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The Effects of Synchronous Computer-Mediated Interaction and Face-to-Face Interaction on Iranian EFL Learners' Speaking and Listening Anxiety

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Abstract

Although technology has greatly influenced different aspects of language learning, the nature and the extent to which it influences learners' anxiety in oral skills remains a contentious issue. The primary objective of this study was to examine how synchronous computer-mediated interaction (SCMI) and face-to-face (FTF) interaction influence speaking and listening anxiety among Iranian EFL learners. The study involved 60 male and female English language learners at Kish-e-Mehr language institute and Dialog Online language institute in Qazvin, with ages ranging from 15 to 35. Convenience sampling based on availability was used to select the participants. Initially, the participants completed questionnaires assessing their speaking anxiety and listening anxiety as pretests; this was followed by 12 treatment sessions. After these sessions, they filled out the same questionnaires again as posttests. The data collected were analyzed using one-way ANCOVA, the results of which revealed that SCMI effectively reduced both speaking anxiety and listening anxiety. This study highlights the potential of SCMI as a practical approach to reduce speaking and listening anxiety. The results of this study can have significant implications for language teachers, learners, and material developers.

Keywords: Face-to-face interaction, listening anxiety, speaking anxiety, synchronous computer-mediated interaction

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1. Introduction

Communicating verbally in a second language (L2) can be challenging for many students. Iranian EFL learners are no exception, since they lack opportunities to use English in real-life situations outside the classroom. Therefore, the major problem of English as a foreign language (EFL) learners in the Iranian context is that their oral skills are underdeveloped, and they encounter many challenges in order to communicate in English (Zarei & Shishegarha, 2024). Although the introduction of communication technologies, such as the Internet, holds great potential for enhancing language learning experiences, they can also introduce challenges that could impede language learning. One such challenge is the potential for anxiety among students. Speaking and listening are among the most anxiety-inducing skills (Tikadar & Bhattacharya, 2021). Additionally, technology can serve as a double-edged sword in EFL learning, as it can reduce anxiety by facilitating communication, while also increasing it due to the pressures that come with digital interactions (Dung, 2020).

Another challenge that can happen is that different interaction types can negatively affect speaking and listening anxiety. For many language learners, the main reason why speaking is anxiety-inducing is the presence of the interlocutor in the physical context of interaction. Yet, for others, computer-mediated interaction is more anxiety-provoking because absence of immediate and direct feedback from the interlocutor coupled with lack of command over the media make oral interactions more challenging. Some important differences exist between FTF interaction and CMC, which may lead to different learning outcomes (Rassaei, 2017). In CMI, expressing emotions can be challenging due to the limited use of paralinguistic features and non-linguistic behaviors (Rassaei, 2017). Moreover, CM and FTF interaction may have different effects on learners who encounter communicational difficulties (Kim, 2014). Since there is evidence that different types of interaction can influence speaking and listening anxiety (Yaniafari & Rihardini, 2021), they deserve more attention and investigation. In this research, to partially solve this problem, the effect of these two types of interaction on Iranian EFL learners' speaking and listening anxiety was compared.

The COVID-19 pandemic disrupted global education, prompting a rapid shift to online learning. Computer-mediated instruction, especially SCM, became widely used as a consequence. Several studies have examined language learners' affective states and how these impact their L2 learning. The Foreign Language Anxiety (FLA) concept has also been extensively studied and researched in offline classroom environments (e.g., Zarei & Rezadoust, 2020).

One of the reasons for conducting this study was the importance of anxiety on the development of oral language skills and the potential impact of

the type of interaction on learners' anxiety. Speaking ability, as one of the important skills of language and one of the main reasons for many learners who learn a language, deserves more attention and investigation. According to Wong and Yunus (2021), limited attention given to the speaking skill has made it an underdeveloped ability in language classrooms. Likewise, listening is an essential skill in most daily activities, and teaching listening comprehension helps learners deal with listening in real life. Moreover, In Iranian public education system, listening and speaking skills tend to be overlooked, as teachers focus more on other skills during class time. Therefore, learners often experience anxiety while performing listening or speaking tasks, due to their deficiency in these skills. As a result, it is essential to reduce learners' speaking and listening anxiety to ensure success in learning L2 and prevent discouragement.

Lack of sufficient research on the effect of synchronous CM interaction on learners' affective factors highlights the importance of conducting further studies on the speaking anxiety and listening anxiety. This research could fill part of the gap in the literature. A clear understanding of the potential effect of the type of interaction on speaking and listening anxiety can help teachers make more informed decisions about the choice of such activities. The key objective of this study was to determine to what extent SCM interaction and FTF interaction affect Iranian EFL learners' speaking anxiety and listening anxiety. It addressed the following two research questions:

1. Is there any significant difference between the effect of SCM and FTF interaction on Iranian EFL learners' speaking anxiety?
2. Is there any significant difference between the effect of SCM and FTF interaction on Iranian EFL learners' listening anxiety?

2. Literature Review

2.1. Speaking and Listening Anxiety

Many learners experience Foreign Language Speaking Anxiety (FLSA), which can hinder their speaking performance (Bashori et al., 2022). While improving speaking skills is often a primary goal for language learners, anxiety can restrict their ability to communicate fluently, even in classroom settings (Buhari, 2019; Enkin, 2022). Teachers need to recognize this anxiety, as it significantly impacts language learning and participation among EFL students (Sumarsono et al., 2021).

Research has shown that speaking anxiety is common in educational environments due to various factors affecting students differently (Castro-Vaca & Argudo-Garzón, 2024). Public speaking anxiety may be influenced by the context, audience, and personal factors (Chen, 2024). Many learners feel anxious during oral activities due to insufficient proficiency and lack of

practice, further heightened by assessment pressures (Zarei & Shishegarha, 2024).

Factors contributing to FLSA include negative attitudes towards language learning, beliefs about language acquisition, motivation, and classroom environment (Castro-Vaca & Argudo-Garzón, 2024). Specific anxieties arise from fears of making mistakes, being judged by peers, and the pressure of spontaneous presentations (Bashori et al., 2022; Ding, 2024).

Similarly, listening is essential for effective communication, as individuals spend around 45% of their waking hours listening (Tan et al., 2020). It is a complex skill involving the understanding of sounds and meanings, often viewed as more difficult than other language skills, and frequently overlooked in education. Unlike reading, which allows for revisiting text, listening occurs in real time, making comprehension more challenging (Guswita & Sugirin, 2021).

Listening anxiety, identified as a significant factor in language learning success, can hinder comprehension and confidence, ultimately impacting performance (Zhang et al., 2020). Factors such as input quality, including pronunciation and vocabulary difficulty, influence listening anxiety in learners (Kim, 2014).

2.2. Interaction in Foreign Language Learning

Effective communication is a crucial life skill that significantly influences both personal and professional aspects of life (Chew & Ng, 2021). It fosters collaborative learning and the introduction of new subjects (Smaldino et al., 2019). Chew and Ng (2021) describe effective communication as conveying messages clearly to ensure understanding. Key methods include verbal language, written texts, visual aids, and nonverbal cues like gestures and body language. With technological advancements, computer-mediated communication has also become prevalent.

Language is the main tool for conveying meaning, making it vital for both the communicator and recipient to interpret it similarly (Chew & Ng, 2021). This can be particularly challenging for language learners. Theories such as Long's (1996) interaction hypothesis, Krashen's (1985) input hypothesis, and Swain's (1995) comprehensible output hypothesis support the idea that exchanging messages improves L2 learning (Chew & Ng, 2021).

Krashen (1985) emphasizes providing authentic input at the level just above the learner's current proficiency (i + 1) to promote language acquisition. Swain (1995) highlights the importance of producing language for improving fluency and identifying knowledge gaps. Long (1996) argues that the interaction process, which involves input, output, and clarifying meaning, is essential for developing L2 skills and facilitating acquisition.

2.3. Online Learning and Computer-Mediated Interaction

E-learning provides numerous advantages, including accessibility for individuals in rural areas, cost-effectiveness due to lower expenses compared to traditional learning, and flexibility that allows learners to schedule their study time (Dhawan, 2020). However, it also poses challenges. Dung (2020) found that students often struggle to concentrate during virtual classes and may have difficulty hearing instructors. Additionally, Shanthi et al. (2021) highlighted the need for stable internet connectivity and reliable devices, which can hinder engagement for those lacking these resources.

Advancements in communication technology enable the integration of various hardware and software in language classrooms to enhance L2 skill development. Tools like Skype, Google Meet, and Zoom allow learners to engage in real-time video calls, particularly benefiting those who are physically distant (Rassaei, 2017). Communication between humans via computers or digital tools is known as CMC. CMC platforms enable online education by allowing students to interact from home, overcoming limitations of traditional in-person education, such as travel and time constraints (Namaziandost et al., 2022).

Chew and Ng (2021) identify two types of CMC: synchronous and asynchronous. Synchronous CMC occurs in real-time with immediate responses using platforms like Telegram and WhatsApp, while asynchronous CMC involves communication over time through mediums such as email and blog posts (Chew & Ng, 2021). CMC provides opportunities similar to FTF interaction for negotiating understanding and focusing on language structure, aiding L2 development. Namaziandost et al. (2022) highlighted advantages of CMC in language learning, including increased output, better self-correction strategies, improved attitudes and motivation, and enhanced speaking abilities. Carrillo and Flores (2020) noted that CM education can be successful when tailored to learners' needs. Research indicates that progress in computer technology effectively bridges gaps in L2 use (Razmi et al., 2020). CMC can significantly aid language learners in expanding communication and improving language skills.

2.4. Empirical Studies

Several researchers have conducted empirical studies focusing on FLSA. The results have shown a varied range of findings. A number of studies have explored the impact of technology on learners' anxiety levels. Most of these studies have found that technology-based learning can reduce speaking anxiety (e.g., Ebadi & Azizimajd, 2024; Yaniafari & Rihardini, 2021).

Ebadi and Azizimajd (2024) assessed the impact of speaking tasks on EFL learners' speaking abilities and FLSA levels using a mobile application beyond the classroom. Sixty Iranian upper-intermediate EFL students were

divided into experimental and control groups to evaluate the effects of speaking tasks via the Clubhouse application. Results showed that participation in speaking tasks on Clubhouse improved speaking proficiency and reduced anxiety. The research suggests that synchronous mobile applications like Clubhouse can enhance EFL learners' speaking skills and lower FLSA levels.

Namaziandost et al. (2022) studied how SCMC text and voice chat affected the oral skills and anxiety levels of pre-intermediate Iranian EFL learners. Results showed both experimental groups improved speaking performance, but only the text chat group had a significant reduction in anxiety levels.

Yaniafari and Rihardini (2021) examined students' anxiety levels in FTF versus online L2 speaking classes during the COVID-19 pandemic. Results revealed that learners had reduced anxiety during online sessions (48.41%) compared to in-person classes (60.96%).

Some researchers have concluded that technology-based learning does not significantly affect students' anxiety levels (e.g., Sulistyowati & Mukti, 2023). In an online public speaking class, Sulistyowati and Mukti (2023) studied anxiety in an Indonesian EFL context. The findings indicated that learners faced moderate FLA levels in Test Anxiety, Fear of Negative Evaluation, and Communication Apprehension. Additionally, online public speaking classes did not increase anxiety.

However, some studies have indicated that technology-based learning can provoke anxiety (e.g., Bozkurt & Aydin, 2023; Kusumawardhani & Lestari, 2021). Bozkurt and Aydin (2023) examined the impact of collaborative learning on L2 learners' speaking anxiety in online and FTF settings. Findings showed that while FTF collaborative tasks reduced speaking anxiety, there was no significant difference between FTF and online settings.

Kusumawardhani and Lestari (2021) conducted a descriptive study on speaking anxiety among undergraduates during online learning. The findings revealed that students experienced anxiety from test, fear of negative evaluation, and the nature of online speaking classes, displaying signs like unclear sentences, sweating, and a shaky voice. Students managed anxiety using techniques like note-taking, peer practice, and breathing exercises.

Several studies have also been done to investigate L2 Listening skill and listening anxiety levels in technology-based learning environments, with mixed findings. Most of these studies have found that technology-based learning can positively affect listening skill and listening anxiety (e.g., Almalki et al., 2023; Chen & Ren, 2021). Almalki et al. (2023) examined EFL listening anxiety in FTF and online classes. They discovered that EFL learners experienced listening anxiety regardless of the learning mode. However, beginner and intermediate students found online classes contributing to

decreased listening anxiety and increased confidence. Chen and Ren (2021) examined listening and classroom anxiety levels in online classes among Chinese EFL students. The findings showed that students felt less anxious during listening tasks and exhibited strong listening abilities in the online environment.

In spite of the above studies, some researchers have concluded that technology-based learning could provoke anxiety (e.g., Liu & Yuan, 2021; Pratama & Nurkhamidah, 2023). Pratama and Nurkhamidah (2023) studied factors leading to learners' listening anxiety during COVID-19. Their findings revealed that the participants felt anxious due to concentration difficulties, high-speed rates, nervousness, and lack of confidence, along with issues like internet connection problems and noisy environments. Liu and Yuan (2021) found a notable positive correlation between FLCA and listening anxiety in online classrooms, with high levels of listening anxiety and FLCA attributed to factors like physical distance from classmates and limited speaking and listening practice opportunities.

Some researchers (e.g., Aldukhayel, 2022; Chen, 2021; Jiang et al., 2022; Li, 2024) have studied the effects of CMC and online interaction on learners' anxiety. Li's (2024) study examined how emergency remote teaching affects language learners' anxiety, focusing on their preferred teaching modes. The findings suggested that different factors cause anxiety in different groups, but there is a general preference for FTF learning, challenging the idea that online learning may offer a more relaxed environment.

Aldukhayel (2022) conducted a mixed-method study with 57 young adult EFL learners to see if CMC settings reduce PSA during remote presentations. The results showed moderate anxiety during in-person presentations but lower anxiety in remote settings, with interviews indicating sociopsychological advantages like decreased stress and enhanced self-confidence. In another study Jiang et al. (2022) examined the psychological effects of online learning on Iranian EFL students. Data analysis revealed that online learning reduced anxiety, increased motivation, and fostered positive attitudes toward L2 learning. Furthermore, Chen (2021) explored the impact of online learning on FLA reduction among international students studying Chinese. The study compared 240 students in online and conventional settings and found that online learning effectively reduced anxiety in listening, speaking, and writing, but increased it in reading.

As the above review suggests, the variables of this study have already been investigated. However, each study appears to have examined only one aspect of each variable. Even then, the findings appear to be mixed. In an attempt to clarify the issue and disambiguate the matter, this study was conducted to compare the effects of FTF interaction and SCMI on anxiety in Oral skills.

3. Method

3.1. Participants

The participants of the present study consisted of 60 male and female Iranian EFL learners at the elementary level. The participants' age varied from 15 to 35. They were selected from two language institutes in Qazvin through convenience sampling based on availability. The FTF participants were selected from Kish-e-Mehr language institute, and SCM participants were chosen from Dialog online language institute. They had already been homogenized by the institutes prior to taking their courses.

3.2. Materials and Instruments

To collect data, two questionnaires were utilized: one focused on speaking anxiety and the other on listening anxiety.

3.2.1 Speaking Anxiety Questionnaire

The speaking anxiety questionnaire was adopted from Kriangkrai and Usaha's (2012) EFL PSCAS, which consists of 17 items. The participants indicated their level of agreement with statements through a 5-point Likert scale, ranging from 'strongly disagree' (1) to 'strongly agree' (5). According to Kriangkrai and Usaha (2012), scores above 68 indicated high anxiety, scores between 51 and 68 were considered to represent medium anxiety, and scores below 51 were classified as low anxiety. As Kriangkrai and Usaha (2012) reported, the reliability index for PSCAS was calculated based on Cronbach's alpha, which turned out to be .84. Nevertheless, to ensure the reliability of the questionnaire in the context of this study, the internal consistency of the instrument was checked. The result showed a Cronbach's alpha level of 0.91.

3.2.2 Listening Anxiety Questionnaire

To check the listening anxiety level of the learners, FLLAS by Kim (2014) was used, consisting of 33 items. A 5-point Likert scale is used to express the level of agreement with statements, ranging from 'strongly disagree' (1) to 'strongly agree' (5). The higher the score, the higher the level of listening anxiety. Cronbach's alpha coefficient was computed to check the reliability of the instrument. The index was 0.95.

3.2.3 Materials

The course book used in this study was the elementary level of ***Top Notch Series*** (***Top Notch 1***, **Third Edition)** by Saslow and Ascher (2015). Top Notch is designed to equip young adults at four different proficiency levels with the skills to effectively interact with both native and non-native English speakers. Top Notch 1 is designed to offer essential vocabulary and grammar instruction for individuals who are just starting to learn English. The book aims

to build students' confidence in using language by providing them with the proper language input, offering extensive practice opportunities, and conducting systematic reviews to help them retain what they have learned.

3.3. Procedure

Initially, the participants were selected through convenience sampling based on availability. Both FTF and SCM groups had the same sample size, each including 30 learners. The study was conducted over 14 sessions, two sessions per week. Each questionnaire was distributed to both groups as pretest and posttest during the first and last sessions of the classes.

In the first session, the participants in both groups received the speaking anxiety and listening anxiety questionnaires. First, the participants were reminded that participation in this study was voluntary, and that their answers would be confidential. In the FTF group, questionnaires were handed out in person, and in the SCM group, two separate links were provided for the above-mentioned questionnaires in Google Docs. Both groups were given 20 minutes to fill out the speaking anxiety questionnaire and 35 minutes to complete the listening anxiety questionnaire. To prevent language barriers, the Persian version of the questionnaires was utilized. Prior to administration, the Persian version questionnaires were shown to an expert in the field (the second author), who confirmed the accuracy of the translation and, therefore, their validity.

After pretest, treatment was given for 12 sessions, two sessions per week, each lasting 90 minutes. For example, one of the FTF sessions was like this: After the greeting, the instructor wrote a general question on the whiteboard as a warm-up question about the topic, which she presented later. First, the instructor gave her opinion and then the students shared their opinions with the class. The next part was a reading task. The reading task began with students briefly reviewing the title and images, followed by answering questions to activate their background knowledge. Next, they skimmed the text for general understanding and then scanned for specific information. The instructor clarified unfamiliar words; sometimes, the students found the meanings from the text. Finally, students engaged in intensive reading and answered concept-checking questions.

After the reading part, the instructor introduced a speaking task to develop students' skills. She taught new vocabulary and structures relevant to the topic. Students then planned their responses to the speaking questions and personalized their answers. They worked in pairs or small groups to discuss opinions, using the new vocabulary. The instructor monitored their discussions and provided support, followed by a presentation of their opinions to the class. Finally, she offered feedback on both content and language.

After the speaking part, a listening task was introduced. The instructor began with pre-listening activities to activate students' knowledge and presented essential vocabulary. Students listened first for general understanding and then for detailed comprehension to choose correct answers, which were checked and noted on the whiteboard. The instructor then focused on grammar, vocabulary, and expressions from the listening task, concluding with a follow-up speaking activity related to the topic.

In SCMI classes, the instructor and students used *Skyroom*, an Iranian platform for online classes and meetings. This platform enables individuals to speak and chat at the same time. In addition, you have access to a virtual whiteboard and screen sharing. Most procedures were the same as those in the FTF classes, but slight differences existed. First, the instructor and students interacted through a microphone, webcam, and chat box. The pdf of the course book was shared on the screen with all the participants. The instructor gave access to students to turn on their microphones and webcams if they wanted to speak and participate in class activities. In *Skyroom*, the instructor cannot create separate rooms for group work, which is a significant limitation. However, in the SCMI classes, the instructor employed dynamic and engaging PowerPoint presentations to enhance student participation. Alongside these presentations, various educational games were integrated into the learning experience through websites like *Wordwall* and *Bamboozle*. Moreover, students had access to a variety of online resources that enhanced their learning. They could use detailed dictionaries for definitions and specialized corpora for real-world language examples.

In the fourteenth session, at the end of the treatment sessions, all the learners were asked to complete the same questionnaires again to determine changes in their listening and speaking anxiety after the treatment sessions.

3.4. Data Analysis

The researchers fed the data into SPSS for statistical analysis. Following this, two separate one-way Analysis of Covariance (ANCOVA) were conducted to address the research questions.

3.5. Design of the Study

Due to the nature of the research questions, the current study employed a quantitative approach. The participants in the study were not selected randomly; instead, they were grouped based on their English proficiency level according to the policies of the institutes they attended. Since participant selection could not be random, the design of the study was quasi-experimental. The researcher assessed the level of learners' speaking and listening anxiety in FTF and SCM classes. Both FTF and SCM groups underwent pretest and posttest assessments. This study focused on four variables: the independent

variables were FTF and SCM interaction, while the dependent variables were speaking anxiety and listening anxiety.

4. Results and Discussion

4.1. Results

4.1.1 Results on Speaking Anxiety

To answer the first question, a one-way ANCOVA was run to compare the mean scores of the two groups on the posttest of speaking anxiety after controlling for the effect of their speaking anxiety as measured through the pretest. Before that, the assumptions of ANCOVA were checked. The results of the Kolmogorov-Smirnov statistic showed a non-significant result ($p > .05$), indicating normality. The index of Chronbach's alpha also confirmed the reliability of the covariate ($\alpha = .95$). Moreover, the scatter plot of the pretest and posttest of speaking anxiety showed no evidence of curvilinearity. Meanwhile, the non-significant interaction between the pretest (covariate) and the independent variable (types of interactions) ($F_{(1,56)} = .008$, $p > .05$) confirmed that the assumption of homogeneity of regression slopes was met. Finally, the results of Leven's test ($F_{(1,58)} = 2.525$, $p > .05$) indicated that the assumption of homogeneity of variances was also met.

After checking the assumptions, the scores of the two groups were compared. Table 1 presents the descriptive statistics for the two groups on the pretest and posttest of speaking anxiety. Based on these results, it can be concluded that the FTF group had a higher mean on the posttest of speaking anxiety.

Table 1

Descriptive Statistics for Speaking Anxiety

Group		Mean	Std. Deviation	N
FTF	Pretest	45.77	12.700	30
	Posttest	49.00	12.315	30
SCM	Pretest	42.50	13.905	30
	Posttest	37.27	11.191	30

The main results of the one-way ANCOVA ($F_{(1, 57)} = 24.44$, $p < .005$, partial eta squared = .300, representing a large effect size) (Table 2) showed a significant difference between the two group means on the posttest after controlling for the pretest differences.

Table 2

Tests of Between-Subjects Effects for Speaking Anxiety

Source	Type III Sum of Squares	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	7006.564[a]	3503.282	64.65	.000	.694
Intercept	763.442	763.442	4.090	.000	.198
Speakanxtotalpre	4941.497	4941.497	91.20	.000	.615
Group	1324.327	1324.327	24.44	.000	.300
Error	3088.369	54.182			
Total	121724.000				
Corrected Total	10094.933				

Meanwhile, the covariate (the scores on the speaking anxiety pretest) turned out to be statistically significant after controlling for the effect of the treatments ($F_{(1, 57)} = 91.20$, $p < .005$, partial eta squared = .61, representing a large effect size).

4.1.2 Results on Listening Anxiety

To answer the second question, another one-way ANCOVA was conducted to compare the mean scores of two groups on the posttest of listening anxiety while controlling for the effect of their initial listening anxiety levels. The assumptions of ANCOVA were checked before using it.

Table 3 presents the descriptive statistics for the two groups on the pretest and posttest of listening anxiety. It shows that the FTF group may have experienced a higher level of listening anxiety than the other group.

Table 3

Descriptive Statistics for Listening Anxiety

Group		Mean	Std. Deviation	N
FTF	Pretest	91.43	21.247	30
	Posttest	95.43	21.139	30
SCM	Pretest	87.67	28.338	30
	Posttest	79.13	22.613	30

The main result of one-way ANCOVA ($F_{(1,57)} = 22.838$, $p < .005$, partial eta squared = .286, representing a large effect size) (Table 4) indicated a significant difference between the mean scores on the posttest after controlling for the effects of the pretest. Meanwhile, the covariate (the listening anxiety pretest) turned out to be statistically significant after controlling for the effect of the treatments ($F_{(1, 57)} = 178.828$, $p < .005$, partial eta squared = . 758, representing a large effect size).

Table 4

Tests of Between-Subjects Effects for Listening Anxiety

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	25057.588[a]	2	12528.794	106.325	.000	.789
Intercept	1543.443	1	1543.443	13.098	.001	.187
Lisanxtotalpret	21072.238	1	21072.238	178.828	.000	.758
Group	2691.064	1	2691.064	22.838	.000	.286
Error	6716.595	57	117.835			
Total	488877.00	60				
Corrected Total	31774.183	59				

a. R Squared = .789 (Adjusted R Squared = .781)

4.2. Discussion

The findings of this study have some similarities with those of the previously conducted studies in some ways. At the same time, there are instances of dissimilarity or even direct conflict with some other studies. The results of this study showed that the FTF group had a significantly higher mean score than the SCM group on the posttest of speaking anxiety. This finding is in line with Ebadi and Azizimajd (2024), whose findings showed that speaking tasks via Clubhouse decreased their speaking anxiety compared to traditional classroom settings. This finding is also compatible with that of Aktaş (2023), who showed that learners who used Voki, a Web 2.0 technology application, experienced a reduction in speaking anxiety. Meanwhile, the finding is in agreement with Enkin's (2022) findings, suggesting that VR improved students' speaking experiences by reducing stress.

This finding can take further support from Namaziandost et al. (2022), who found that SCMC could enhance speaking performance; however, only text chat reduced anxiety levels significantly. The discrepancy between their findings and this study might be related to differences in the mode of SCMI (e.g., text vs. video-based) and participants' preferences. Learners in the present study might have benefited from video-based and voice-based communication due to its capability to simulate real-life conversational dynamics while reducing social pressure (Borup et al., 2012). Likewise, this finding can take support from Yaniafari and Rihardini's (2021) study, which revealed that, on average, students felt less anxious during online speaking sessions compared to in-person classes. Further support for this finding comes from Yadav et al.'s (2020) research.

Furthermore, the current study aligns with Shabani and Jabbari's (2023) study, which revealed that fully online flipped classes help students overcome anxiety during synchronous live interactions. The findings of this study are also consistent with those of Bashori et al. (2022), who observed that both anxious and non-anxious learners showed positive attitudes toward web-based

language learning to improve speaking abilities. These findings highlight the importance of developing courses that actively encourage student participation while simultaneously reducing feelings of anxiety.

Nevertheless, there are several studies the findings of which do not fully support our finding. The findings of this study do not support those of Bozkurt and Aydin (2023) that speaking anxiety levels decreased among students participating in FTF collaborative tasks, suggesting that outcomes may vary based on individual learner characteristics, contexts, or the type of technology used. This difference between the findings may be due to the type of task involved.

The results of this study are also in contrast with those of Noviyanti (2022), who showed that many students experienced high levels of speaking anxiety in online English classes. The conflicting finding could be due to using a different questionnaire to assess anxiety level. Moreover, the differing evidence presented in the works of Bozkurt and Aydin (2023) and Noviyanti (2022) may be attributed to technological unfamiliarity and the learners' psychological readiness for online interactions. Another factor contributing to this contrast could be the participants' personal characteristics, as the sample consisted of second-year university students in the work of Noviyanti (2022). In the study of Bozkurt and Aydin (2023), there were 34 participants in total, with student ages ranging from 18 to 25. In addition, most of the participants were from engineering departments.

This finding also deviates from those of Kusumawardhani and Lestari (2021). They reported that students experienced anxiety during online classes due to test anxiety, fear of negative evaluation, and the nature of online speaking classes. This discrepancy may stem from individual differences, learner backgrounds, or the specific technologies employed. The participants in Kusumawardhani and Lestari's (2021) study were undergraduate students, including those in advanced speaking classes, who might have faced high expectations and performance pressure. In contrast, the participants in the present study were at different proficiency levels and in less evaluative environments, which could have contributed to reduced anxiety levels. In addition, anxiety related to online speaking classes may be attributed to unfamiliarity with technology or technical issues. If the participants had prior exposure to online platforms or sufficient technological support, these factors might have mitigated anxiety related to the online medium.

The finding of the current study also differ from those of Sulistyowati and Mukti (2023), who suggested that the online public speaking classes did not differ from FTF classes with regard to anxiety. Notably, they used different scales to assess learners' anxiety, which could explain the contrasting findings. The differences may also be explained by the participants' demographics, such as age, educational background, and proficiency level. In another study, Hakim

(2022) found that the type of L2 classroom—whether online or offline—does not significantly affect students' anxiety levels, which is also in contrast with the findings of this study. The findings of Hakim's (2022) study are potentially due to students' adaptability to both environments. The participants were second-year students from a public university in Indonesia. It is noted that they had been studying Sundanese and regularly conducted speaking presentations in both Sundanese and Indonesian but not in English. Therefore, due to their regular engagement in both Sundanese and Indonesian public speaking activities, the participants were likely accustomed to presenting in front of an audience. This repeated practice may have contributed to reducing their anxiety related to public speaking. Familiarity with delivering presentations in their native languages likely fostered confidence and minimized performance-related stress, providing a foundation for effective communication. Such exposure to public speaking tasks could also have desensitized them to the common apprehensions associated with addressing an audience, thereby decreasing anxiety to a certain extent (Barrett et al., 2023).

Moreover, the sociocultural norms surrounding communication and language learning in the context of the current study, Iran, may not align with those observed in the research conducted by Bozkurt and Aydin (2023), Noviyanti (2022), Kusumawardhani and Lestari (2021), Sulistyowati and Mukti (2023), or Hakim (2022). Therefore, cultural factors could influence the anxiety experienced by learners in both online and in-person settings in different ways.

While Sumarsono et al. (2021) note that online learning can enhance accessibility and flexibility, they also warn of potential challenges, such as distractions and technical difficulties. This duality suggests that while SCM can diminish anxiety for some learners, others may still struggle with the inherent anxieties of online platforms, including fears of miscommunication or a lack of non-verbal cues that typically aid understanding in FTF settings (Hassan et al., 2014).

This finding can also be explained theoretically through the concept of affective filters in Krashen's (1985) Input Hypothesis. According to Krashen, anxiety acts as an affective filter that can prevent learners from receiving and processing language input effectively. In the SCMI environment, the reduced social presence (Aldukhayel, 2022; Chew & Ng, 2021) and the physical distance between participants likely lowered learners' affective filters, creating a more relaxed environment for speaking. The anonymity and reduced immediacy of CM platforms might allow learners to feel less scrutinized and judged by their peers and instructors (Chen, 2021; Namaziandost et al., 2022). Due to the absence of direct physical observation, learners may have experienced less fear of negative evaluation.

This result can also be linked to Young's (1991) identification of anxiety sources, particularly in terms of teacher-learner interaction and learners' self-perceived competence. In SCMI, learners experience less immediate teacher feedback, which can mitigate anxiety stemming from the fear of making mistakes. Moreover, learners' reduced anxiety levels in SCMI settings may have allowed for a facilitative form of anxiety that improved speaking performance.

The finding highlights the potential of SCMI to be implemented as a supplementary tool in EFL classrooms to provide an anxiety-reducing environment for speaking practice. It allows shy learners in FTF settings to build confidence in SCM interactions. For educators, incorporating technology-enhanced methods can cater to diverse learner needs, especially in cultures like Iran, where language anxiety might be heightened due to sociocultural factors such as fear of judgment and perfectionism (Mohtasham & Farnia, 2017).

Another finding of this study is that the FTF group had a significantly higher mean score than the SCM group on the posttest of listening anxiety. This finding is in line with several previous studies concerning the positive role of SCM interaction in reducing the listening anxiety, including Noviyanti (2022) and Almalki et al. (2023), whose study showed that online classrooms slightly lowered listening anxiety. This correlation supports the argument that SCM environments may provide learners with the confidence necessary to improve their listening skills. The alignment of the finding with those of Almalki et al. (2023) supports the argument that SCM positively influences listening anxiety in EFL learners. Their research confirms that online environments can create a more supportive atmosphere, allowing learners to manage their anxiety more effectively. Specifically, the opportunity to revisit listening materials at their own pace can alleviate some of the cognitive pressures associated with traditional classroom settings.

Likewise, this finding can take support from those of Qiu and Luo (2022), noting that flipped listening instruction reduced the listening anxiety of Chinese EFL students. The research by Chen and Ren (2021) further supports the finding of this study by highlighting that learners in online settings can often better control over the clarity and volume of listening materials. This aspect of SCM potentially contributes to a reduced anxiety by allowing learners to modify their environment to suit their needs, hence reducing stressors typical of FTF settings.

Tan et al. (2020) highlight significant advantages of ICT-based learning, particularly for EFL students. The findings resonate with this perspective by pointing out how SCM setups provide interactive listening opportunities that traditional FTF settings often lack. The significance of interactive features in computer-based listening is crucial. For example,

research by Tai and Chen (2024) showed that intelligent personal assistants like Google Assistant improved listening comprehension in adolescent EFL learners by promoting engagement through multimodal responses. Likewise, the current study reveals that SCM methods create an interactive listening environment and reduce anxiety, emphasizing the importance of engagement in language acquisition.

This result aligns with Cognitive Load Theory, according to which if learners are engaged in activities that are cognitively demanding, especially if the level of cognitive demand is above the learners' head, there may be negative psychological consequences in the form of stress or anxiety. In FTF settings, learners are required to simultaneously process auditory input, observe body language, and respond in real time (Kao & Kuo, 2021). Such cognitive demands can overwhelm working memory and heighten listening anxiety. In contrast, SCMI platforms provide learners with features such as adjustable volume and clearer audio quality (Yenkimaleki et al., 2023). These technological affordances reduce cognitive load by enabling learners to focus on auditory comprehension without additional distractions, thereby alleviating anxiety. Furthermore, the reduced pressure of immediate response in SCMI allows learners to process information at their own pace, particularly in comparison to spontaneous, real-time listening tasks in FTF settings.

The contrasting levels of anxiety between SCMI and FTF interaction can be further understood through Interactionist theories such as Long's Interaction Hypothesis (1996). While interaction is essential for language acquisition, its nature can either increase or reduce anxiety depending on the environment. In FTF settings, learners may face greater communication apprehension due to direct interaction, immediate feedback, and the pressure to perform in front of peers. Conversely, SCMI environments allow learners to engage in interaction while benefiting from reduced social pressure and increased autonomy, ultimately lowering their anxiety.

From a practical perspective, the reduced listening anxiety observed in SCMI highlights the importance of incorporating technology-enhanced listening activities into EFL classrooms. Educators can utilize tools like multimedia resources, recorded conversations, and computer-assisted listening programs to provide controlled, supportive environments for listening practice.

In contrast, Pratama and Nurkhamidah (2023) and Liu and Yuan (2021) note specific barriers that can increase listening anxiety in online environments, such as high-speed rates, lack of confidence, concentration difficulties and nervousness. These studies highlight the complexity of the online learning experience and emphasize that while many learners may experience reduced anxiety in SCM contexts, these environments can still generate particular stressors. This suggests that learner characteristics and external factors like technical issues play a significant role in determining

anxiety levels. Therefore, despite similarities with previous studies, several findings do not support the finding of this study.

The results of this study do not fully support the findings of Hosseini et al.'s (2021) study. The difference in results could potentially be due to variations in the type of technology used in their research, specifically the use of WhatsApp as a communication platform. Additionally, the contrasting findings from Pratama and Nurkhamidah (2023) and Hosseini et al. (2021) highlight that learner experiences can vary significantly due to individual differences, specific challenges within the listening process, and the quality of instructional strategies employed (Zarei & Shishegarha, 2024).

5. Conclusion and Implications

The study highlights the significant impact of SCM interaction on reducing speaking and listening anxiety for Iranian EFL learners. SCM allows learners to communicate in real time, reducing the pressure often felt during FTF interactions. This interaction type encourages students to participate more freely and practice without the fear of being judged. Interacting in a virtual space allows learners to build confidence and interact more freely than in traditional classroom settings.

Furthermore, in today's digital world, SCM promotes a sense of community, enhancing collaboration and peer support across distance learning. SCM also offers flexibility and convenience, allowing learners to connect from different locations without the need for physical presence. This is especially helpful for those with varying schedules, leading to improved attendance and participation—key factors for successful learning experiences.

Incorporating SCM into language learning is essential in our technology-driven era. It prepares learners for modern communication, making the learning experience more engaging and effective. By using SCM, educators can help students overcome communication barriers while fostering a modern, connected learning environment.

The integration of SCM also allows students to express themselves without the anxiety of making mistakes, unlike traditional classrooms where immediate peer and instructor presence may inhibit participation. SCM creates a relaxed learning atmosphere, enabling effective and confident practice in speaking and listening. Embracing SCM in language education minimizes anxiety and fosters a sense of belonging, ultimately empowering students and building their confidence in a world that values connectivity and communication.

In conclusion, the current study shows that integrating SCM in language learning significantly alleviates speaking and listening anxiety for Iranian EFL learners, creating a more supportive environment that encourages participation and confidence. However, further research should explore the

long-term benefits of SCM and how combining it with other teaching strategies can enhance language proficiency and student confidence. Adopting such innovative methods is vital for preparing students to succeed in our increasingly digital world, making SCM a valuable tool for mastering new languages and navigating modern education.

The findings of this research offer valuable insights for language teachers, learners, and material developers regarding the use of SCM interactions in English language education. Teachers can enhance their instructional strategies, creating an engaging environment that alleviates students' speaking and listening anxiety. Understanding effective interaction types empowers learners to choose suitable strategies, potentially shifting their views on online classes and SCM interactions. Material developers can utilize these findings to create innovative CM-based activities and specialized course books for SCM classes, improving the overall educational experience.

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