The Effect of Code-Switching on EFL Learners' Speaking Accuracy, Fluency, and Complexity

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Abstract
This study aimed to investigate the extent to which L2 learners' use of L1 improves their speaking ability. Employing a quasi-experimental research design, the researchers studied the effect of learner code-switching on their speaking accuracy, fluency, and complexity scores. The participants of this study were 117 lower-intermediate students receiving English instruction in eight intact classes in different branches of a private institute. These classes were assigned to two +code-switching and –code-switching treatments randomly. While the participants in the +code-switching group could use Farsi for at most 30 seconds in each activity, those in the –code-switching group were not allowed to switch to their mother tongue. The findings of this study showed that there were no significant differences between the students' speaking ability in terms of fluency and accuracy across the two groups. The complexity scores of the +code-switching group, however, was significantly higher than those in the –code-switching group. The results also showed a significant improvement in the speaking of the students in both groups. Based on the results, it can be said that that the use of controlled amounts of learner code-switching could be useful when complexity is the focus of an activity. Furthermore, no sign of detrimental effect of learner code-switching was traced in our study.

Keywords: code-switching, speaking, accuracy, fluency, complexity

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Introduction

The presence of students' L1 in EFL (English as a Foreign Language) classes has been an interesting area of research for the last three decades. The use of students' L1 in classes is more probable when students are learning in a context in which English is regarded as a foreign language and students are of the same mother tongue. When students are not banned from employing their mother tongue, language learners, especially those with lower English language ability, are likely to resort to their L1 to communicate with their audience, including their classmates and their bilingual teacher and facilitate their learning process. However, there is no consensus on the positive effect of code-switching on L2 learners' language learning. The mixed results of prior studies motivate further empirical research to help ELT community of practice reach a conclusive picture of the effect of code-switching on L2 students' language learning. Furthermore, more in-depth analyses of data on learner code-switching can contribute to both theoretical and practical spheres of foreign language teaching literature. Prior studies have examined the effect of code-switching on L2 learners' speaking ability; however, none of them has decomposed speaking performance into its components (accuracy, fluency, and complexity). The examination of the components can enable both researchers and practitioners to understand which performance aspect has been affected by the implemented practice. This knowledge is not achieved when the performance is assessed holistically. The present study, in an attempt to fill this gap, aims to investigate the effect of code-switching on students' speaking accuracy, fluency, and complexity. Furthermore, this study will examine the effect of ±code-switching conditions on students' speaking fluency, accuracy, and complexity after 20-week treatments.

Background

This section provides a brief review of the literature on learner code-switching in educational settings.

L1 Use in L2 Classes

The students' alternation between two codes (languages) has been widely known as code-switching. In the realm of educational linguistics, code-switching has been examined through the lenses of sociolinguistic and pedagogy (Bista, 2010). While the former deals with how social factors result in students' alteration between the two (or more) languages at their disposal, the latter addresses the issues pertinent to why and how alterations occur due to pedagogical requirements. The present study deals chiefly with the pedagogical aspect of students' code-switching in an EFL context.

In monolingual EFL classes, all students have a common mother tongue other than English. In addition, the teachers of these classes are usually native speakers of that language or have native-like ability to speak this language (Atkinson, 1993). In these classes, students or teachers might switch between the target language and their mother tongue to get their thoughts and feelings across. This change in the code in which the content is transferred is called code-switching. Based on their approaches to define languages, different scholars have provided different names for the change in the language employed in speaking. Bullock and Toribio (2009) have defined code-switching as "the ability on the part of bilinguals to alternate effortlessly between their

two languages" (p.1). García (2009, p. 45) extended the concept and defined it as "multiple discursive practices in which bilinguals engage in order to make sense of their bilingual worlds". The definition put forth by García suggests that EFL students employ code-switching not only for expressing ideas, but also for making sense of the foreign language used in EFL classes.

In the realm of foreign language class discourse, the issue of code-switching has been an enchanting area of inquiry since the 1980s (Afroogh, 2018; Koylu, 2018). The investigation of code-switching in foreign language classes can shed light on the way different codes are employed to accomplish the task of communication successfully. Ustunel (2016) argues that the process of code-switching is a common practice in foreign language classes. However, not all scholars have supported the employment of code-switching in the class.

For and Against L1 Use in L2 Classes

First language-only policy refers to the ban on the use of students' mother tongue in English language classrooms. This approach, also known as the monolingual principle, encourages the minimal interference of students' first language in the process of second language pedagogy. Enama (2016) provides the main features of this approach under three points. First, employing students' language in a classroom is not possible since in a multilingual classroom, a teacher may not be able to use all students' first languages. This point is more severe when the class is a multilingual in an ESL context (for example, a refugee camp) and the students are from different countries with different languages. Further, teachers will have a difficult task to establish their authority if they use students' first language. Moreover, the failure in the use of students' first language can destroy the whole process of language learning.

Although some argue that students' first language is a significant scaffolding tool to improve students' second language ability, there are some scholars (Pachler & Field, 2001; Willis, 1981) who believe that there are many other scaffolding tools which function much more efficiently than students' first language. They argue that tools such as gestures, facial expressions, and modelling speech contingent to students' level of language development can facilitate the process of teaching and learning even the most difficult (and even the most abstract) items.

The third point mentioned by Enama (2016) is the issue of maximizing students' exposure to the target language. Some scholars argue that since the majority of students do not have any chance to be exposed to the target language, it would be wise to maximize the use of English in classrooms by banning on the employment of students' first language. This view has roots in behavioristic approach to language learning, in which the formation of habits through imitation is highly praised.

Following the prescriptions of behaviorism, ban on L2 use has been a well-established approach in L2 language pedagogy because some were worried about the students' lack of sufficient exposure to English. Some others, especially teachers, thought the use of students' first language gives students (and other stakeholders) this impression that they are not of sufficient English language ability or teaching ability; thus, they preferred to stick to the target

language and avoid using students' first language in classroom. Further, some teachers cannot use students' first language as they are native speakers of English or another language and cannot speak in students' mother tongue.

The issue of using students' first language has been an enchanting area for discussions at different levels. At the practical level, the norm in many countries force English language teachers to ban on the use of students' first language in their classes as Butzkamm and Caldwell (2009) states, it is "a badge of honor" for them not to use students' first language in classroom. Prodromou (2002), similarly, states that some teachers find the use of students' L1 in their classes as a source of embarrassment and a taboo subject.

As Vivian Cook (2001) states, although the proponents of L1-only policy support their idea loudly, there is no theoretical rationale to follow this policy. In addition, Butzkamm and Caldwell (2009) state that since all of us learn our second language with a background of a first language, which forms the base of one's linguistic knowledge, it is not logical to overlook this base and merely focus on what is built on it.

The prescription of those who are for the ban on learners' L1 is at odds with the tenets of interdependence of first and second language, which acknowledges the contribution of L1 in target language development (Cummins, 1981). Several empirical studies have supported this hypothesis. Some studies have provided evidence for positive cross-lingual transfer in different areas such as understanding concepts (Hoomanfard & Rahimi, 2020; Swain & Lapkin, 2000), improving meta-cognitive skills (Hardin, 2001), increasing learners' awareness of phonological awareness and functional rules (Enama, 2016). These findings convinced Cummins (2007), among many other researchers, to argue that the education of second language can be improved if instructors employ students' attention to different similarities and differences between the students' first and second languages. He also found that this use of students' first language can improve their use of learning strategies, and consequently, can improve the efficiency of the education.

Based on Cummin's (1981) linguistic interdependence hypothesis, which posits that students' success in learning their second language, highly, depends upon the development of their first language, some scholars (Atkinson, 1993; Auerbach, 1993) proposed the bilingual approach. One of the most basic premise of this approach is that second language learners acquire their second language within the framework formed by their first language, and therefore should not be excluded from L2 classes.

The review of the literature shows that there are some main reasons for the use of the learner's first language in second language classes. The first enumerated reason is that the use of students' first language facilitates both learning and teaching. Balosa (2006), for example, states that the use of students' L1 can boost students' morale and can improve their confidence, develop their cooperation, and help students feel more secure, which can increase their motivation and help them learn more efficiently (Peregoy & Boyle, 2013). In addition, the L1 saves teaching time and makes input much easier to understand (Cook, 2001). The second set of reasons deals with the impact of students' first language on students' cognitive and socio-cognitive development. To be more specific, learners' first language organizes the

students' mind and prepares it to understand and connect new materials to the preexisting knowledge blocks (Caine & Caine, 1994).

Prior scholars (Antón & DiCamilla, 1999; Hoomanfard, 2017; Storch & Wigglesworth, 2003; Swain & Lapkin, 2000) have advocated the use of learners' L1 in second language classes for its cognitive benefits. Following the tenets of the sociocultural theory (Vygotsky, 1962), Antón & DiCamilla (1999) argue that the use of L1 in language classes improves the chances of their efforts to scaffold their students' learning. Similarly, the use of first language can give learners the chance to employ another cognitive tool, which can facilitate their learning since they can analyze language at a higher level. Storch and Wigglesworth (2003), mentioning the same cognitive advantage of using L1 in classes, state that several language learning opportunities are lost when the program is limited to the use of the second language.

Furthermore, Auerbach (1993) argues that employing L1 in the classroom has an affective effect: when L1 is employed, the anxiety levels of the students are decreased to a low level. This can result in enhancing the affective atmosphere for language learning, observing the sociocultural factors, facilitating using learners' experiences in classes, and enabling the implementation of learner-centered curricula (Auerbach, 1993, p. 19).

Storch and Wigglesworth (2003) also conducted a study on 24 university ESL students in an Asian context. The findings of this study showed that learners used their first language to exchange the definitions of lexical items and explain the grammatical structures when they did not know how to solve their linguistic problems using their L2. The participants in their study stated that they had less difficulty negotiating the meaning and discussing their grammatical choices when they used their L1. Similarly, Stern (1992) stand up for using L1 in second language classes; however, L1 should function as a complement to L2. To Stern, the stage of language learning is a significant factor that determines the amount of first language use in L2 classes.

Prior Studies

The reviewed controversies over the advantages and disadvantages of learner code-switching in L2 classes show both the complexity of this issue and the need for empirical studies to uncover the affordances of learner code-switching. The findings of previous studies conducted in various contexts (Hasanah, 2019; Jafarigohar et al., 2018; Mirhasani & Mamaghani, 2009; Moodley, 2007; Simin et al., 2005; Syamsudin, 2018) have shown the positive effect of learner code-switching on L2 students' speaking improvement. Previous studies have reported some reasons for students' progress. Some studies (Morini & Newman, 2019; Simin et al., 2005) found that code-switching helped L2 students recall taught items better when they were allowed to work on the materials in their mother tongue. Moodley's (2007) study indicated that L2 students employed code-switching to a wide range of communication and cognitive and social learning strategies such as seeking clarification, providing explanation, elaborating on different issues, managing the groups, influencing peer behavior, expressing their feelings, and claiming the floor to improve their speaking ability in English. Syamsudin (2018) attributed students' improvement in +code-switching condition to their higher level of participation

in English interactions. She argued that the relatively low affective pressure in +code-switching condition encouraged the students to engage more actively in the activities and improve their speaking ability.

Present Study

The current study, unlike previous studies (Hasanah, 2019; Hoomanfard et al., 2021; Mirhasani & Mamaghani, 2009; Moodley, 2007; Simin et al., 2005; Syamsudin, 2018), which have focused on the effect of code-switching on EFL students' performance as a whole, aims to investigate the effects of code-switching on EFL learners' speaking complexity, fluency, and accuracy. This in-depth analysis can inform the literature on how learners' code-switching might affect foreign language learners' improvement of speaking complexity, fluency, and accuracy. Furthermore, the majority of previous studies have been conducted in tertiary education contexts. However, this study is conducted in a private language institute, where intermediate students have more deficiencies in the lexical, pragmatic, and grammatical knowledge.

The present study aims to contribute to the body of code-switching literature by filling this gap in the literature. The following research question guided the present study:

RQ: What is the effect of lower-intermediate EFL learners' use of code-switching on learners' speaking fluency, accuracy, and complexity?

Methods
Participants

The participants of this study included 117 lower-intermediate English language learners. These participants, who were in eight intact classes, were selected based on convenience sampling. These students were taking a general English course to reach upper intermediate level. Four teachers taught these classes. Each teacher moderated a +code-switching and a –code-switching class. The students' age ranged between 18 and 35. The textbook and class procedures were the same in all these classes and the only traceable difference was pertinent to the treatments (+code-switching vs. –code-switching conditions) of the present study. The classes were held at two branches of a private institute in Tehran. The teachers facilitated the content in these eight classes and they had sessions with the researcher to follow the same procedures. Random assignment was employed to put the intact classes into the two groups of +code-switching and –code-switching. Although the charter of the institute had categorized these students as lower intermediate, the researchers gave the participants the Oxford Quick Placement Test. The comparison of the students' performance at the beginning of the treatment indicated that the mean scores of students' English language proficiency and speaking ability were not significantly different across the eight classes (F = .472, p = .008 and F = .97, p = .02) and they were homogenous with regard to these two aspects as all of the participants were within ±1 standard deviation of the mean score.

Instruments

Oxford Quick Placement Test. The Oxford Quick Placement Test was used to measure the participants' general level of English language proficiency. This test includes 60 multiple-choice items of vocabulary, collocation, and grammar. This test is mainly employed for proficiency and placement purposes. A high reliability value (0.9) was obtained by Geranpayeh (2003) for this proficiency measure. This test was administered at the beginning of the study and the participants were given 45 minutes to complete the test. This test was selected in the present study as it is a quick and dependable test.

Speaking Tasks. The participants accomplished two IELTS speaking tasks (Appendix A) at the beginning and the end of the semester. These tasks were taken from *IELTS Academic 14: With Answers (2019)*, which was published by Cambridge University Publication, provides its audience with authentic tasks, which are taken from prior IELTS administrations.

Each participant selected two topics randomly to talk about. The participants had a 1.5-minute pre-task planning time for each task. The participants were asked to talk for at least two minutes. The followings are the topics of speaking tasks.

➢ Can you talk about the tourist attractions in your city?
➢ What would you do if you lost your luggage at an airport
➢ What would you do if your neighbor threw a party the night before your important job interview?
➢ How often do you shop online? What are its advantages and disadvantages?

Data Collection and Analysis Procedures

The participants of this study were assigned to two groups of -code switching and +code switching randomly. In four classes (-code switching), the students were told that English-Only Policy had to be observed. They were not allowed to employ their mother tongue to communicate within the sessions. In the other four classes (+code switching), the students were not either encouraged or discouraged to use their first language. The teachers let them use Persian language whenever they wanted. However, the extended (more than 30 seconds) use of Persian language was interrupted by the teachers by the use of a question or giving the turn to another student to stop the flow of Persian language use in the class. The semester lasted for 20 sessions. At the beginning of the treatment, all students took Oxford Quick Placement test and IELTS speaking section. The results ensured us that all students were lower intermediate English language learners, and they were homogeneous regarding their speaking ability. Furthermore, the IELTS speaking section scores were used as the pre-test scores showing the participants speaking ability.

To examine the effect of ±code-switching conditions on learners' speaking ability, the students took IELTS speaking tasks at the beginning and at the end of the semester. The scores of the pre-test and post-test were used to examine the within-subject progress thorough the semester using a series of Mixed ANOVAs.

To quantify the participants' speaking performance across different aspects, some measures were employed. To examine the accuracy of the

participants' performance, 1) error-free clauses, which was operationalized as the ratio of the clauses that was not erroneous to all clauses, and 2) correct verb forms, which was computed as the ratio of all verbs that are used correctly in terms of tense, aspect, modality, and subject-verb agreement to all verbs, were employed. The researchers used mean length of run (mean number of syllables supplied between pauses above 0.28 seconds) and speech rate, syllables per minute, to measure the participants' speaking fluency. Finally, to assess the syntactic complexity, mean length of clause, the ratio of the number of words to the number of clauses in the participants' production (Wolfe-Quintero et al., 1998), and to measure the lexical complexity, number of different words (NDW-ER50), the mean number of different words of 10 random 50-word samples in the participants' production (Ellis & Yuan, 2004) were employed.

Results

Effect of ±Code-switching Conditions on Learners' Speaking Accuracy, Fluency, and Complexity

The Effect of ±code-switching conditions on learners' speaking accuracy, fluency, and complexity after 20 sessions was examined. To do so, the participants' speaking scores in IELTS Task 2 at the beginning and the end of the semester were examined. One of the differences between the present study and the prior ones is that while in the prior studies the students' ability was reported as a single score, the present study aimed to examine the students' performance based on their speaking accuracy, fluency, and complexity. To collect the required data to uncover ±code-switching conditions on learners' speaking ability, a quasi-experimental design was adopted. The conditions were assigned to the two groups (each including four intact classes) randomly. The scores of the participants' speaking ability, tapped using IELTS speaking Task 2, at the beginning and the end of the semester were used to find the effect of the +code-switching and –code-switching conditions on second language learners' speaking ability.

To understand the changes in the participants' scores in both ±code-switching conditions, the mean scores of the participants of the two groups were compared, and the results of independent samples t-tests showed that there were no differences between the students' mean scores at the beginning of the study. The results showed that the differences between their mean scores were not significant for error-free clauses ($t = .939$, $p = .350$), and correct verb forms ($t = .443$, $p = .66$). Regarding the participants' speaking fluency, the findings showed that the students' mean scores were not significantly different ($t_{\text{Mean length of run}} = 1.02$, $p = .303$ and $t_{\text{Speech rate}} = 1.00$, $p = .319$). The results also indicated that the complexity mean scores of +code-switching group was not significantly different from those of –code-switching group ($t_{\text{Mean length of clauses}} = 1.21$, $p = .26$ and $t_{\text{number of different words}} = 1.21$, $p = .228$). These findings indicated that the participants of the +code-switching and –code-switching students' speaking performance was not significantly different.

As provided in Table 1, the accuracy mean scores of the participants in both groups rose noticeably ($M_{\text{Error-free clauses}} = .57$ (.038) to .71 (.044) and $M_{\text{Correct verb forms}} = .58$ (.04) to .69 (.043) in the +code-switching group and $M_{\text{Error-free clauses}}$

= .58 (.041) to .73 (.042) and $M_{Correct\ verb\ forms}$ = .59 (.036) to .71 (.038) in the –code-switching group).

Table 1
Descriptive Statistics for the Accuracy Measures of ±Code-switching Groups

	Time 1		Time 2	
	+code-switching	–code-switching	+code-switching	–code-switching
Error-free clauses	.57 (.038)	.58 (.041)	.71 (.044)	.73 (.042)
Correct verb forms	.58 (.04)	.59 (.036)	.69 (.043)	.71 (.038)

To answer the research question, the speaking accuracy, fluency, and complexity of the participants in –code-switching and +code-switching groups and between pre-test and post-test were compared. Table 1 provides the descriptive statistics for the measures of accuracy. A Mixed ANOVA were run to examine the effects of time and conditions on students' error free clause scores. The findings showed that there was a significant, large main effect for time, $F (1, 115) = 418$, $p < .001$, $\eta^2_p = .97$; however, the main effect of condition was non-significant, $F (1, 115) = .980$, $p = .324$, $\eta^2_p = .008$, nor was the interaction between condition and time, $F (1, 115) = .980$, $p = .024$, $\eta^2_p = .001$. Regarding the correct verb forms, the result of Mixed ANOVA showed that while there was a non-significant main effect for condition, $F (1, 115) = 2943$, $p = 420$, $\eta^2_p = .006$, the findings showed significant, large main effect for time, $F (1, 115) = 1360$, $p < .001$, $\eta^2_p = .98$. Another significant main effect was found for the interaction of time and condition, but the effect was small $F (1, 115) = 7.17$, $p = .008$, $\eta^2_p = .059$. Considering both measures, it can be stated that neither of the conditions was superior over the other in terms of improving second language learners' accuracy, but the within-subject tests showed that their speaking accuracy improved significantly during the treatments.

The fluency of the students' performance was also examined during the treatment. As provided in Table 2, the fluency mean scores of the participants in both groups rose descriptively ($M_{Mean\ length\ of\ run}$ = 4.14 (.09) to 4.64 (.11) and $M_{Speech\ rate}$ = 113.56 (6.55) to 119.44 (6.44) in the +code-switching group and $M_{Mean\ length\ of\ run}$ = 4.11 (.011) to 4.62 (.11) and $M_{Speech\ rate}$ = 112.37 (6.19) to 118.18 (6.19) in the –code-switching group).

Table 2
Descriptive Statistics for the Fluency Measures of ±Code-switching Groups

	Time 1		Time 2	
	+code-switching	–code-switching	+code-switching	–code-switching
Mean length of run	4.14 (.09)	4.11 (.11)	4.64 (.08)	4.62 (.11)
Speech rate	113.56 (6.55)	112.37 (6.19)	119.44 (6.44)	118.18 (6.19)

The comparison of the participants' mean length of run scores at two different times and across the groups showed that there was no significant

effect for condition, $F (1, 115) = .927$, $p = .338$, $\eta^2_p = .008$, nor was the interaction between time and conditions $F (1, 115) = .996$, $p = .320$, $\eta^2_p = .009$; however, a significant, large effect for time was identified $F (1, 115) = 9357$, $p < .001$, $\eta^2_p = .98$. A Mixed ANOVA was also run for speech rate, and its findings showed that the only significant effect was for time $F (1, 115) = 1994$, $p < .001$, $\eta^2_p = .96$, and the effects for condition and the interaction of condition and time were non-significant ($F (1, 115) = 1.08$, $p = .299$, $\eta^2_p = .009$ and $F (1, 115) = .209$, $p = .648$, $\eta^2_p = .002$, respectively).

The last set of scores belong to the participants' speaking complexity. Table 3 provides the descriptive statistics of the two measures tapping speaking complexity. The descriptive examination of the scores reflects a rise in the complexity scores from pre-test to post-test ($M_{\text{Mean length of cluases}} = 5.97 (.39)$ to $6.62 (.88)$ and $M_{\text{number of different words}} = 34.75 (3.72)$ to $41.95 (3.72)$ in the +code-switching group and $M_{\text{Mean length of cluases}} = 5.89 (.43)$ to $6.29 (.43)$ and $M_{\text{number of different words}} = 35.48 (2.62)$ to $39.48 (2.62)$ in the –code-switching group).

Table 3
Descriptive Statistics for the Complexity Measures of ±Code-switching Groups

	Time 1		Time 2	
	+code-switching	–code-switching	+code-switching	–code-switching
Mean length of clauses	5.97 (.39)	5.89 (.43)	6.62 (.88)	6.29 (.43)
Number of Different Words	34.75 (3.72)	35.48 (2.62)	41.95 (3.72)	39.48 (2.62)

The results of Mixed ANOVA for mean length of clauses indicated that there were significant, medium effect for time, $F (1, 115) = 98.54$, $p < .001$, $\eta^2_p = .461$, and significant, small effect for condition $F (1, 115) = 5.06$, $p = .026$, $\eta^2_p = .042$, and significant, small effect for the interaction of time and condition $F (1, 115) = 5.29$, $p = .023$, $\eta^2_p = .044$

Discussion

The present study addressed the effect of ±code-switching conditions on learners' speaking complexity, accuracy, and fluency. This research was different from prior studies since unlike previous studies which has examined learners' speaking ability as a unitary entity (Hasanah, 2019; Mirhasani & Mamaghani, 2009), the present study examined learners' speaking accuracy, fluency, and complexity. To the best of the researcher's knowledge, no prior study has addressed this issue, which can show how the presence and absence of code-switching can affect L2 learners' speaking fluency, accuracy, and complexity. The examination of the components can enable both researchers and practitioners understand the affordances and limitations of an implemented practice, which are not identifiable when the performance is assessed holistically.

As the results of Mixed ANOVA showed, the only significant differences across the two groups were only in the complexity of the students' speaking

performance. To be more precise, although no significant difference was seen between the speaking accuracy and fluency of the participants in the +code-switching and –code-switching groups, those in the +code-switching group provided more complex utterances in the post-test. Since prior studies (Hasanah, 2019; Mirhasani & Mamaghani, 2009) have investigated the learners' speaking ability as a unitary entity, the comparison of results of this study with their findings is not possible. However, the only significant difference in this study was the superiority in the speaking complexity of those in +code-switching group. One of the studies investigating the effect of learner code-switching on EFL students' accuracy and fluency was conducted by Noorbar and Mamaghani (2016). The findings of their study indicated that those learners who were allowed to switch to their mother tongue in a semester were superior to those who were banned to use their L1 in their speaking accuracy and fluency. The findings of their study showed that learner code-switching positively affected their participants' accuracy and fluency. The significant difference, toward +code-switching group, in their study might be due to the similarity of the pre-test and post-test tasks. As they have mentioned in their study, the same tasks were employed to collect data, which could result in testing effect, in which the research instruments jeopardize the internal validity of the study. The use of the same tasks which could have elicited the same lexical and structural items might have resulted in the significantly higher scores in the post-test.

In the present study, no significant difference was found between the accuracy and fluency mean scores of –code-switching and +code-switching group students; however, the complexity mean score of +code-switching group was significantly higher. The more complex utterances provided by +code-switching group students might be attributed to their more varied experimentation with the target language through obtaining lexical and structural items using their first language. The high number of information obtained through the participants' first language might have resulted in the acquisition (or practice) of more varied lexical and structural items. The activation of the learned items through monologues and discussions might have encouraged the participants in the +code-switching group to use a wider range of lexical and structural items in comparison to their counterparts in –code-switching groups.

The accuracy and fluency mean scores of the two participating groups, however, were not significantly different. These results, along with the results of Mixed ANOVAs, showed that the participants in both ±code-switching conditions, the participants' speaking accuracy, fluency, and complexity improved significantly during the study. Unlike prior studies (e.g., Enama, 2016; Pachler & Field, 2001; Sert, 2005) which found the detrimental effect of code-switching on learners' language ability development, the findings of this study indicated that learner code-switching had no adverse effect on learners' speaking ability improvement.

Conclusions

This study examined the lower-intermediate EFL students' speaking accuracy, fluency, and complexity under ±code-switching conditions.

Furthermore, the effect of a semester of these conditions on the participants' speaking ability was examined. The findings showed that when the participants performed the task under ±code-switching conditions, those in the +code-switching condition outperformed their counterparts in the –code-switching group in accuracy and complexity; however, the students in the –code-switching group's fluency scores were higher. The effect of these two conditions after a 20-session semester showed that there were no significant differences between the accuracy and fluency of the participants; however, the complexity scores of the students in +code-switching group were significantly higher.

While learner code-switching has been under attack for having adverse effect on EFL students' speaking ability, the results of the present study indicated that those in the +code-switching group had significantly higher complexity scores at the end of the study and no significant difference was found for speaking accuracy and fluency. These findings refute the claims against the use of learners' L1 for its negative effects on learners' speaking ability, if a reasonable limitation is set for the amount of L1 use. Another noteworthy finding of this study which might be attractive for materials developers is the higher speaking accuracy and complexity levels while performing tasks under +code-switching items. These findings suggest that when the participants can reach out for help in their first language, they seem to have an easier task to deal with the complexity of their tasks. Thus, when the materials developers aim to focus on the learners' speaking complexity, the integration of the learners' first language into the task design seems to be an effective measure.

Considering the significant effect of learner code-switching on the participants' complexity, which deals with the use of varied lexical and structural items, this study suggests that EFL teachers should allow their students to use their L1 in peer-tutoring activities to broaden their knowledge of lexical and structural items. The controlled employment of learners' first language in peer-tutoring and peer-response activities might encourage those who are less competent to ask their questions more freely and improve their linguistic knowledge. The ban on the participants' L1 can deprive these low-level students of a significant source of language learning.

The present study had a main limitation, which can motivate future studies. The first one dealt with the scarcity of literature on the effect of code-switching on speaking fluency, accuracy, and complexity in different contexts. This dearth in the similar studies have made the comparison of the results of the present research with those of prior studies fairly impossible. Further studies can be conducted to examine specific points (e.g., a grammatical structure, comprehension of a text) in both +code-switching and –code-switching to uncover the students' level of improvement in short and long run. Furthermore, the effects of learner code-switching on L2 learners' development of other language skills and components can be examined.

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Appendix A
Speaking Tasks

Describe something you liked very much which you bought for your home.
You should say:
       What you bought
       When and where you bought it
       Why you chose this particular thing
and explain why liked it so much.

Describe a book that you enjoy reading because you had to think a lot.
You should say:
       What this book was
       Why you decided to read it
       What reading this book made you think about
and explain why you enjoyed reading this book.