among, at, behind, alongside, between, in, in front of, on, and under*. The results demonstrated that the group receiving innovative instructions outperformed the traditional group in terms of speed, despite both groups having similar pretest scores. These findings align with the research conducted by Zarei, Darakeh, and Daneshkhah (2016), who found that teaching prepositions using image-schemas and emphasizing relational networks and real-world experiences resulted in improved learner knowledge.

Within the realm of language learning, various theoretical approaches have been developed to elucidate the process of acquisition, transfer, and error production. One such approach is the behaviorist approach, as proposed by Vâlcea (2020), which posits that imitation plays a central role in language learning. According to this view, young learners absorb new structures by replicating adult speech patterns. However, a limitation of this approach is that it primarily applies to learning one's native language, rendering it less suitable for foreign language acquisition.

On the other hand, the communicative approach views interaction as both the means and the objective of second language learning. Swan (1985) criticizes the deliberate exclusion of the L1 in L2 learning, arguing that learners naturally begin with the assumption that L1 and L2 share similar features. This assumption is either confirmed or corrected as learners delve deeper into L2 study. Swan further contends that L1 and the potential interference between L1 and L2 should not be blamed for learning errors, as he maintains that L1 plays a substantial role in ensuring proficiency in speaking any L2.

In contrast, the cognitive approach, as outlined by Achard and Niemeier (2004), focuses on language as it is used by speakers and the modifications that occur in the language as a result. Unlike the behaviorist approach, which primarily addresses first language acquisition, the cognitive approach takes a broader perspective, encompassing both first and foreign language acquisition. It emphasizes the similarities and differences that arise during language learning. Moreover, the cognitive approach attributes the wide range of alternative structures observed in language to the expressive capacity of speakers to portray events or concepts in multiple ways (Langacker, 2008). The cognitive approach acknowledges the challenge of balancing L1 and L2 when learning a foreign language, as learners are often tempted to rely on L1 when constructing discourse in L2. As Chard and Niemeier (2004) assert, in the early stages of L2 development, the target units directly compete with the native units, as they represent alternative ways of construing reality.

### **3. Methodology**

The study employed interview schedules as the primary research instrument to investigate the participants' perceptions regarding the use of English prepositions in their academic pursuits. The collected data revealed that males exhibited improved performance specifically in the domain of spatial prepositions, while struggling with other aspects of English prepositions. The research design integrated both qualitative and quantitative methods, allowing for a comprehensive exploration and facilitating flexibility during data collection. The primary purpose of the study was to the transfer of L2 knowledge and the influence of L1 on its outcomes. This approach enabled the gathering of data from diverse sources, contributing to a more comprehensive analysis. It is important to note that the results derived from the gathered data cannot be predetermined or predicted.

#### **3.1. Participants**

The study comprised a sample of 12 English language students who were learning English as their second or foreign language. The primary aim was to explore how their L1 influenced their learning process, specifically in relation to the use of English prepositions. The findings revealed notable gender differences in the occurrence of negative transfer from L1 during the acquisition of English prepositions. These findings indicate that males and females exhibit distinct patterns in their English language performance. The research hypothesis posited that gender plays a significant role in language acquisition and usage. The study further established that female participants achieved better performance compared to their male counterparts.

### **3.2. Research design**

The data collection process involved two methods. Firstly, student data was collected based on their scores on the English Language test. Secondly, error analysis was conducted during interviews to identify errors made by participants and determine their source. Semi-structured interviews were chosen as the suitable method for this purpose. These interviews began with an open-ended question, allowing participants to provide longer responses and facilitating the observation of their linguistic differences. Short follow-up questions were also included to encourage further conversation and note any distinctions. The interviews consisted of three parts: an informal opening, a description of a chosen film, and an explanation of the differences in second language learning between men and women. To summarize their learning experiences, participants were given one minute to reflect.

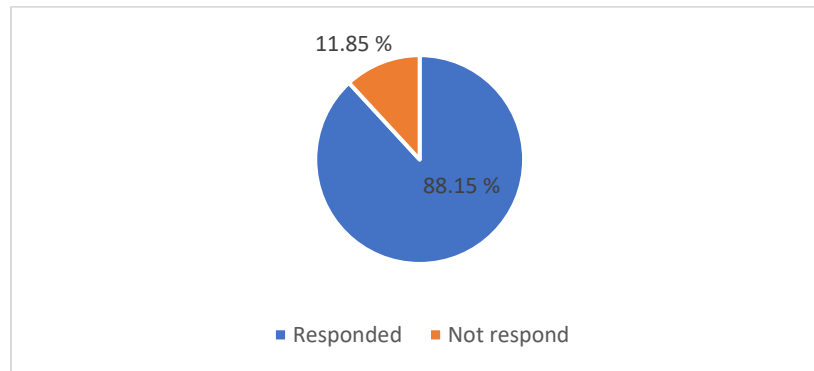
### **3.3. Ethical Issues**

The research was accomplished by gathering first names when delivering the questionnaire, allowing respondents to skip the interview process if they wanted. The findings of individual respondents are typical of a group. Therefore, no connection to their results is required after withdrawal ; additionally, because this is not a longitudinal study needing merely confidentiality, no data pairing is required, which drives anonymity.

## **4. Results**

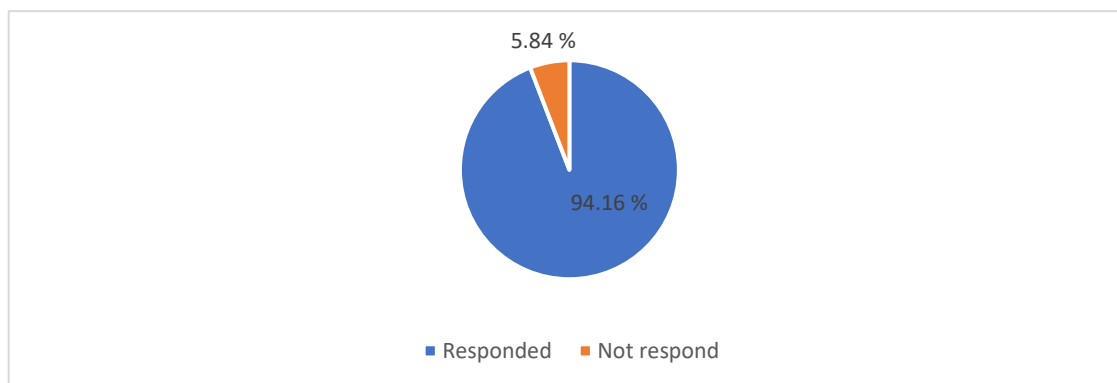
Out of the total sample of 3108 participants who were invited to complete the survey either online or using a paper questionnaire, 2831 individuals responded by returning their completed questionnaires, resulting in a response rate of 91.08%. Among the female participants, 1437 out of 1526 returned their filled questionnaires, yielding a response rate of 94.16%. For the male participants, 1355 out of 1537 returned their completed responses, resulting in a response rate of 88.15%. Additionally, out of the 45 participants who chose not to disclose their gender, 39 returned their completed questionnaires, representing a response rate of 86.66%. These response rates are graphically displayed in Figure 1, 2, and 3, using pie charts.

*Figure 1. Pie chart representation of male participants' questionnaire response rates*



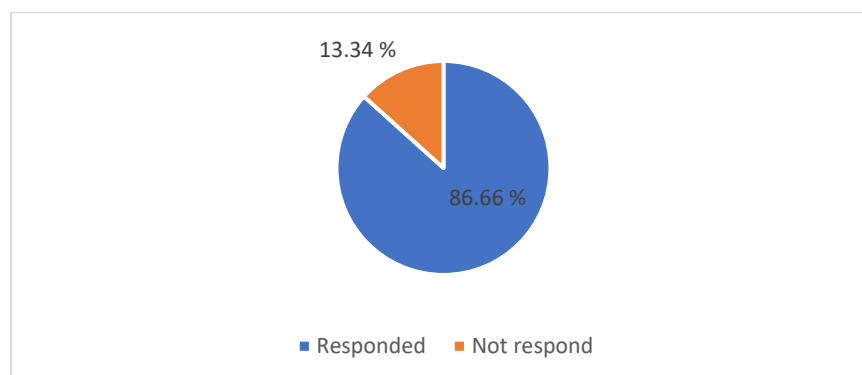
As observed in Figure 1 above, 88.15% of males responded, while 11.85% did not respond.

*Figure 2. Pie chart representation of female respondents' questionnaire response rates*



As observed in Figure 2 above, 94.16% of females responded, while 5.84% did not respond.

*Figure 3. Pie chart representation of gender-sective participants' questionnaire response rates*



As observed in Figure 3 above, 86.66% of gender-sective participants responded, while 13.34% did not respond.

Currently, there has been a shift in the study of language transfer from focusing solely on linguistic characteristics to examining the interactional aspects among speakers. These interactions reveal certain gender-specific features that reflect gender identity. This chapter aims to present gender differences based

on data collected through surveys and interviews. While the scope of this study is limited, it reveals discrepancies in syntactic proficiency between male and female students in junior high and senior high school. These findings align with previous field studies (Bergman, 2010), but contradict other research such as that of Johansson and Geisler (2011).

Language proficiency encompasses both accuracy and fluency in written and spoken communication. In relation to the use of prepositions, participants were asked about their perception of gender's influence on prepositional accuracy. This topic emerged from the responses of 12 participants who noted that negative interference from their L1 often leads to prepositional errors. Among the survey participants, 12 individuals were selected for further examination. These respondents argued that males and females exhibit distinct performance in cognitive semantics, with males demonstrating better abilities in spatial and mechanical reasoning.

According to P5 :

*« Females are normally confusing about the directions, and they are not good defining which south, north, west or east to go or even in their speech. »*

According to P7 :

*« Male often perform better compared to females, especially on spatial reasoning ability. »*

This response implied that male students were proficient at using prepositions that depict spatial relationships such as « at. » In addition to spatial ability, P9 argued that male students were better in mechanical reasoning ability when using prepositions :

*« Males are more proficient in identifying spatial relationships and mechanical concepts in using prepositions to construct sentences. »*

However, three participants, including P3, P4, and P11, argued that environmental factors dictated cognitive semantics, and gender does not play any significant rôle there. Instead, students' exposure to the English language at an early age influences their proficiency in using prepositions :

*« Transfer challenges are not determined or mediated by one's gender but how they get exposed to English and the surroundings » (P3)*

The above assertion was also seconded by P4, as shown below :

*« The influence of one's gender does not influence their use of English prepositions. »*

This assertion implied that all children had an equal chance to develop themselves cognitively. According to P9 :

*« We have cases of females and males who are cognitively retarded ; hence their L1 transfer to the English version is often noticeable. »*

In addition, P11 reiterated that although females were better in mastering the use of English prepositions, the differences between the two genders were not significant :

*« In reality, females slightly outperform males, although there is no significant difference. »*

This response implied that females were better placed cognitively than their male counterparts in becoming more competent concerning language use. From these perspectives, it could be argued that irrespective of participants' gender, they all had the ability to become proficient cognitively in using English.

In summary, even though females can perform better than males in general for the whole test, males are believed to recognize the spatial prepositions quicker and more accurately than the opposite. Two-way prepositions are primarily well understood by males, while females have to take time to analyze the logic.

From this point of view of participants, biological genders function as a source in their minds as a tenet for language transfer that may occur in language use. Their cognition is fixed for male's outperformance on visual-spatial working memory. Other science fields also confirmed this issue (Hyde & Mertz, 2009; Trudeau & Shephard, 2008). For a long time, Moore, 2018 has focused so much on the grammatical gender form in English and French languages. Moore (2018) did forget gender as a source of L1 negative transfer in both spoken and written form. It means that the focus is more on language forms rather than language identity as a living entity. A language lives and changes through its users (Moore, 2018), so gender is a part of it since language users were born, grown, and perceived themselves in how their gender exists. Therefore, it will be a big shortcoming if we separate the biological sexes from linguistic research, especially with the study of language transfer.

## 5. Discussion

The overall objective of this study is to discuss biological gender as a source of L1 negative transfer in learning English prepositions. The findings of this study reveal that there are syntactic and stylistic distinctions between the two genders. It is difficult to say whether these disparities are genuinely gender-based because there are various other elements to consider, such as age, social status, and language background. The research yields some intriguing results, as it both contradicts and complements earlier studies on syntactic development. For example, Johansson and Geisler (2011) found no significant variations in syntactic maturity between males and females, whereas my, admittedly small, study found differences between males and females. In both the syntactic indexes based on error-free Language prepositions and the subordinate clause index, female students outperform male students (Fatemi, Sobhani., & Abolhasani, 2012). This appears to be consistent with prior research on gender disparities in SLA and the situation in language learning elementary schools (Payne and Lynn, 2011).

From the results, it is evident that gender takes part in shaping an individual's command in English propositions; analysis of data shows that there is a slight difference in the means between the performance of the two genders, thus implicating that the female gender had better use of English propositions than male students had. Just like Schroeder, Marian Shook and Bartolotti (2016) explained, female L2 learners were better at memorization of new words than males, and this is because they were able to extract probabilistic information from the vocabulary (Faisal, 2013). Closely related to the lexical activation theories, while there are factors that affect the organization of the mental lexicon (e.g., proficiency, L1/L2 status), other factors are mainly relevant to language activation during language production (Nemati & Taghizade, 2006). Therefore, the mind is organized similarly at one point, independent of the learner's location and even the individuals they are talking to. The result, therefore, confirms that the contextual factors lead to the differences in transfer patterns between males and females (Bacon & Finneman, 1992). In this sense, the models of language activation offer an insight into why prevalence in one context does not imply prevalence in another context.

The findings for question one revealed that language transfer impacts the acquisition of English prepositions, but it is not the most important element at work. The results noted that replacement errors accounted for the majority of language transfer errors, followed by omission and addition errors (Balemir, 2009). According to the findings, the results indicated that negative transfer from L1 is responsible for more than a third of errors in the usage of English prepositions. These findings support the notion that when EFL learners lack sufficient knowledge in L2, they must resort to their native language (Palgrave MacMillan & Nassaji, 2013).



The results of the study indicated that negative language transfer is not a hindrance for the EFL learners in the focus group; however, as no overall proficiency test was made on the respondents, it is possible that pupils chose the alternative that instinctively felt right to them which would indicate that the overall proficiency is at a level where the inter-language has developed past having trouble with negative transfer from their L1 (Muhammed, 2017). Female students surpass male students in all but one of the syntactic indices, and even then, the difference is negligible, as males write 0.01 fewer prepositions on average than females. Moreover, the study by Signell (2012) noted that female junior high students outperform male junior high students in terms of the proportion of error-free Language prepositions written, with females writing nearly twice as many error-free Language prepositions as males (0.61 to 0.32). However, the study showed that the female, on the other hand, makes fewer faults and errors overall, as indicated by the larger proportion of error-free Language prepositions among female pupils (Karim & Nassaji, 2013; Fatemi, Sobhani & Abolhasani, 2012). Furthermore, female subject-verb agreement errors appear to occur more frequently in settings where the subject-verb agreement is not totally clear (Jiménez, 2010).

From the results of this study, the female students' dominance in the error-free prepositions could be explained by the fact that women have more access to their universal grammar and are better at resetting the parameters set by their L1 (Keshavarz, 2008). However, according to Bergman (2010), because the students' native languages are unknown, it is impossible to hypothesize on factors related to transfer and interference. It is reasonable to anticipate that a significant number of pupils speak foreign languages as their first language and, as a result, would benefit from the same sorts of transfer and interference regardless of gender. However, no precise assumptions may be made regarding the pupils' primary languages (Bacon & Finneman, 1992).

Bergman (2010) discovered that female students demonstrated a higher level of benevolence in their texts than male students in her study. This is also obvious in my data. Despite the abstract nature of the topic, the female students find ways to convey sympathy. There are aesthetic distinctions between the female and male students in this study, in addition to syntactic disparities. The gap in syntactic complexity between the genders is less prominent in senior high school than it is in junior high school.

On the other hand, senior high school males show off their language prowess by using advanced terminology and phraseology. This relates to a criticism made by Alahmadi when he critiques the T-significant unit's concentration on syntax (Alahmadi & Lahlali, 2019). Although the difference in syntactic maturity between the genders may not be as noticeable in senior high school, it is clear from the material that male students have a greater degree of linguistic skill, thanks in part to their large vocabulary (Palma de Mallorca, 2016). The difference in writing styles between males and females may be the best evidence of stylistic variations between the genders. Compared to their female counterparts, male pupils, particularly in junior high school, have a highly sparse, brief, and rigid writing style (Coskun, 2014; Derakhshan & Karimi, 2015). The teacher in Murphy and Elwood's study draws a parallel between males' writing with a Panzer division, which is not far off the mark (Karim & Nassaji, 2013). Furthermore, in both junior and senior high, female students place a greater emphasis on personal experiences in their essays. In contrast, male students attempt to reason why they believe or do not believe in females' things (Balemir, 2009).

Learning of the determiners, i.e., all the articles; the prepositions for the students who are not natives of English-speaking countries, is known to be the implication of the Contrastive Scrutiny Hypothesis, according to the linguistic studies previously accomplished. In terms of the impact created by the gender of a learner on the types and the kind of repeated mistakes they make, leads to results that are limited in

terms of the study with addition sorts of errors, which may include substitution and omission errors, are more common among feminine gender as compared to the masculine gender: addition errors may be common in the masculine gender than in the latter (Kissau, 2006). However, in this study, the overall proficiency score, as derived from the number of the faults, suggests that Saudi male learners outperform their female counterparts in terms of language competence (smaller number of errors), regardless of error type (Karim & Nassaji, 2013).

## 6. Conclusion

The primary aim of this study is to explore the influence of biological gender on L1 negative transfer in the acquisition of English prepositions. Specifically, it examines the role of gender in shaping the consistency of L1 negative transfer and identifies gender disparities in the occurrence of L1 negative transfer when learning English prepositions. By analyzing the impact of learners' gender on the types of consistent errors made, the findings indicate that certain errors, such as substitution and omission faults, are more prevalent among female learners compared to their male counterparts. Conversely, some errors may be more common among male learners than female learners. However, when considering overall language proficiency, as indicated by the number of errors made, Saudi male learners demonstrate higher competence (fewer errors) compared to female learners, regardless of the type of error. This discrepancy may be attributed to the greater utilization of communication skills by male learners, which influences their language performance. Gender emerges as a potential factor influencing the learning process and accounting for these observed disparities.

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