Assessing Language Ambiguity Among EFL Students: A Comparative Study

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Abstract:

Language ambiguity, a growing field in applied linguistics, has been explored in various linguistic domains such as educational linguistics, psycholinguistics, neurolinguistics, and computational linguistics. This study makes a significant contribution to the field, as language ambiguity presents notable challenges for English as a Foreign Language (EFL) learners. However, there is limited research examining the impact of gender on the interpretation and tolerance of ambiguity, particularly within the context of Saudi Arabia, such as Ansari (2023) and Muhammed Zein (2022). This study evaluates the capacity of English as a foreign language (EFL) learners to tolerate language ambiguity within their foreign language repertoire. The study was enriched by the involvement of 180 students from diverse Saudi universities, providing a comprehensive and heterogeneous sample. The data were collected using the Second Language Tolerance of Ambiguity Scale (SLTAS), a tool modified by Erten and Topkaya (2009) to highlight gender differences using descriptive statistics and classify tolerance levels, thereby ensuring the strength and validity of the studies. The data analysis indicated no statistically significant difference in EFL learners' tolerance of language ambiguity based on gender and items. The findings offer valuable insights for instructors working with EFL students in higher education and present practical recommendations for andragogical considerations, paving the way for EFL instructors and researchers to enrich their teaching methodologies and approaches.

Keywords: multiple ambiguities, gender, higher education, nonparametric test, andragogy.

تقييم الغموض اللغوي بين طلاب تخصص اللغة الإنجليزية كلغة أجنبية:دراسة مقارنة

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المستخلص:

يعتبر الغموض اللغوي مجالا متناميا ً في علم اللغة التطبيقي في مساقات لغوية مختلفة مثل علم اللغة التعليمي، وعلم اللغة النفسي، وعلم اللغة العصبي، وعلم اللغة الحاسوبي تمثل هذه الدراسة إسهاما مهما في هذا المجال، حيث يعتبر الغموض اللغوي تحدياً ملحوظة لمتعلمي اللغة الإنجليزية كلغة أجنبية وتوجد أبحاث محدودة تدرس فرق الجنس في تفسير الغموض اللغوي والتسامح معه، لا سيما في سياق المملكة العربية السعودية والمحصور في دراستين فقط أنصاري (2023) ومحمد زين (2022).هذه الدراسة تقيم قدرة متخصصي اللغة الإنجليزية كلغة أجنبية على التسامح مع الغموض اللغوي في ذخيرتهم اللغوية الأجنبية.

وقد شارك في الدراسة 180 طالبا وطالبة من جامعات سعودية متنوعة، مما وفر عينة شاملة وغير متجانسة. جمعت البيانات باستخدام مقياس تحمل الغموض في اللغة الثانية (SLTAS)، وهي أداة معدلة من قبل إرتن وتوبكايا (2009) لإبراز الفروق بين الجنسين وصفياً وتصنيف مستويات التسامح مع الغموض اللغوي، وبالتالي، ضمان قوة وصحة الدراسات. أشار تحليل البيانات إلى عدم وجود فروق ذات دلالة إحصائية في تسامح متعلمي اللغة الإنجليزية كلغة أجنبية مع الغموض اللغوي بناء على الجنس والعناصر. تقدم النتائج رؤى قيمة لأعضاء هيئة التدريس الذين يعملون مع طلبة تخصص اللغة الإنجليزية كلغة أجنبية في مؤسسات التعليم العالي، وتمنح توصيات عملية لاعتبارات اندراغوجية، مما يمهد الطريق أمام الهيئة التدريسية بأقسام اللغة الإنجليزية كلغة أجنبية والباحثين لإثراء منهجيات وأساليب التدريس الخاصة بهم.

الكلمات المفتاحية: الغموض المتعدد، الجندرية، التعليم العالي، اختبار لامعلمي، اندرغوجيا.

1. *Introduction*

Language learners face various linguistic difficulties, ranging from phonological to pragmatic levels, which can hinder their immersion in the learning context. Several affective factors, such as intellectual backgrounds, learning strategies, and styles, may play a central role. Budner (1962) classified these challenges by exploring the distinctions between two terms – *tolerance of ambiguity* and *intolerance of ambiguity* – assigning a distinct trait to each: Tolerant people view ambiguity positively, whereas those who are intolerant feel unease in uncertain situations and see ambiguous scenarios as threatening. Chapelle and Roberts (1986) regarded it as a significant hindrance to language learning because of the following situations that students might encounter: first, novel situations that lack sufficient and familiar cues. Second, complex situations with plenty of cues to consider. Third, there are mysterious situations where cues suggest various structures. Finally, there are unstructured situations in which cues cannot be interpreted.

Consequently, tolerance of ambiguity has gained increasing significance in the positive psychology of language learning, and its recent emergence stresses its growing relevance in this field. It was stated that 'tolerance of ambiguity is sensitive to the domain by nature. In other words, one may show high tolerance of ambiguity in one domain and low tolerance in another' (Kamran, 2011, p. 26). Furthermore, Brown (2014) highlights that tolerance of ambiguity has a mediating role between Krashen's Affective Filter Hypothesis and Vygotsky's Sociocultural Theory. According to Krashen (1985), emotional variables influence language acquisition; for instance, learners with low tolerance for ambiguity are more likely to experience high anxiety, which raises the affective filter and hinders the intake of comprehensible input. In contrast, Vygotsky's (1978) concept of the Zone of Proximal Development emphasises the importance of social interaction and scaffolding in the learning process, by which learners can gradually build their tolerance ability while encountering language ambiguity. As a result, learners who are more tolerant of ambiguity are better equipped to take risks, stay motivated, and engage more effectively in the language learning process

Thus, it is vital to train language learners with strategies to manage linguistic domains for three reasons. The first is to mitigate stress, language inadequacy, and comprehension issues; the second is to navigate ambiguous language situations to boost confidence and capability successfully; and the third is to provide students with the necessary support to overcome difficulties they encounter in their language-learning journey. This emphasis on supporting language learners with strategies to overcome linguistic difficulties is critical to this research, highlighting its practical relevance and potential impact on foreign language learning.

The current research aims to assess the tolerance for ambiguity among bachelor's degree students studying EFL in the Saudi Arabian context. This understanding is crucial, as it significantly influences various aspects of effective learning and teaching. For example, the study intends to foster an environment where students feel assured in managing uncertain language situations. Additionally, university instructors strive to impart knowledge using diverse teaching methods that cater to various learning styles and requirements. Ehrman (1993) emphasised that tolerance of ambiguity enables individuals to grapple with obscure and incomplete information. This ability is pivotal for language learners, as it equips them to navigate ambiguous situations when acquiring a second language. Tolerance of ambiguity encompasses three essential abilities, which are: assimilating new information, holding contradictory or incomplete information without either rejecting one of the contradictory elements or prematurely concluding an incomplete schema, and the ability to adapt one's cognitive, affective, and social schemata

while considering new information or experiences (p. 331).

Accordingly, this research may support students' academic success. Jowkar and Khajehie (2017) supported this point by affirming that a learner of a new language will predominantly face ambiguous conditions, and tolerance of ambiguity can act as a barrier to or facilitator of language learning (p. 14). Thus, recognising these difficulties is vital for developing strategies to tackle them and, ultimately, enhance educational results. The significance of the current investigation can be delineated across two critical domains: First, it enhances an understanding of the context of EFL programs in Saudi higher education by focusing on curricula, teaching methods, and student interaction as problem solvers. Second, it may indicate key factors for educational policymakers and stakeholders by identifying areas for improvement in EFL practices. There is currently a lack of research assessing undergraduate students' tolerance for ambiguity in Saudi Arabia. This study seeks to fill this gap in future research within the field. The objectives of this research are threefold: First, it can enhance students' performance by fostering a better understanding of ambiguity; second, it can accommodate diverse learning styles and create a more enjoyable learning environment; and third, it aims to identify the obstacles and potential barriers students face, which can help them effectively manage these challenges.

The three research questions that this investigation seeks to answer are as follows:

1. Are there any significant differences between males' and females' tolerance of ambiguity?

2. Are there any significant differences between the implemented scale items?

3. What is the rank of the ambiguous aspects of language on the scale among the participants?

2. *Literature Review*

The following section presents a literature review emphasising an overview of language ambiguity relevant studies.

According to Brown (2014), ambiguity tolerance is defined as the ability of an individual to tolerate ideas and propositions concerning their belief system or structure of knowledge in an open-minded way when they oppose views or in a closed-minded and dogmatic way when they reject ideas (pp.117–118). It is described in the context of language by Yu et al. (2022) as a mental construct that influences students' responses to unclear linguistic situations. It can be viewed as a fundamental personality trait, indicating students' ability to navigate complex new situations without experiencing frustration.

According to Crystal (2011), there are four different types of ambiguity. The first type is structural ambiguity, which occurs when alternative constituent structures can be assigned to a specific construction. The second type is transformational ambiguity and applies in cases where a sentence may have a parallel alternative set bracketing on the surface. However, it is related to more than one structure at a more abstract level of representation. The third type is multiple ambiguity, which occurs when a sentence has more than two structural interpretations. Finally, the fourth type is lexical ambiguity, which is caused by the alternative meanings of a particular lexical item (pp. 22–23).

Linguistically, ambiguity can arise from various sources, particularly during the processes of interpretation, both semantically and syntactically. Semantically, ambiguity may occur when a word or phrase has multiple meanings, leading to confusion in understanding the intended

message and creating misunderstandings if the context is unclear. Syntactically, ambiguity can stem from the arrangement of words in a sentence. For instance, the sentence "I saw the man with the telescope" can be interpreted differently depending on whether it suggests that the person seeing the man has a telescope or is holding one. These layers of potential misinterpretation highlight the complexity of language, where the exact string of words can lead to different meanings based on how they are processed. Thus, both semantic and syntactic elements play crucial roles in conveying and perceiving messages, underscoring the importance of clarity in communication. (Kreidler,1998; Yule,2023).

Several factors affect the tolerance of ambiguity, as explored by Liu (2021). Four factors influenced language learners' tolerance of ambiguity. The first is *personality types*: Students who are reserved or shy (introverts) and those who are outgoing or social (extroverts) have different ways of managing ambiguous linguistic conditions. The second factor is *cognitive style*: Students' various attitudes, preferences, and mental processes– such as comprehension, perception, retention, recall, analysis, synthesis, and judgement – shape how learners interpret ambiguous situations. The third factor is *cultural influence*: Learners' context influences their comfort level with ambiguity. For instance, students from cultures that value openness and clarity may struggle more with ambiguity than those from cultures that are more accepting of vagueness and nuance. The fourth factor is *learning strategies*: Students who are comfortable with uncertainty opt to explore various problem-solving tactics, whereas those with lower tolerance may prefer structured instructions (pp. 482–484).

A considerable amount of scholarly literature has been published recently on the study of tolerance of ambiguity. This section aims to provide a thorough overview of the current state of research in this area, specifically focusing on relevant studies concerning EFL learners and their ability to navigate ambiguity. This understanding is essential for informing effective teaching strategies and enhancing learner outcomes in EFL contexts.

Namaziandost et al. (2025) implemented a mixed-methods study to explore the comparative effects of gamification and ludicization on ambiguity tolerance, learning adaptability, self-management, and learning outcomes among foreign language learners. The participants consisted of 256 individuals, including 112 males and 144 females, from two universities in Türkiye. The study involved three groups participating in 12 lessons designed with different instructional approaches. Two of the groups were experimental: the first utilised gamification, incorporating competitive, game-inspired elements to enhance motivation and engagement. The second experimental group, focused on ludicization, emphasised playful and creative activities, such as role-playing and storytelling, to make the learning process more enjoyable. The control group received traditional instruction. The findings showed that both gamification and ludicization significantly boosted learner traits and academic performance, including ambiguity tolerance, learning adaptability, self-management, and overall learning outcomes, compared to the control group.

Purpuri et al. (2024) conducted a quantitative study that explored how the use of a second language affects the tolerance of ambiguity of 387 Italian-English bilingual adults. The Tolerance for Ambiguity Questionnaire, constructed by Herman et al. (2010), was modified as the research tool. The results revealed that bilingualism affected ambiguity tolerance and indicated that age, gender, and second language proficiency significantly predict higher tolerance of ambiguity scores.

A quantitative study by Ertürk et al. (2023) examined EFL ambiguity tolerance and class anxiety of 135 learners (60 female and 75 male) in preparatory classes in Turkey. The aim was

to identify any significant correlations based on their gender, language level, and medium of instruction. The researchers used a consecutive instrument based on the work of Ely (1995) and Horwitz et al. (1986). The study revealed that the language learners had a moderately high level of tolerance of ambiguity. Additionally, their anxiety levels were moderately low, and there were no significant differences based on gender, language proficiency, or medium of instruction for both traits. The only notable difference observed was in the participants' levels of ambiguity and anxiety. In other words, as the students' tolerance for ambiguity in their second language increased during the preparatory level, their foreign language anxiety decreased.

Saalh (2023) explores quantitatively how 53 fourth-year EFL students perceive ambiguity tolerance in their learning process at the University of Baghdad, utilising the Second Language Tolerance of Ambiguity Scale (SLTAS)modified by Erten and Topkaya (2009). The findings reveal that Students demonstrate moderate levels of ambiguity tolerance, meaning they are somewhat willing to deal with linguistic uncertainties, yet they still face challenges with vocabulary and grammar ambiguity. This study highlights the significance of understanding ambiguity tolerance in the context of language learning. It also suggests that educators should implement strategies to help students effectively navigate linguistic uncertainties. ultimately enhancing their proficiency and confidence in English.

A quantitative study by Öz (2022) aimed to explore the ambiguity tolerance of 89 Turkish EFL preparatory learners (52 female and 37 male) to determine whether there was any significant gender difference in their ambiguity tolerance in the EFL context. The researcher utilised Ely's (1995) scale, and the findings revealed that the participants' ambiguity tolerance levels were low. Additionally, no statistically significant difference was found in students' ambiguity tolerance based on gender.

Kurniasari and Indriani (2021) conducted a quantitative study in Indonesia to determine the ambiguity tolerance perspectives of 30 EFL university students in four language skills: reading, listening, speaking, and writing. The researchers administered Ely's (1995) scale to collect the data. The results indicated that the participants had low ambiguity tolerance in receptive skills (reading and listening) and more tolerance in productive skills (speaking and writing).

Based on the studies reviewed, several research gaps can be identified in the exploration of ambiguity tolerance in language learning. Wildworld's existing research, as noted above, such as that by Namaziandost et al. (2025) and Purpuri et al. (2024), is cross-sectional and lacks insight into the long-term effects of factors like gamification, ludicization, or bilingualism, which highlights the need for longitudinal studies. Furthermore, current research is concentrated in specific educational contexts (e.g., Türkiye, Italy, Baghdad), underscoring the importance of examining ambiguity tolerance across more diverse cultural and academic settings, particularly in non-Western regions. There is also a lack of comparative studies involving learners from different language or multilingual backgrounds, as most focus on EFL learners. Another gap lies in the limited investigation of how teaching strategies influence ambiguity tolerance, as well as the underexplored role of age and maturity in shaping learners' responses to ambiguity. While some studies, such as Ertürk et al. (2023), have begun to examine the relationship between ambiguity tolerance and anxiety, further research is needed to understand how these factors interact in various educational settings. Lastly, focusing on quantitative data leads to a thorough examination of the Saudi context. This approach not only highlights important statistics but also helps us gain a deeper, more complete understanding of the experiences and issues faced by people in that region.

On the other hand, in the Saudi context, three studies were conducted to examine different dimensions of ambiguity tolerance among EFL majors. Each study was carefully designed to focus on specific aspects, thereby enhancing our understanding of the challenges and opportunities that characterise this culturally and socially complex environment. First, Ansari (2023) implemented a mixed-methods study aimed at exploring ESL students' perceptions of ambiguity tolerance (AT) and its impact on language learning of 110 students (53 males and 57 females) from distinct levels: preparatory, proficient, and master's levels at Jazan University in Saudi Arabia. Data were collected using a modified version of the SLTAS by Erten and Topkaya (2009) and four open-ended questions to capture both quantitative and qualitative insights. The findings indicated that participants generally displayed a high tolerance for ambiguity, with no significant differences identified based on proficiency level or gender. The study highlighted the importance of fostering ambiguity tolerance (AT) skills to assist students in effectively navigating unclear linguistic structures. Additionally, the responses to the open-ended questions supported the statistical findings, reinforcing the value of ambiguity tolerance in improving the adaptability and proficiency of ESL learners. Second, Muhammed Zein (2022), whose quantitative research explored how the tolerance of ambiguity reinforces the potent use of EFL learning strategies as premised on Oxford's (1990) and O'Malley and Chamot's (1990) taxonomy of language learning. This was achieved using two instruments: Initially, Budner's (1962) Ambiguity Tolerance Scale was administered to 123 randomly chosen students from Qassim University. Then, a second group of 38 final-year students submitted assignments as reviewed documents. The findings revealed a significant relationship between ambiguity tolerance and the successful use of learning strategies.Third, Almutlaq (2018) implemented a mixed-methods study to investigate the relationship between second language self-efficacy and tolerance of ambiguity among 184 female Saudi English majors at a public university in Riyadh. Data were collected at different times using two questionnaires: the (QESE) Questionnaire of English Self-Efficacy developed by Wang and Pape (2005) and (SLTAS)the Second Language Tolerance of Ambiguity Scale by Ely (1989) suggested Domain-specific instruments aL2 writing self-efficacy scale (SLWSES) developed by the researcher and a qualitative method, such as written journals. The findings indicated a significant correlation between second language self-efficacy and tolerance of ambiguity.

Despite the valuable contributions of recent studies, several research gaps remain unaddressed. Notably, all three studies—Ansari (2023), Almutlaq (2018), and Muhammed Zein (2022)—were conducted within a single institutional context, thereby limiting the generalisability of their findings. This highlights the need for broader, multi-institutional research to capture a more representative understanding of ambiguity tolerance among language learners. Furthermore, while Ansari's study included both male and female participants, Almutlaq's exclusive focus on female learners underscores the necessity for more gender-balanced research designs. Another limitation is the reliance on cross-sectional methodologies, which do not account for the longitudinal development of AT over time. Although mixed-methods approaches were employed, the qualitative components were relatively limited in scope and depth, suggesting the potential for more nuanced and in-depth qualitative investigations. While Ansari included participants from various academic levels, the specific impact of age and academic maturity on AT was not a central focus of the study. Similarly, Zein's (2022) study did not consider demographic variables such as age, gender, or academic level. These gaps collectively highlight the need for more attention. Thus, this study aims to address a gap in the existing research on students at Saudi universities. It specifically assesses the willingness of students majoring in EFL to tolerate ambiguity, which is crucial for both language learning

proficiency and various academic contexts. It mainly focuses on three main aspects:

First, it involves a diverse cohort of participants, comprising both male and female students who are pursuing a bachelor's degree in English. These participants will be selected from various cities across Saudi Arabia, ensuring that the findings capture a wide range of perspectives and experiences within the country. Second, this study employs a survey design that provides a quantitative description of the participants' insights and a thorough examination of the factors influencing students' tolerance for ambiguity in their language studies. By exploring this area, the research enhanced language education and effectively guides curriculum development in Saudi universities.

3. *Methodology*

The research was designed to quantitatively estimate the level of ambiguity tolerance among EFL major students in Saudi Arabia. Its focus is on assessing the students' comfort and adaptability in managing ambiguity in learning EFL.

The study involved 180 students, comprising 90 males and 90 females, all undergraduates representing various academic levels (from level one to eight in a four-year Bachelor's degree program in EFL) across different universities in Saudi Arabia. Participants were selected using convenience sampling, a non-probability sampling technique where participants are selected based on their accessibility and willingness to participate. Despite this, it may have introduced selection bias, as the individuals who were easiest to reach or most willing to participate might not accurately reflect the broader population. This method relies on readily available volunteers without any force, making it an efficient approach for data collection

Research data were obtained using the Second Language Tolerance of Ambiguity Scale (SLTAS), modified by Erten and Topkaya (2009). The inventory options for the 12 questions were based on a 5-point Likert scale of strongly disagree, disagree, neutral, agree, and strongly agree. The statistical analysis demonstrated an excellent level of internal consistency, as indicated by a Cronbach's alpha reliability score of $\alpha = 0.897$. This score signifies high internal consistency among the scale items, with values closer to 1.0 reflecting greater internal consistency.

4. *Data collection*

The procedure at King Faisal University officially authorised the study proposal and granted me the necessary permission to collect data from the EFL undergraduate students. The research project also received ethical clearance, documented under reference number [KFU-REC-2023-OCT-ETHICS1203]. Participants provided their voluntary consent after reviewing an informed consent statement. This statement clarified that demographic inquiries were strictly for statistical analysis and not intended to cause offence. No identifiable data were collected, and all responses were securely stored to ensure privacy. Before obtaining ethical approval from King Faisal University (KFU), the researcher completed a clearance form containing several commitments: maintaining the confidentiality of any information that could disclose participant identities; ensuring voluntary participation without repercussions for opting out or withdrawing at any point; and a commitment to keep participants informed of any new information throughout the study that might influence their decision to remain involved. The participants were invited through email, WhatsApp, LinkedIn, and X (formerly Twitter) and were asked to join the study voluntarily. The data for this quantitative study were collected in four months, from October 2023 to February 2024. Students were required to complete the questionnaire within 10 to 15 minutes, and then Jamovi version 2.3.28 (https://www.jamovi.org) was utilised to analyse the instrument's responses. This software represents an open-source statistical tool that

features a user-friendly interface, rendering it appropriate for both fundamental and advanced statistical analyses. Its characteristics of transparency, reproducibility, and accessibility render it particularly well-suited for academic research.

5. *Data Analysis and Findings*

This section outlines the data analysis in four key phases. First, descriptive statistics are used to summarise the main features of the dataset, offering insights into central tendencies and variability. Second, a normality test is conducted to determine if the data follows a normal distribution. Next, the homogeneity of variances test assesses whether different groups exhibit similar variances, which is vital for valid statistical testing. Finally, a nonparametric test, which is applicable when parametric test assumptions are violated, thereby ensuring a robust analysis. Together, these phases provide a comprehensive understanding of the data.

5.1. Descriptive Statistics

The descriptive statistics tests – including the measures of central tendency, medians *(Mdn*), mode (*Mo*), and range (*R*) of the two groups – are discussed below to determine whether the difference between the two groups is statistically significant.

As presented in Table 1, the first measure is the median, which is used in nonparametric data to demonstrate the middle value of a data set. Based on the findings, medians of Items 1, 2, 4, 7, 8, and 9 were equal in both males and females *(Mdn* = 3). However, females were superior in Items 3, 5, 6, 10, 11 and 12; for instance, in Item 3, the female median was (*Mdn*=4.50) while the male median was (*Mdn*=4.00). In Item 5, the female median was (*Mdn*=4.00) while the male median was (*Mdn*=3.00).In Item 6, the female median was (*Mdn*=3.00) while the male median was (*Mdn*=2.00).In Items 10 and 11, the female median was (*Mdn*=4.00) while the male median was (*Mdn*=3.00).In Item 12, the female median was (*Mdn*=3.00) while the male median was(*Mdn*=2.00).

Second, mode *(Mo)* is the number that most often appears according to the participants' responses to each item in the Likert scale, ranging gradually from 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree). The modes of Items 1, 3, 4, 5, 6, 8, 9, and 12 were equal for males and females. However, on Items 2, 10, and 11, females produced higher mode scores, with males scoring higher on Item 7 than females. According to the data, 66.66% of the modes were equal, females' modes were higher for 25% of the items, and males' modes were higher for 8.33% of the items.

For example, on Item 1, the female and male modes were equal (*Mo* = 3.00). On Item 2, the female mode was (*Mo*=5.00) while the male mode was (*Mo*=2.00). The female and male modes were equal for Item 3 (*Mo* = 5.00), Item 4 (*Mo* = 1.00), Item 5 (*Mo* = 5.00), and Item 6 (*Mo* = 1.00). On Item 7, the female mode was (*Mo*=1.00) while the male mode was (*Mo*=3.00). The modes were equal on Item 8 (*Mo* = 5.00) and Item 9 (*Mo* = 1.00). On Items 10 and 11, the female modes were (*Mo*=5.00) while the male modes were (*Mo* = 3.00). On Item 12, the modes were equal, at (*Mo*=1.00).

Finally, range(*R*): For a data set, the difference between the largest and smallest values was measured using the Likert scale (*R* = 4) for all 12 items.

Based on Table 1, descriptive statistics were employed to explore gender-based differences in responses to the ambiguity tolerance scale (RQ1 and RQ2). Median values indicated that males and females responded similarly to half of the items.

In contrast, females reported higher medians on the remaining items, particularly Items 3, 5, 6, 10, 11, and 12, suggesting a generally higher tolerance for ambiguity. Mode analysis further supported this trend: 66.7% of items had equal modes, while females exhibited higher modes on 25% of items, and males on 8.3%. For instance, on Item 2, the female mode was 5.00 compared to 2.00 for males, indicating stronger agreement. The range was consistent across all items (R = 4), demonstrating complete use of the Likert scale. These patterns provide context for the inferential results and contribute to an understanding of both gender differences (RQ1) and item-level variation (RQ2).

Concerning (RQ3), Responses show a particular rank of items. Item 3 ranked highest, indicating it was perceived as the most tolerable or agreeable ambiguous aspect by both genders. Items 5, 10, and 11 also scored high, suggesting strong agreement or comfort with those aspects. Items 6 and 12 ranked lowest, indicating lower tolerance or agreement.

Table 1

Descriptive Statistics and Ranked Ambiguity Tolerance Items

Rank	Item	Male Median		Male Mode			Mode Avg
1	3	4.0	4.5	5	5	4.25	5.0
2	5	3.0	4.0	5	5	3.5	5.0
3	10	3.0	4.0	3	5	3.5	4.0
4	11	3.0	4.0	3	5	3.5	4.0
5	8	3.0	3.0	5	5	3.0	5.0
6	2	3.0	3.0	2	5	3.0	3.5
7	1	3.0	3.0	3	3	3.0	3.0
8	7	3.0	3.0	3	1	3.0	2.0
9	4	3.0	3.0	1	1	3.0	1.0
10	9	3.0	3.0	1	1	3.0	1.0
11	6	2.0	3.0	1	1	2.5	1.0
12	12	2.0	3.0	1	1	2.5	1.0

5.2. Normality Distribution Test

The Shapiro–Wilk test results indicate that the obtained *p* value was lower than the significance level, suggesting a violation of the data's normality assumption, significantly below the conventional threshold of 0.05. This strongly suggests that the data deviate considerably from a normal distribution. Such a low *p*-value provides compelling evidence against the null hypothesis of normality, indicating that the assumption of normality required for parametric tests is not met. Consequently, the application of a non-parametric test is both reasonable and necessary (see Table 2).

Table 2

Normality Test (Shapiro–Wilk)

Item	W	p
1. When I'm reading something in English, I feel impatient when I don't totally understand the meaning.	0.914	< .001
2. It bothers me that I don't understand everything the teacher says in English.	0.872	< .001
3. When I write English compositions, I don't like when I can't express my ideas exactly.	0.864	< .001
4. It is frustrating that sometimes I don't understand completely some English grammar.	0.881	< .001
5. I don't like the feeling that my English pronunciation is not quite correct.	0.879	< .001
6. I don't enjoy reading something in English that takes a while to figure out completely.	0.903	< .001
7. It bothers me that even though I study English grammar, some of it is hard to use in speaking and writing.	0.875	< .001
8. When I'm writing in English, I don't like the fact that I can't say exactly what I want.	0.877	< .001
9. It bothers me when the teacher uses an English word I don't know.	0.877	< .001
10. When I'm speaking in English, I feel uncomfortable if I can't communicate my ideas clearly.	0.906	< .001
11. I don't like the fact that sometimes I can't find English words that mean the same words in my own language.	0.905	< .001
12. One thing I don't like about reading in English is having to guess what the meaning is.	0.897	< .001

Note. A low p-value suggests a violation of the assumption of normality.

5.3. The Homogeneity of Variances Test (Levene's)

The Levene's test was used to verify the assumption that groups have equal variances across groups for each of the 12 scale items. The results indicated that 11 out of 12 items had p-values greater than 0.05, suggesting that the assumption of equal variances was satisfied for most of the items. However, one item yielded a statistically significant result ($p = 0.011$), indicating a violation of this assumption for that specific item. While the overall scale demonstrates consistent variance across groups, this exception should be noted. For analyses involving the item that violated the assumption, the use of non-parametric statistical methods is recommended to ensure the strength of the findings. (see Table 3).

Table 3

Homogeneity of Variances Test (Levene's)

Item	F	df1	df2	p
1. When I'm reading something in English, I feel impatient when I don't totally understand the meaning.	1.0219	1	178	0.313
2. It bothers me that I don't understand everything the teacher says in English.	1.5553	1	178	0.214
3. When I write English compositions, I don't like when I can't express my ideas exactly.	1.0113	1	178	0.316
4. It is frustrating that sometimes I don't understand completely some English grammar.	0.2564	1	178	0.613
5. I don't like the feeling that my English pronunciation is not quite correct.	0.2911	1	178	0.59
6. I don't enjoy reading something in English that takes a while to figure out completely.	0.3484	1	178	0.556
7. It bothers me that even though I study English grammar, some of it is hard to use in speaking and writing.	2.2849	1	178	0.132
8. When I'm writing in English, I don't like the fact that I can't say exactly what I want.	0.1237	1	178	0.725

9.	It bothers me when the teacher uses an English word I don't know.	0.2913	1	178	0.59
10.	When I'm speaking in English, I feel uncomfortable if I can't communicate my ideas clearly.	0.3972	1	178	0.529
11.	I don't like the fact that sometimes I can't find English words that mean the same words in my own language.	6.5448	1	178	0.011
12.	One thing I don't like about reading in English is having to guess what the meaning is.	0.0763	1	178	0.783

Note. A low p-value suggests a violation of the assumption of equal variances.

5.4. *Mann–Whitney U Test*

The Mann–Whitney U test was utilised as an alternative to the independent sample t-test for the analysis of nonparametric data. The findings revealed that the effect size, measured by the rank-biserial correlation coefficient (rb), varied across the 12 items examined. Specifically, if an effect size (r) < 0.10, it indicates a negligible effect; if it is 0.10 – 0.30, it denotes a small effect; if it is 0.30 – 0.50, it shows a medium effect; and if it is > 0.50, it signifies a large effect.

The first item, 'When I'm reading something in English, I feel impatient when I don't

totally understand the meaning', produced U = 3792, *p*= 0.450. This analysis has a negligible effect size (r = 0.06383) because it is <0.10. The second item, 'It bothers me that I don't understand everything the teacher says in English', produced U = 4022, *p* = 0.935. There is a negligible effect size for this analysis (r = 0.00704) because it is < 0.10. The third item, 'When I write English compositions, I don't like when I can't express my ideas exactly', produced U = 3372, *p* = 0.0043. This analysis has a small effect size (r = 0.16741) because it falls between 0.10 – 0.30.

The fourth item, ' It is frustrating that sometimes I don't understand some English', produced

U= 3846, *p*= 0.551. There is a negligible effect size for this analysis (r = 0.05037) because it is

< 0.10. The fifth item, 'I don't like the feeling that my English pronunciation is not quite correct', produced U = 3701, *p*= 0.305. This analysis has a negligible effect size (r = 0.08617) because it is < 0.10. The sixth item, 'I don't enjoy reading something in English that takes a while to figure out completely', produced U = 3576, *p* = 0.164. This analysis has a small effect size (r = 0.11704) because it falls between 0.10 – 0.30.

The seventh item, 'It bothers me that even though I study English grammar, some of it is hard to use in speaking and writing', produced U = 4001, *p* = 0.886. This analysis has a negligible effect size (r = 0.01222) because it is < 0.10. The eighth item, 'When I'm writing in English, I don't like the fact that I can't say exactly what I want', produced U = 3961, *p* = 0.795. This analysis has a negligible effect size (r = 0.02210) because it is < 0.10. The ninth item, 'It bothers me when the teacher uses an English word I don't know', produced U = 3872, *p*= 0.603. This analysis has a negligible effect size (r = 0.04395) because it is < 0.10.

The 10th item, 'When I'm speaking in English, I feel uncomfortable if I can't communicate my ideas clearly', produced U = 3533, *p* = 0.129. This analysis has a small effect size (r = 0.12765) because it falls between 0.10 – 0.30. The 11th item, 'I don't like the fact that sometimes I can't find English words that mean the same words in my own language', produced = 3420, *p* = 0.065. There is a small effect size for this analysis (r = 0.15556) because it falls between 0.10 – 0.30. Finally, the 12th item, 'One thing I don't like about reading in English is having to guess what the meaning is', produced U = 3657, *p* = 0.248. This analysis has a negligible effect size (r

= 0.09716) because it is < 0.10. The differences in effect size between each item are subtle but remain insignificant (see Table 4).

Table 4

Mann–Whitney U Test Results by Item

Item				Effect Size Category
1.	It bothers me that I don't understand everything the teacher says in English.			
2.	It bothers me that even though I study English grammar, some of it is hard to use in speaking and writing.			
3.	When I'm writing in English, I don't like the fact that I can't say exactly what I want.			
4.	It bothers me when the teacher uses an English word I don't know.			
5.	It is frustrating that sometimes I don't understand completely some English grammar.			
6.	When I'm reading something in English, I feel impatient when I don't totally understand the meaning.			
7.	I don't like the feeling that my English pronunciation is not quite correct.			
8.	One thing I don't like about reading in English is having to guess what the meaning is.			Small
9.	I don't enjoy reading something in English that takes a while to figure out completely.			Small
10.	When I'm speaking in English, I feel uncomfortable if I can't communicate my ideas clearly.			Small
11.	I don't like the fact that sometimes I can't find English words that mean the same words in my own language.			Small
12.	When I write English compositions, I don't like when I can't express my ideas exactly.			Small

Note. r = rank-biserial correlation. H_a: μ Female ≠ μ Male.

6. Discussion

7.

The main goal of this study was to assess how distinctly EFL learners tolerate ambiguity. In this discussion, we delve into the findings and explore the following research questions:

1. Are there any significant differences between males' and females' tolerance of ambiguity?

Based on the research findings, males and females demonstrated a similar level of tolerance for ambiguity, suggesting equality between the genders.

2. Are there any significant differences between the implemented scale items?

An analysis of the 12 items revealed that 8 items (66.66%) demonstrated consistent agreement across respondents. The analysis also revealed no statistically significant difference in agreement levels between males and females. On 3 out of 12 items (25%), a high level of agreement was demonstrated among females, while 1 item (8.33%) exhibited significant agreement among males.

3. What is the rank of the ambiguous aspects of language on the scale among the participants?

According to the participants' responses to each item in the Likert scale, the following

items received an equal level of strong agreement: Item 3:When I write English compositions, I don't like when I can't express my ideas exactly; Item 5:I don't like the feeling that my English pronunciation is not quite correct; and Item 8: When I'm writing in English, I don't like the fact that I can't say exactly what I want.

None of the 12 items received full agreement in the responses. By contrast, the participants responded neutrally to Item 1: When I'm reading something in English, I feel impatient when I don't totally understand the meaning. Furthermore, the participants strongly disagreed on four items: Item 4: It is frustrating that sometimes I don't understand completely some English grammar; Item 6: I don't enjoy reading something in English that takes a while to figure out completely; Item 9: It bothers me when the teacher uses an English word I don't know; and Item 12: One thing I don't like about reading in English is having to guess what the meaning is.

The pie charts below offer a visual overview of how male and female participants responded to the ambiguity tolerance items, segmented into five categories: *Strongly disagree*, *Disagree*, *Neutral*, *Agree*, and *Strongly agree*. While these visuals help illustrate general response patterns, it is essential to interpret them cautiously. Differences observed in the charts are descriptive and should not be overstated without statistical testing to confirm their significance.

Among female participants, responses tended to cluster at the extremes (*Strongly agree* and *Strongly disagree*), suggesting a more polarised stance toward ambiguity. In contrast, male responses were more evenly distributed, with higher proportions in the *Neutral*, *Disagree*, and *Strongly disagree* categories, indicating a potentially more moderate or uncertain approach.

For example, responses to Items 2 and 7 showed notable divergence. On Item 2 ("It bothers me that I don't understand everything the teacher says in English"), females predominantly *strongly agreed*, while males tended to *disagree*. Conversely, on Item 7 ("It bothers me that even though I study English grammar, some of it is hard to use in speaking and writing"), females *strongly disagreed*, whereas males were more *neutral*. These patterns may suggest gender-based differences in tolerance of ambiguity; however, further inferential analysis is necessary to determine whether these differences are statistically significant. (see Figure 1).

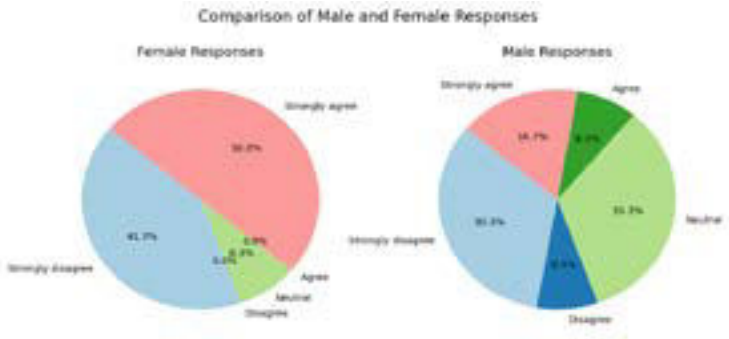

Figure 1:Item Responses Based on Gender

Our current results align with those found in previous studies across various contexts. This consistency is clear in two aspects linked to RQ1, RQ2, and RQ3, as highlighted below:

1. Gender-Based Tolerance of Ambiguity

The results indicated no statistically significant differences between male and female participants in overall ambiguity tolerance. This finding aligns with previous studies (e.g., Ansari, 2023; Basöz, 2015; Ertürk et al., 2023; Jowkar and Khajehie, 2017; Kamran,2011; Marzban et al., 2012), which have also reported gender-based variation in response patterns, even if without consistent statistical significance. While descriptive trends suggested that females tended to express stronger opinions, either strongly agreeing or disagreeing, compared to the more moderate or neutral responses of males, these patterns should be interpreted cautiously. Without inferential support, such trends remain speculative and should not be overstated.

2. Ranking of Ambiguous Aspects

Items 3, 5, and 8 received the highest levels of agreement, suggesting that learners are particularly sensitive to ambiguity in expressive tasks. This supports previous findings (e.g., Hou & Hou, 2017; Marzban et al., 2012; Öz, 2022) that ambiguity tolerance is often lower in contexts that require precise self-expression. Conversely, items related to reading comprehension and vocabulary (e.g., Items 4, 6, 9, and 12) received stronger disagreement, indicating discomfort with ambiguity in input-based tasks.

Therefore, these results prioritise enhancing students' tolerance of ambiguity and implementing improved EFL instruction to increase effectiveness. The findings depict the importance of integrating ambiguity-focused strategies into EFL instruction, such as inferencing training, tolerance-building activities, and personalised learner support. These approaches can enhance learners' ability to tolerate linguistic ambiguity and improve language acquisition outcomes. However, implementation may encounter challenges, including limited teacher training, time constraints within curricula, and the need for adaptable materials that suit diverse learner profiles. Addressing these barriers is essential for maximising the effectiveness of ambiguity-focused andragogy.

8. Study Limitations

The current study is characterised by three fundamental limitations that should be considered: Firstly, a limited number of studies are conducted at higher education institutions in the Saudi context. This lack of studies restricts the ability to comprehensively understand the dynamics and variations present in different educational contexts, which could impact the accuracy of the findings. Secondly, expanding the sample size could enhance the validity and generalisability of the results, allowing for a more robust analysis based on the current study. Lastly, the data collection relied solely on a single questionnaire featuring closed-ended items. To address this limitation, incorporating qualitative studies that utilise interviews and employing reflective essays as a qualitative research instrument may yield supplementary insights and strengthen the results. Such an approach would not only complement the quantitative findings but also deepen the overall understanding of the phenomena being studied. This approach will pave the way for richer insights and more refined conclusions.

9. Conclusion and Suggestions for Further Studies

10.

This study emphasises the andragogical importance of fostering ambiguity tolerance among EFL learners in Saudi higher education. Although no statistically significant gender-based differences were identified, the moderate overall levels of ambiguity tolerance observed suggest a need for targeted instructional strategies. Supporting learners in developing both cognitive and emotional strategies to manage linguistic uncertainty is essential for enhancing

language acquisition outcomes.

The findings carry important implications for teaching practice. EFL instructors are encouraged to incorporate approaches that promote ambiguity tolerance, including the use of authentic texts, open-ended communicative tasks, and reflective learning activities. Additionally, curriculum developers and policymakers should consider integrating ambiguity tolerance training into teacher education programs to better prepare educators for creating adaptive and inclusive classroom environments.

By addressing this often underexplored aspect of language learning, the study contributes to a more comprehensive understanding of learner variability and supports the development of more effective and responsive EFL andragogy.

Further studies should be conducted based on earlier findings. Future research possibilities include:

1. Exploring the role of metacognitive strategies in increasing EFL students' tolerance of ambiguity.
2. Conducting quasi-experimental research on the effectiveness of psychological resilience in improving EFL students' tolerance of ambiguity.
3. Employing an eye-tracking system to assess instructors' and learners' interactions while confronting ambiguous situations.

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معلومات عن الباحث

د. حنان فهد السلطان، أستاذ اللغويات التطبيقية المساعد في قسم اللغة الإنجليزية، بكلية الآداب، في جامعة الملك فيصل، (المملكة العربية السعودية)، حاصلة على درجة الدكتوراة في اللغويات التطبيقية من جامعة الإمام محمد بن سعود الإسلامية عام 2020. تدور اهتماماتها البحثية حول قضايا فلسفة تعليم اللغة وعلاقتها بالتخصصات البينية كالعلوم الحاسوبية والنفسية والعصبية والقياس والتقويم.

Biographical Statement

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