

Research Article

Interplay of Code-Switching, Speaking Complexity and WTC: Insights into Iranian EFL Learners' L2 Conversational Dynamics

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Abstract

This study investigates the impact of code-switching on Iranian English as a Foreign Language (EFL) learners, specifically examining its influence on willingness to communicate (WTC) and complexity in L2 speaking. Employing a quasi-experimental design, the research involved 60 intermediate-level TEFL students at a higher education institution in Mashhad, Iran. Participants were divided into control and experimental groups based on a B1 Preliminary examination pre-test. The study utilized multiple instruments, including a standardized speaking task adapted from B1-level tests and a novel WTC self-assessment method involving video playback and Likert-scale ratings. Results indicated that code-switching can enhance learners' complexity in L2 speaking. Also, a positive relationship was observed between L2 learners' WTC and their speaking complexity. Additionally, the Findings Suggest Implications for WTC, Though Specific Details were not provided in the Given Information. This research contributes to the understanding of linguistic strategies employed by L2 learners and highlights the need for balanced pedagogical approaches that incorporate code-switching while maintaining immersion in the target language. The study's findings have potential implications for EFL teaching methodologies and curriculum design, particularly in contexts where code-switching is prevalent.

Keywords:

Code-switching | L2 communication | Speaking Complexity | Willingness to Communicate

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1. Introduction

Recent studies indicate a growing recognition of multilingual education as a vital component in fostering global citizenship and promoting cross-cultural competencies among learners. A shift towards multilingualism is being observed in various educational systems worldwide, reflecting the importance of language diversity in enhancing intercultural understanding and cooperation [1]. In Contexts like Kazakhstan and Iran, Educational Settings are Increasingly Focusing on the Inclusion of Languages Other than English (LOTE) Through Innovative Curriculum Developments Aimed at Reversing the Dominance of English in International Education. Such initiatives cultivate linguistic diversity and enable students to navigate complex global interactions with enhanced cultural empathy [1]. However, the evolving landscape of multilingual education also brings challenges, including the need to balance local language preservation with the pressures of globalization [2, 3]. Educators are urged to incorporate diverse linguistic perspectives into their teaching strategies, thus enriching classroom interactions and cultivating an environment supportive of learners' multilingual backgrounds [3]. Ultimately, embracing multilingualism within educational frameworks is essential for preparing students to thrive in increasingly interconnected global societies, ensuring that they are equipped with the Necessary Skills for Effective Communication Across Cultural Boundaries [1].

When learners are required to study multiple languages simultaneously, the phenomenon of code-switching becomes increasingly prevalent. Code-switching refers to the practice of alternating between two or more languages or language varieties during communication, often characterized by a seamless transition from one language to another, sometimes without reverting to the original language [4]. This practice is particularly visible among bilingual individuals who are proficient in both languages and can select based on contextual appropriateness or speaker intent [5]. Research into code-switching highlights its role as a natural component of bilingual communication, where speakers utilize their linguistic repertoire to maximize clarity or coherence in discourse [6]. Investigations further suggest that various situational and social factors trigger code-switching, indicating its function as a strategic tool for effective communication among multilingual speakers.

Language learners often leverage code-switching as a cognitive resource, drawing on multiple linguistic frameworks to enhance their understanding and expression [7]. This practice not only enables clearer expression but also fosters a more nuanced and creative use of language, as speakers navigate between different linguistic contexts to convey complex ideas effectively. Furthermore, studies indicate that employing code-switching can significantly bolster learners' overall communicative competence, aiding in comprehension and interaction in diverse settings [8,9]. The ability to switch between languages allows learners not only to maintain fluid conversations but also to engage more meaningfully with cultural references embedded within each language [10]. Thus, code-switching emerges as a critical exercise in enhancing learner agency in multilingual environments, leading to the development of better contextual understanding and interpersonal connections [11].

The scholarly discourse surrounding code-switching continues to evolve, with researchers examining its implications for language development, identity, and social interaction. Some studies suggest that code-switching engages cognitive resources differently, influencing cognitive control and processing in bilinguals [12]. This suggests a layered understanding of code-switching as not merely a linguistic choice but as reflecting deeper cognitive facilitation processes that enhance language proficiency and cognitive flexibility [13]. Additionally, some scholars propose that, rather than being viewed solely as a linguistic challenge or deficiency, code-switching can be considered a resourceful practice that enriches bilingual communication [14]. The ongoing examination of these dynamics calls for more nuanced definitions of multilingual language use, emphasizing the interconnectedness of languages within bilingual individuals' communicative abilities [15].

The significance of code-switching extends into educational contexts, where it can serve as a strategic educational tool in multilingual classrooms. By integrating code-switching into language instruction, educators can help learners effectively access their full linguistic capabilities, thereby promoting inclusive and responsive teaching methodologies [16]. This approach encourages learners to utilize their native languages alongside target languages, fostering a deeper connection to the material while enhancing engagement [8,9]. Such pedagogical practices not only affirm students' linguistic identities but also enable educators to address language acquisition challenges more effectively, fostering an Environment Where Multiple Languages Coexist and Thrive. Hence, understanding and embracing code-switching is crucial for developing effective educational strategies in increasingly multilingual societies [17].

2. Literature Review

This study investigates learners' multilingual engagement in the L2 conversation classroom. The goal is to add to the increasing interest in examining multilingual practices of foreign language learners in conversational contexts. Foreign language learners are strongly encouraged to make full use of their linguistic resources in the L2 conversation classroom [18, 19, 3]. The frequently observed practices include various forms of code-switching, L1 and target languages (TL) interaction, intra-sentential code-switching, etc. A large quantity of research has investigated code-switching both in terms of pedagogical structuring and as a learning device utilizing both case study, quantitative, and qualitative research approaches [20, 21]. However, most of the Existing Research has focused on the Monolingual Practices Between Teachers and Students [22, 23]. The students' multilingual practices, which are viewed as an underexplored yet important field of inquiry, have received little attention. On the other hand, research focusing on learners' other L1s, especially ignored in the Western context, is virtually non-existent. Another unexplored area concerns the relationship between code-switching, speaking Complexity, and WTC in These Conversational Contexts [24, 25, 26, 27]. As a Result, the aim of the Present work is to make up for this Deficit and shed Light on the EFL Learners' Multilingual Practices at the Level of Group work.

Code-switching is defined as a change in language to help learners understand the EFL points [28]. The process is seen in EFL classes repeatedly, as well as in Teaching Different Points and Notes Related to English as a Foreign Language. It is believed that code-switching can Happen Within the same Sentence or Structure or include switches from one Language to another between Structures or Sentences [8,9]. It is also claimed that code-switching can be considered a Usual Multilingual or Bilingual Practice that can be expanded as an Outcome of the Speakers' Habits for Special Goals [29, 30]. The Learners who Learn English as a Foreign Language Sometimes do not Understand Their Teachers' aims; Therefore, the Teacher may switch their Language to the Native Language and explain in the Learners' First Language [31].

A few years ago, students used to attend classes at various language schools or institutes that are specifically referred to as pre-university levels, which focused on the foundational aspects of language acquisition. These environments provided learners with structured opportunities to practice their speaking skills, which often led to a reliance on the use of their native language as a means of facilitating communication [32]. This attendance was more common than in high school settings. Currently, these students engage with their lessons through a method that combines both English and their mother's language. On an international scale, researchers who have conducted studies on the psycholinguistic nature of code-switching assert that adopting a bilingual approach can effectively activate the inherent mental faculties of the learner [33, 34]. In contrast, a monolingual approach tends to rely excessively on Translation, which may lead to the Activation of less Efficient Mental Processes, Ultimately Hindering the Learning Experience. This Distinction Highlights the Advantages of Bilingual Education in Enhancing Cognitive Abilities and Fostering Better Communication Skills Among Learners [35].

Speaking Ability in an L2 has been a Significant Concern in TESOL and L2 acquisition. L2 speaking ability has statistically always been more problematic than the other L2 Listening, Reading, and Writing Skills. [36, 37]. Researchers have raised growing awareness of the difficulty of L2 speaking skills [37]. Some believe that the characteristics of the speech act might be complicated by the cognitive overload of Keeping the Conversation Going, or Possible Feelings of Nervousness Might Pose Stress to Learners [38]. Language Learners are also Insufficiently Pragmatic and have Cultural Background Proficiency. Others believe that L2 learners might run out of time to produce longer, better-formed utterances and subsequently could not maximally reflect their actual linguistic competence [3]. Speaking Complexity is also Fundamental to satisfying the Notion of Successful Communication Between Participants in a Conversation [39]. Speaking Complexity Plays a Crucial Role in Effective Communication, Particularly in L2 contexts. When learners produce speech that is characterized by ellipsis, grammatical errors, frequent hesitations, or inappropriate language use, it can significantly impede the flow of conversation and mutual understanding. Such complexities in speech production can create barriers to comprehension, making it challenging for interlocutors to accurately interpret each other's intentions and maintain a smooth interaction. Furthermore, these difficulties may lead to reduced confidence and increased anxiety among speakers, Potentially Diminishing Their Willingness to communicate in the Target Language [40]. Therefore, addressing speaking complexity is essential for fostering more effective and engaging L2 conversations, ultimately contributing to improved language proficiency and communicative competence.

Willingness to communicate (WTC) in an L2 is a complex construct that has garnered significant attention in the field of language acquisition. Originally conceptualized as a trait-like characteristic, WTC has evolved to be understood as a dynamic construct that encompasses both trait and state elements [41, 40] It is defined as "a learner's readiness to enter into discourse at a particular time with a specific person or persons using an L2" [40]. The importance of WTC in L2 learning cannot be overstated. It is considered a crucial factor in language acquisition, as it directly influences the frequency and quality of L2 use [41]. WTC serves as a bridge between language proficiency and actual communicative behavior, highlighting that mere linguistic competence does not guarantee active participation in L2 communication [42].

Research has shown that WTC is influenced by a wide array of factors, both individual and situational. These include demographic features such as age, gender, and socioeconomic status [43], as well as contextual factors like the type of interlocutor and the communication setting [44]. For instance, Li and Li (2022) found that male students exhibited higher WTC in meaning-focused activities, while female students showed greater WTC in form-focused activities. Recent Studies have emphasized the Dynamic Nature of WTC. Kang (2005) noted that situational WTC can emerge and fluctuate during a conversation, highlighting its state-like characteristics. This perspective has led to a more nuanced understanding of WTC as a construct that varies "according to the interlocutor(s), topic, and conversational context, among other potential situational variables" [41]. Macintyre et al.'s (1998) pyramid model of L2 WTC has been instrumental in integrating various psychological, linguistic, and communicative factors that influence WTC. This model has provided a comprehensive framework for understanding the complex interplay of variables that contribute to an individual's willingness to engage in L2 communication.

While numerous studies have explored the impact of code-switching on various aspects of L2 learning, there is a notable gap in research examining its effect on learners' WTC. The present study aims to bridge this gap by investigating how the strategic use of code-switching in Iranian EFL classrooms may enhance students' language skills and potentially boost their WTC in L2 conversations. By examining the interplay between code-switching, speaking Complexity, and WTC, this Research Seeks to uncover the Complex Linguistic and Pedagogical Dynamics at play in EFL Settings by addressing the following questions:

RQ1. To what Extent does the use of code-switching affect Iranian EFL learners' Speaking Complexity?

RQ2. Does any Relationship Exist between L2 learners' Speaking Complexity and Their WTC in EFL Contexts?

3. Methodology

3.1. Participants

This Research Focused on two Groups of University Persian-speaking TEFL students enrolled in a general English course at a higher education institution in Mashhad, Iran. The study involved 60 participants, evenly distributed between two classes, with ages ranging from 19 to 37 years and including both male and female students. The students' English Proficiency was presumed to be at an Intermediate Level due to Prior Language Education in School. However, the Researcher Conducted a Pre-test to Establish Control and Experimental Groups to Ensure Comparability. The selection process did not involve randomization, as the study population consisted of pre-registered students in the course. To Maintain Ethical Standards, the Identities of the Instructor and Department Director were kept Confidential Throughout the Research Process. This approach ensured the Integrity of the Study While Protecting the Privacy of all Involved Parties.

3.2. Instruments

This study utilized a quasi-experimental design suitable for real-world educational settings where full randomization is challenging. The instruments used to collect data are described in detail below, highlighting their selection based on reliability, validity, and relevance to the study's objectives.

The B1 Preliminary examination, formerly known as the Preliminary English Test (PET), is a standardized assessment of English language proficiency offered by Cambridge Assessment English. This test evaluates candidates' ability to apply practical English skills in everyday situations and is designed for learners who have progressed beyond basic proficiency. As part of the Cambridge English Qualifications suite, the B1 Preliminary exam assesses intermediate-level English language competence. It measures a learner's

capacity to understand and use every day written and spoken English, focusing on real-world communication skills. The B1 Preliminary exam is recognized for its rigorous standards and has demonstrated high consistency in assessment outcomes. Research has shown the test's reliability to be approximately 0.92, indicating strong measurement precision.

Participants' oral skills were assessed using a task adapted from standardized speaking tests at the B1 level. This task required examinees to express their opinions on a given topic, allowing for the evaluation of their ability to organize thoughts, use appropriate vocabulary, and Communicate Effectively in English. This Particular task was Selected Based on its Capacity to Elicit Spontaneous Speech and Assess Participants' Logical Reasoning in the Target Language.

A novel approach was used to measure participants' WTC. Following their speaking performance, participants viewed a video recording of their pre-intervention session. They were then asked to rate their own WTC at various points during the interaction using a five-point Likert scale. The scale ranged from 1 (*Greatly Decreased WTC*) to 5 (*Greatly Increased WTC*), with 3 representing *Stable WTC*. This self-assessment method provided insights into participants' perceived readiness to communicate throughout the speaking task, offering a dynamic measure of WTC in the context of L2 communication.

3.3. Procedure

To establish a suitable sample of comparable L2 learners, the researcher selected two Conversation 2 classes at the university. Participants provided informed consent, agreeing to have their interactions recorded for analysis. Following an assessment of their language proficiency, 60 students were non-randomly allocated into two groups: an experimental group (allowed code-switching) and a control group (no code-switching permitted). Prior to the Intervention, all Participants Completed a Standardized English Proficiency test. The Results confirmed that the students were at an Intermediate Level of English Proficiency and Demonstrated Homogeneity in Their Speaking Abilities. This ensured a Level Playing Field for the Study, allowing for more Accurate Comparisons Between the two Groups Throughout the Research Process. Then, the Participants in both Groups sat for the Pre-test, and Their Scores on the Speaking test were Considered Their Pre-test Scores. Two Examiners rated the Participants' Speaking Performance and estimated inter-rater reliability, and a measure of 0.91 was reported, and they rated the Participants' Complexity. After that, the students were given a WTC test to Assess Their own WTC.

In the Control Group (*-code-switching*), participants were instructed to adhere strictly to an English-only policy during class sessions, prohibiting the use of their native language for communication. Conversely, in the experimental group (*+code-switching*), students were neither encouraged nor discouraged from using their first language. The instructor allowed them to use Persian as needed but intervened if its use exceeded 30 seconds by posing a question or redirecting the conversation to another student, thus maintaining a balance between English and Persian usage. The intervention spanned a total of ten sessions for both groups. The Study was conducted over five Weeks, with both groups attending two 90-minute sessions per week, totaling 10 sessions. *Speak Now 3* Served as the Primary Textbook for all Participants. The Instructor Provided Identical Lessons and Comparable Homework Assignments to both Groups. The key Distinction Between the Groups lies in their language use policy. The control group adhered to a strict English-only approach, prohibiting L1 use. In contrast, the experimental group was permitted brief code-switching instances, limited to 30 seconds. Additionally, the instructor employed code-switching techniques when teaching the experimental group. Upon Completion of the Study, Participants from both Groups took the Speaking Section of an Alternative PET Sample test. This Assessment Aimed to measure any Improvements in Their Speaking Proficiency Resulting from the Different Instructional Approaches. To assess the impact of code-switching on learners' complexity, speaking tasks were administered at the beginning and end of the semester. A different PET sample test was utilized as the post-test. Throughout the instructional period for both control and experimental groups, the researcher observed various learning techniques, including code-switching and other potentially Effective Learning Styles, as suggested by Recent Studies. After the treatment sessions, participants evaluated their own WTC by reviewing video recordings of their performance. This self-assessment approach allowed for a more nuanced understanding of the learners' perceived communicative confidence and readiness to engage in L2 interactions.

4. Results

This Study Employed the Complexity, Accuracy, and Fluency (CAF) Framework developed by Housen and Kuiken (2009) to analyze speaking complexity due to its comprehensive approach to evaluating language production. Speaking complexity was assessed across three key components:

--Grammatical Complexity: This included the variety of sentence structures, average utterance length, and the use of subordinate clauses.

--Lexical Sophistication: This measured vocabulary diversity using the type-token ratio, the use of advanced or low-frequency words, and word appropriateness in context.

--Discourse Complexity: This evaluated the coherence and organization of ideas, the logical flow of arguments, and the use of cohesive devices. Each component was rated on a 1 to 5 scale, with the overall complexity score calculated as the average of these ratings. Two Trained Raters Independently Scored each Sample to Ensure Reliability, Resolving Discrepancies Through Discussion, and they reported the reliability of $r = 0.92$. Statistical analyses were performed using SPSS version 27, encompassing both descriptive and inferential methods. Table 1 presents the statistical summary of each group's performance in the pre-test and post-test phases. The data reveal that participants in both the control and experimental groups demonstrated improvements in speaking complexity and WTC over the course of the study. This initial overview suggests a positive trend in language development across both conditions, setting the stage for more detailed comparative analysis.

Table 1. Group Statistics for Experimental and Control Groups

	Group	N	Mean	Std. Deviation	Std. Error Mean
WTC Pre-test	Experimental	30	2.60	1.303	0.238
	Control	30	2.50	1.280	0.234
WTC Post-test	Experimental	30	4.47	0.681	0.124
	Control	30	2.70	1.208	0.221
Complexity Pre-test	Experimental	30	2.87	0.730	0.133
	Control	30	2.87	0.730	0.133
Complexity Post-test	Experimental	30	3.87	0.730	0.133
	Control	30	3.20	0.407	0.074

The first research question examined the potential impact of code-switching on speaking complexity among Iranian intermediate learners. The study involved two groups: an experimental group that implemented code-switching and a control group that did not. As illustrated in the table below, the results indicate that the experimental group achieved higher scores in the speaking complexity post-test compared to the control group. This suggests that the implementation of code-switching may have positively influenced the development of speaking complexity in the experimental group. As Table 2 depicts, there is a Significant Difference Between the Experimental ($M = 3.87$, $SD = 0.730$) and Control Groups ($M = 3.20$, $SD = 0.407$) in the Post-test ($t = 4.368$, $p = 0.000$, $df = 46.419$). The Magnitude of the Difference in the Means was Large ($\eta^2 = 0.247$).

Table 2. Independent Sample t-test for Comparing the Participants' Performances on Speaking Complexity

	T-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						Lower	Upper
Complexity Pre-test	0.000	58	1.000	0.000	0.189	0-.377	0.377
Complexity Post-test	4.368	45.419	0.000	0.667	0.153	0.359	0.974

Figure 1 below shows the different mean scores of different groups across time.

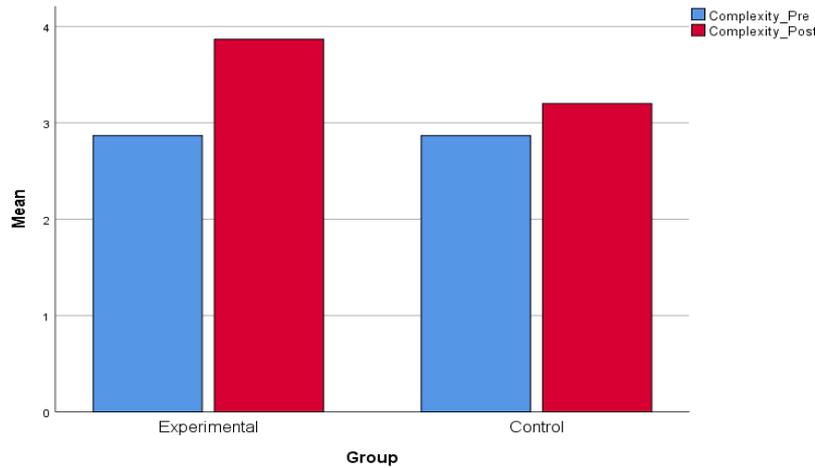


Figure 1. Clustered Bar Graph for Speaking Complexity

A mixed between-within subjects ANOVA was employed to determine the statistical significance of the observed differences. Preliminary checks confirmed that the assumption of homogeneity of variance was not violated. The analysis revealed a significant main effect for time [Wilks' Lambda = 0.200, $F = 232$, $p < 0.001$], with a large effect size (partial eta squared = 0.800). This indicates that participants' performance improved significantly from pre-test to post-test. Moreover, a significant interaction effect between group and time was found [Wilks' Lambda = 0.500, $F = 58$, $p < 0.001$]. This interaction suggests that the experimental group, which was allowed to use code-switching, demonstrated greater improvement in speaking complexity compared to the control group, which adhered to an English-only policy. Furthermore, a Significant main Effect for Group was observed ($p = 0.049$), indicating an overall difference between the experimental and control groups across both time points. These results, summarized in Table 3, provide strong evidence for the positive impact of code-switching on speaking complexity development.

Table 3. Independent Sample t-test for Comparing the Participants' Performances on Speaking Complexity

	Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Time	Pillai's Trace	0.800	232.000	1.000	58.000	0.000	0.800
	Wilks' Lambda	0.200	232.000	1.000	58.000	0.000	0.800
Time * Group	Pillai's Trace	0.500	58.000	1.000	58.000	0.000	0.500
	Wilks' Lambda	0.500	58.000	1.000	58.000	0.000	0.500

The Second Research Question Investigated the Correlation between L2 learners' speaking complexity and their WTC in EFL contexts when code-switching is implemented. The main variables in this research question were speaking complexity (continuous variable), WTC (ordinal variable), and code-switching (categorical variable). A Pearson Correlation Coefficient was Computed to Assess the Relationship Between WTC and Speaking Complexity in the Post-test Phase. The Analysis Revealed a Moderate Positive Correlation Between WTC and Complexity ($r = 0.349$, $n = 60$, $p = 0.006$). Table 4 depicts the results:

Table 4. Results of Correlation Between L2 Learners' WTC and Speaking Complexity

		WTC	Complexity
WTC	Pearson Correlation	1	0.349**
	Sig. (2-tailed)		0.006
	N	60	60
Speaking Complexity	Pearson Correlation	0.349**	1
	Sig. (2-tailed)	0.006	
	N	60	60

** . Correlation is significant at the 0.01 level (2-tailed).

This statistically significant result indicates that higher levels of willingness to communicate (WTC) were associated with greater speaking complexity in the post-test. The correlation was moderate in strength ($r = 0.349$), suggesting a meaningful but not strong relationship between the two variables. The p -value ($p = 0.006$) falls well below the conventional alpha threshold of 0.01, providing strong evidence against the null hypothesis of no association. These findings suggest that as participants' WTC increased, their speaking complexity tended to increase as well—and conversely, lower WTC was linked to reduced complexity. However, it is important to emphasize that correlation does not imply causation; other unmeasured variables may have influenced this relationship.

5. Discussion

The findings of the first research question in the current study demonstrate that code-switching significantly enhances speaking complexity among Iranian intermediate learners, as evidenced by the experimental group's higher post-test scores compared to the control group. This aligns with prior research, such as Dorcas (2018), which highlights the positive role of code-switching in facilitating comprehension and participation, particularly for learners with limited proficiency in the target language. Similarly, Sun and Yang (2024) emphasize that appropriate code-switching can improve L2 acquisition by bridging linguistic gaps and fostering understanding. These results suggest that code-switching serves as a valuable pedagogical tool for enhancing linguistic complexity. Contrastingly, some studies caution against over-reliance on code-switching. For instance, Modupeola (2013) argues that while code-switching is beneficial at foundational levels, it should be gradually reduced as learners advance in proficiency to avoid dependency. This perspective underscores the need for a balanced approach, ensuring that learners develop independent language skills while leveraging their native language for initial support.

The Significant Interaction Effect Observed in this Study, where the Experimental Group Showed Greater Improvement over time, resonates with Findings by Ezeh et al. (2022), who reported that code-switching aids in transitioning from known to unknown linguistic structures. Collectively, these findings affirm the efficacy of code-switching in enhancing speaking complexity, while also highlighting the importance of its strategic implementation. The Findings are Consistent with the work of Modupeola (2013), who identified code-switching as a cognitive and social strategy that facilitates language learning by reducing anxiety and promoting active engagement. However, other studies, such as those by Turnbull and Arnett (2002), advocate for minimizing code-switching to maximize target language exposure, particularly in immersion settings. This divergence highlights the contextual nature of code-switching's effectiveness, suggesting that its benefits may vary depending on learners' proficiency levels, instructional goals, and cultural contexts. Therefore, while the current study provides strong evidence for the positive role of code-switching in improving speaking complexity, future research should explore its long-term effects and optimal implementation strategies to balance linguistic support with the development of independent language skills.

The Results of the Second Research Question Study Reveal a Moderate Positive Correlation Between WTC and Speaking Complexity Among EFL Learners, suggesting that Higher WTC is Associated with Greater Speaking Complexity. This Finding Aligns with Prior Research, such as Syamsudin (2018), which highlights that code-switching strategies can enhance learners' confidence and self-expression, thereby improving their speaking skills [48]. Similarly, Thowaiabi (2024) found that fostering WTC through positive teacher-student rapport significantly enhances communication outcomes in EFL contexts. These studies collectively emphasize the role of psychological and linguistic strategies in improving speaking performance. However, the Moderate Strength of the Correlation in this Study Indicates that Other Factors may also Influence the Relationship Between WTC and Speaking Complexity. For Instance, Cong and Li (2022) identified emotional intelligence and self-efficacy as mediators that significantly impact communication apprehension and WTC. This suggests that while WTC is a critical factor, learners' emotional and cognitive states also play a substantial role in shaping their speaking complexity.

The use of code-switching as a categorical variable in this study provides additional insights into its role in moderating the WTC-complexity relationship. Lestari and Andiansyah (2024) found that code-switching serves as a compensatory strategy, enabling learners to navigate linguistic gaps and maintain fluency during communication. This aligns with the current findings, where code-switching likely facilitated greater speaking complexity by reducing cognitive load and enhancing learners' confidence. Contrastingly, some studies caution against over-reliance on code-switching. For example, Turnbull and Arnett (2002) argue

that excessive use of code-switching may hinder long-term language development by limiting exposure to the target language. This perspective underscores the need for a balanced approach, where code-switching is used strategically to support, rather than replace, target language use.

In conclusion, the findings of this study contribute to the growing body of evidence supporting the positive role of WTC and code-switching in enhancing speaking complexity. However, future research should explore additional mediating factors, such as emotional intelligence and self-efficacy, to provide a more comprehensive understanding of the dynamics between WTC, speaking complexity, and code-switching in EFL contexts.

6. Conclusion

In conclusion, this study highlights the significant role of code-switching and willingness to communicate (WTC) in enhancing speaking complexity among EFL learners. The findings demonstrate that code-switching not only facilitates linguistic development but also positively influences the relationship between WTC and speaking complexity, as evidenced by the moderate positive correlation. These results align with prior research emphasizing the pedagogical value of code-switching and the psychological importance of fostering WTC in language learning. However, the moderate strength of the correlation suggests that other factors, such as emotional intelligence and self-efficacy, may also play a role in shaping speaking complexity. Despite its contributions, this study has limitations. First, the sample size was relatively small ($n = 60$), which may limit the generalizability of the findings. Second, the study focused exclusively on Iranian intermediate learners, and the results may not fully apply to learners from different cultural or linguistic backgrounds. Additionally, the reliance on self-reported measures for WTC may introduce bias, as learners' perceptions may not always align with their actual communication behaviors.

The findings have important implications for EFL teaching. Educators should consider incorporating code-switching as a strategic tool to support learners, particularly in contexts where linguistic gaps hinder communication. Moreover, fostering WTC through confidence-building activities and positive classroom environments can further enhance speaking complexity. Future research should explore the long-term effects of code-switching and investigate additional mediating factors, such as motivation and anxiety, to provide a more comprehensive understanding of its role in language learning. By addressing these limitations and expanding the scope of inquiry, researchers and educators can better optimize teaching strategies to support EFL learners' speaking development.

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