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Research Article

The Effect of Teacher Scaffolding on EFL Learners' Speaking Ability: Moderated by the Behavioral Inhibition/Activation Systems

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ABSTRACT

The influence of social and psychological factors on developing English skills has been a matter of considerable attention. This study investigated the impact of teacher scaffolding on enhancing the speaking proficiency of Iranian English as a foreign language (EFL) learners, moderated by behavioral inhibition/activation systems (BIS/BAS) sensitivity. A sample of 58 advanced Iranian EFL learners was selected through purposive sampling by Oxford Quick Placement Test (OQPT) and randomly assigned to two groups. The control group (n=30) underwent traditional teaching methods, while the experimental group (n=28) received instruction through teacher scaffolding. To assess learners' BIS/BAS, the Gary-Wilson Personality Questionnaire (GWPQ) was utilized, and Test of Spoken English (TSE) was applied in pretest and posttest phases to measure learners' speaking ability. The first analysis of covariance (ANCOVA) revealed that BAS and prior speaking ability as covariates significantly affected learners' posttest scores while teacher scaffolding did not have a significant impact on their speaking enhancement. However, in the second ANCOVA, the significant effect of teacher scaffolding on improving learners' speaking ability was confirmed. This study implied valuable theoretical and pedagogical insights into the interplay of social and psychological factors impacting EFL speaking proficiency.

Introduction

Speaking is the primary means of communication and a key component of overall language proficiency. As English continues to play an essential role in global communication, the development of proficient speaking abilities holds significant importance for English as a Foreign Language (EFL) learners to engage effectively in diverse social and professional interactions, academic pursuits, and professional endeavors. As

such, the effective improvement of speaking proficiency is a critical aim in EFL education, with far-reaching implications for academic, professional, and personal growth (Alharbi, 2015; Alwahibee, 2019; Razaghi et al., 2019). However, the challenges associated with developing speaking skills in the EFL context are multifaceted, encompassing linguistic, cultural, and pedagogical complexities. These difficulties, which stem from a lack of exposure to authentic language use in the EFL context, necessitate a communicative and flexible approach to instruction that addresses the unique needs of EFL learners while effectively tackling the specific obstacles associated with their language learning journey (Abdelshaheed, 2019; Joughin, 2007). In addition, educational psychology underscores the need to scrutinize other non-cognitive elements, such as the influence of learners' personality traits, in the enhancement of EFL speaking skills (Entezari et al., 2022).

The benefits of using a communicative approach to teaching speaking, aligned with constructivist learning theories, have been supported by many scholars (e.g., Rahimi, 2022; Rivers, 1987; Swales, 1988). Accordingly, scaffolding, rooted in Vygotsky's sociocultural theory (SCT), emphasizes the role of social interaction and authentic communication in language learning and underpins the importance of providing structured support to learners as they engage in tasks slightly beyond their current level of competence. Further, scaffolding acknowledges learners' Zone of Proximal Development (ZPD), allowing instructors to provide targeted assistance tailored to the specific linguistic needs of EFL learners (Fahim & Haghani, 2012; Fatehi Rad & Jalali, 2021; Vygotsky, 1978). By gradually transferring responsibility to the learners, teacher scaffolding can facilitate the development of speaking skills in a manner that is sensitive to individual differences and learning styles, thereby encouraging collaborative learning and independent exploration, promoting meaningful and lasting language acquisition. Thus, this method envisions learners gradually taking control of their learning trajectory, with instructors transitioning from directive to facilitative roles (Cai, 2017; Pathan et al., 2018).

Conversely, traditional methods often fail to integrate these theoretical underpinnings, resulting in limiting opportunities for authentic communication. Rote memorization and grammar-focused instruction usually hinder the development of fluency, pronunciation, and pragmatic competence in the EFL context. Despite high scores on written English tests, EFL learners are often unable to express themselves orally in English (Alwahibee, 2019; Ghasedi et al., 2018; Razaghi et al., 2019). Thus, the need arises for EFL educators and researchers to offer innovative and novel teaching strategies, such as teacher scaffolding, to enhance speaking skills.

Recognizing the necessity of fostering EFL learners' speaking ability, in addition to examining the role of social factors (i.e., teacher scaffolding), it seems reasonable to examine the role of other factors, such as psychological ones, involved in language learning. According to Harrington and Loffredo (2010) and Dewaele and Furnham (2000), psychological factors, such as personality traits, can influence how comfortable and effective individuals are in expressing themselves and engaging in verbal communication in a second/foreign language. For example, extroverts may be more inclined to participate in communicative tasks, while introverts might require additional support and encouragement to express themselves orally in a foreign language (Arniatika, 2020; Caspi et al., 2006; Vaezi et al., 2014).

One framework that can be used to understand the interplay between personality traits and language learning is the biopsychological theory of personality (Gray, 1981, 1987), proposing the existence of two brain-based systems for controlling a person's interactions with their environment, that is the behavioral inhibition system (BIS) and the behavioral activation system (BAS). The BIS is related to sensitivity to punishment and the tendency to avoid potential negative outcomes, while the BAS is associated with sensitivity to reward and approach motivation, and the tendency to pursue goals (Carver & White, 1994; Gray, 1982; Li et al., 2015). Individuals with high BAS sensitivity are expected to be more willing to take risks in communication, seek out opportunities to practice speaking, and actively engage in communicative tasks, as they are more driven by the potential rewards of successful communication (Entezari et al., 2022). On the other hand, individuals with high

BIS sensitivity seem to be more cautious, hesitant, and risk-averse in speaking situations, as they are more focused on avoiding potential negative outcomes such as making mistakes or facing embarrassment (MacIntyre & Gregersen, 2012).

Consequently, understanding the EFL learners' BAS/BIS sensitivities can inform language teachers in designing speaking activities that cater to the diverse motivational and behavioral tendencies of language learners. For example, activities that emphasize positive reinforcement and collaboration can be particularly beneficial for learners with high BAS sensitivity, while activities that provide a supportive and non-threatening environment can help reduce anxiety and encourage participation for learners with high BIS sensitivity (Dörnyei & Ryan, 2015; Mercer & Williams, 2014). According to Alwahibee (2019), scaffolding techniques among EFL learners encourage shy or hesitant learners (such as learners with high BIS & lower BAS) to participate in speaking tasks. Therefore, incorporating an awareness of personality traits and motivational sensitivities into EFL speaking instruction can help create a more inclusive and effective learning environment, where learners with diverse psychological profiles feel supported and motivated to develop their speaking skills.

Literature Review

Teacher Scaffolding and Learners' Speaking Skills

The positive consequences of communicative language teaching and more specifically teacher scaffolding have been reported in different areas of English teaching such as reading comprehension (e.g., Fatehi Rad & Jalali, 2021; Jamali Kivi et al., 2021), writing skill (e.g., Pishadast et al., 2022), listening skills (e.g., Albalawneh & Tepsuriwong, 2020), grammatical knowledge (e.g., Ghanizadeh & Mousavinejad, 2023; Izanlu & Feyli, 2015), and vocabulary (e.g., Jamali Kivi et al., 2021; Shoari & Assadi Aidinlou, 2015).

More particularly, addressing the effect of scaffolding on EFL learners' speaking ability, previous studies (e.g., Abdelshaheed, 2019; Afni, 2019; Alwahibee, 2019; Arfaei Zarandi & Rahbar, 2016; Ghasedi et al., 2018; Goh, 2017; Lantolf & Poehner, 2011; Li, 2021; Razaghi et al., 2019; Tran & Luu, 2022) have supported the role of teacher scaffolding on learners' speaking improvement. They claimed that by providing appropriate linguistic support teachers can help students develop their speaking skills and apply effective speaking strategies. Accordingly, the positive impact of teacher scaffolding strategies such as modeling, questioning, recasting, and prompting has been supported on learners' self-confidence (Alharbi, 2015) and engagement in speaking activities (Gibbons, 2002).

Ghasedi et al. (2018) explored the role of scaffolding in enhancing speaking skills among female Iranian EFL learners, focusing on components such as grammar, vocabulary, pronunciation, discourse management, and interactive communication. Involving four groups of 30 participants each, with two groups at the upper-intermediate level and two at the pre-intermediate level, they employed two-way ANCOVA to analyze the data. The findings revealed that teacher scaffolding significantly improved speaking skills and its related components, while learners' proficiency levels did not moderate the positive effects of scaffolding on these outcomes. Further, Ardiningtyas et al. (2023), examining the effect of scaffolding on teaching speaking, aimed to describe the scaffolding techniques a teacher uses while scaffolding four students. They identified the six diamonds of scaffolding behaviors, that is, instructor, contingent, consultant, modeling, motivator, and evaluator. They also claimed that scaffolding should be integrated in the teaching of spoken EFL at the college level.

Cheng et al. (2024) and Pan et al. (2023) also examined the impact of teachers' scaffolding on Chinese EFL students' academic engagement and psychological well-being, indicating that scaffolding was positively correlated to engagement and emotional well-being. Moreover, Li et al. (2024) demonstrated that teacher scaffolding could significantly improve students' reflective behaviors, promote social engagement, and enhance academic performance in technology-supported learning environments. In addition, Yu et al. (2024) revealed the positive effect of teacher scaffolding on learning motivation, flexible thinking, and academic achievement among 181 college students in China.

Additionally, Bao and Hung (2022), examining 186 EFL teachers's perceptions toward using scaffolding strategies for enhancing speaking skills, reveal that scaffolding strategies are highly appreciated. However, Awadelkarim (2021), analyzing the perceptions and attitudes of 30 EFL instructors towards scaffolding, found that while instructors expressed positive attitudes towards scaffolding practices, there was a notable gap in their actual knowledge and application of these pedagogical strategies.

While the majority of research on teacher scaffolding has highlighted its positive impact on learners' speaking improvement, there are some potential challenges associated with scaffolding practices in the context of speaking instruction. One potential concern, reported by Mercer and Littleton (2007) and van de Pol et al. (2015) is that learners may become overly dependent on teacher support, hindering their ability to develop independent speaking skills. Thus, excessive scaffolding may inadvertently limit learners' autonomy in speaking tasks. In addition. Dörnyei and Ushioda (2011) indicated that in some cases, inordinately structured scaffolding could restrict learners' willingness to take risks and experiment with language use during speaking activities. Students might feel constrained by the prescribed support provided by the teacher, leading to limited opportunities for creative expression and exploration of language.

Behavioral Inhibition/Activation Systems (BIS/BAS) in Education

While direct empirical studies on the relationship between BIS/BAS and speaking ability in language learning are limited, the theoretical underpinnings of these systems provide a basis for exploring the impact of approach and avoidance tendencies on language learners' speaking performance. Earlier research (e.g., Carver & White, 1994; Smillie et al., 2006) has explored related constructs such as anxiety, motivation, and risk-taking behavior, which are associated with BIS and BAS. According to Elliot and Thrash (2002) and Smillie et al. (2006), individuals with a high BIS may exhibit greater anxiety and inhibition, which may lead to increased self-monitoring, fear of negative evaluation, and avoidance of speaking tasks, thereby impacting speaking performance. On the other hand, individuals with a high BAS may demonstrate greater approach-oriented behavior and enthusiasm, which could positively influence speaking ability.

According to Gray and McNaughton (2000), the interplay of BIS and BAS can influence students' emotional regulation and responses to academic stressors. High BIS individuals are more prone to anxiety abd inhibition in response to academic demands, while those with a high BAS are more resilient, energetic, and responsive to positive reinforcement. These differences in emotional regulation can impact students' classroom behavior, coping strategies, and overall well-being in the learning environment. In addition, the study by Entezari et al. (2022) explored the interactive effects of BIS/BAS and the creation of pleasant or unpleasant feelings on the performance of working memory among young adults. The findings suggested that the performance of memory in the BAS group with positive emotion reception surpassed other groups.

Furthermore, on a related area, Beaumont et al. (2023) examined the complex connection between students' emotion regulation strategies and their overall well-being in school environments. The study focused on two main strategies, i.e., cognitive reappraisal (which involves altering one's perspective on a situation) and expressive suppression (which means controlling the outward expression of emotions). The findings revealed that students who frequently utilize cognitive reappraisal, aligned with the BAS approach that promotes positive engagement, tend to report higher levels of well-being, better academic performance, and more favorable social interactions. Conversely, those relying on expressive suppression, often linked to the BIS, experience increased stress and decreased well-being.

Therefore, since there is no direct evidence about the role of BIS/BAS sensitivity in language learning outcomes in general, the effect of other related personality traits can be considered. Research (e.g., Carver & White, 1994; Corr, 2004) has shown that individuals with a relatively high BAS tend to be more outgoing and extroverted, while those with a high BIS tend to be more reserved and introverted.

According to Dewaele and Furnham (2000) and Vaezi et al. (2014), extroversion plays a crucial role in developing the speaking ability of EFL learners. Additionally, extroverted EFL learners demonstrate proficiency in group work and communication and tend to use the foreign language more frequently than introverted learners. This difference in language use, according to Dewaele (2002) and Dewaele and Furnham (2000), may be attributed to extroverts' greater comfort with social interaction and verbal communication, and introverts' higher levels of anxiety toward EFL learning. Consistently, Horwitz et al. (1986) claimed that learners with high levels of anxiety experience difficulties in speaking tasks, leading to lower speaking proficiency.

On the other hand, recent research by Arniatika (2020), examining 40 students in senior high school in Indonesia, challenged the notion of a significant difference in speaking ability between extroverted and introverted learners, and suggested that there was not a discernible contrast in the speaking skills of extroverted and introverted learners based on their personality traits. Moreover, Nurmayasari and Rahmawati (2016) confirmed the same findings. Thus, it's important to note that individual differences in BAS/BIS sensitivity can interact with various factors, including task characteristics, instructional styles, and motivational factors, making it challenging to predict uniform responses to teacher scaffolding across all BAS/BIS sensitive learners. Therefore, there is no conclusive evidence suggesting that BIS/BAS sensitivity is related to the effectiveness of different teaching methods (Derryberry & Reed, 2002; Smillie et al., 2006).

The Rationale for the Research

The empirical landscape of English language education in the Iranian EFL context unfolds inadequate adherence to robust effective theoretical foundations. Thus, despite the paramount importance of English speaking skills in both the globalized world and the Iranian context, a noticeable gap persists between the desired and the actual speaking proficiency achieved by Iranian EFL learners. By delving into the sociocultural underpinnings of language learning, leveraging scaffolding strategies, and considering individual differences through the lens of BIS/BAS, the study aspired to contribute to the existing literature on the role of social and psychological factors on improving speaking ability, aiming to investigate the impact of teacher scaffolding on Iranian EFL learners' speaking ability, moderated by their BIA/BAS sensitivity. Furthermore, this study can contribute to the pedagogical landscape by highlighting that tailored scaffolding strategies can significantly benefit learners with varying personality profiles, suggesting that educators should adopt a more individualized approach to instruction. Hence, the following research questions were formulated:

RQ1: How does teacher scaffolding influence EFL learners' speaking ability moderated by the BAS personality trait?

RQ2: How does teacher scaffolding influence EFL learners' speaking ability moderated by the BIS personality trait?

Method

Population

The target population comprised 60 male advanced EFL learners, aged 18-22, selected via non-random purposive sampling from a total of 79 who took the Oxford Quick Placement Test (OQPT) to ensure homogeneity in language proficiency. This selection process ensured homogeneity in language proficiency, allowing for a more focused examination of the effects of scaffolding on language learning while controlling for gender-related variables. The participants had diverse exposure to English, primarily through formal education and media, with their duration of English study ranging from 5 to 8 years. Furthermore, motivations for learning English varied among the participants, from academic advancement, as their primary motivation, to career prospects.

Upon recruitment, participants were randomly assigned to an experimental group (n=30) and a control group (n=30). However, due to non-attendance exceeding three sessions, two participants were excluded from the experimental group, resulting in a final sample size of 58 (experimental group: n=28; control group: n=30). This sample size, validated by statisticians and based on Cohen's tables (1988), ensured a test power of 0.84, lending credibility and significance to the study's findings. The relatively small sample

allowed for personalized scaffolding, a method shown to be effective in providing individualized support (Gibbons, 2002; van de Pol et al., 2015).

Additionally, informed consent was obtained, with guarantees of confidentiality. Participants could access their results and withdraw at any stage. This ethical consideration aligns with best research practices, ensuring participant autonomy and ethical integrity.

Design

The present quantitative quasi-experimental study designated the teacher scaffolding as an independent variable, and Iranian EFL learners' speaking skills as the dependent variable. Additionally, the study incorporated a covariate, namely BAS/BIS systems which operated as the moderator variable. Moreover, the participants' pre-intervention speaking ability measured by the pretest was considered as another covariate to eliminate the effect of their prior differences.

This study employed a pretest/posttest design, involving one experimental group and one control group. The longitudinal aspect of the study extended over a duration of 16 sessions, equivalent to one semester, during which participants attended regular English language classes at the Cactus English Language Institute, twice a week. The duration allowed sufficient time for the implementation of scaffolding techniques and to observe meaningful changes in speaking skills.

Instruments

Oxford quick placement test (OQPT)

The Oxford Quick Placement Test (OQPT) was utilized initially to ascertain participant homogeneity according to their current English proficiency levels. Comprising 60 multiple-choice questions, the test evaluates learners' grasp of grammar, vocabulary, and writing skills. According to the scoring manual of OQPT suggested by the Council of Europe (CEFR, 2009), the advanced level included scores ranging between 48 to 60. Furthermore, numerous studies (e.g., Abbasi Dogolsara et al., 2022; Jalili & Shahrokhi, 2017) have confirmed the test's reliability and construct validity. In the present study, the OQPT was piloted with a similar small sample size, and its internal reliability was assessed and confirmed using Cronbach's alpha coefficients (α=0.80). Furthermore, a panel of experts supported its validity.

Gray-Wilson's personality questionnaire (GWPQ)

The 120-item original English version of the Gray-Wilson's personality questionnaire (GWPQ), developed by Wilson et al. (1989), was used to assess participants' BIS/BAS. Given the advanced proficiency level of the participants, the decision was made to administer the questionnaire in English. This choice was supported by their demonstrated ability to comprehend English items, ensuring that language barriers did not impact the accuracy of their responses. The use of the original English version also preserved the reliability of the GWPQ, avoiding potential issues that can arise from translation.

Following Slobodskaya et al.'s (2001) factor analysis, the BAS pool comprised items of Fight, Active Avoidance, and Approach, while BIS items came from the Flight, Passive Avoidance, and Extinction scales of the six-factor scoring system. For each item, there are three options, that is yes, no, don't know. For the items with the sign of minus (-), "Yes" = zero, "Don't know" = 1, and "No" = 2, and for each item with the sign of plus (+), "Yes" = 2, "Don't know" = 1, and "No" = zero (modeled by Mohammadi Shirmahaleh, et al., 2017). Table 1 represents some examples of the types of items included in the questionnaire.

Table 1.
Example Items of *Gray-Wilson's Personality Questionnaire*

Item Type	Examples
BIS-Related Items	*Would you say you are a little affected by the opinions of others?*
	If you have a sore throat, do you avoid talking until it is better?
	If you fail at a task, are you inclined to try, try, and try again?
BAS-Related Items	*If someone hit you would you almost certainly hit them straight back?*
	Do you find it easy to resist forming habits that you think might be bad for your health?
	Were you often punished as a child for things that you should have done but failed to do?

Previous literature (e.g., Slobodskaya et al., 2001; Wilson et al., 1989) confirmed the internal reliability and validity of GWPQ. However, for the current study, the questionnaire was piloted to support its reliability by Cronbach's alpha coefficients (α=0.91). Meanwhile, a panel of experts confirmed its validity.

The test of spoken English (TSE)

The Test of Spoken English (TSE) is an internationally administered instrument developed by the Educational Testing Service that measures the ability of non-native English speakers to communicate effectively. TSE comprised 12 tasks designed to elicit EFL learners' oral production in various discourse and pragmatic contexts and in different functions of language. The TSE scoring scale provided a single score of communicative language ability, which was reported on a scale of 20 to 60. Assigned score levels were averaged across items and raters, and the scores were reported in increments of five (i.e., 20, 25, 30, 35, 40, 45, 50, 55, & 60).

Participants' responses were recorded on a digital recorder and evaluated using communicative effectiveness descriptors based on criteria such as functional, sociolinguistic, discourse, and linguistic competence (modeled by Sotoudeh nama & Ramazanzadeh, 2011). High reliability and validity of the test have been reported by numerous researchers such as Powers et al. (1999) and Sotoudeh nama and Ramazanzadeh (2011). For the current study, the TSE was piloted among five similar samples and assessed by two experienced raters independently. The interrater reliability was assessed by having raters assess the same set of responses. The raters took part in a calibration session, where they were instructed to use the scoring rubric consistently. Intrarater reliability was determined by having raters assess a sample of responses again after two weeks. The interrater reliability correlation coefficient was 0.82 and the intra-rater one was 0.88, which were strong reliability values. The assessors also confirmed the validity of the TSE tasks.

Procedure

Having homogenized 40 advanced EFL learners through OQPT, before initiating the instruction program, they took the TSE, as a pretest, to assess their initial speaking ability and address internal validity threats. They also completed the GWPQ to determine their personality traits in terms of BIS/BAS. Subsequently, they were randomly assigned into an experimental (n=30) and a control (n=30) group. However, two participants were excluded from the experimental group due to non-attendance in more than three sessions, resulting in a final sample size of 28 participants for the experimental group. Both groups were taught by the researcher, who took on the role of teacher. The instructional period covered 16 sessions over a semester, with classes held twice a week. The first session and the last session were allocated for the pretest and posttest, and the remaining 14 sessions covered the research treatment.

The same textbook, New Headway Advanced (Fourth edition, by Soars et al., 2015), was used for both groups. This textbook, commonly employed in private institutions for advanced-level instruction, includes sections dedicated to improving learners' speaking skills and offering relevant topics for class discussions.

The experimental group received instruction using the textbook, supplemented by interactive scaffolding strategies over 14 sessions, conducted twice a week throughout the semester. Learners engaged in tasks such as role-plays, debates, recasting, prompting, and problem-solving discussions, modeled by Gibbons (2002). Each task lasted approximately 20 minutes and was designed to foster authentic communication. The teacher modeled target speaking skills and strategies through demonstrations, provided relevant vocabulary and language support, and offered immediate, specific feedback focusing on language accuracy, fluency, and communicative effectiveness. The teacher's mediating role included co-creating knowledge, rearranging answers, and employing oral scaffolding strategies to enhance learners' understanding. Learners were encouraged to gradually assume responsibility for tasks, with the teacher strategically monitoring and providing necessary support. Efforts were made to create an environment where learners with different BIS/BAS sensitivities, especially those with high inhibitions and low self-confidence, could overcome their anxieties and actively participate in speaking activities.

In contrast, the control group operated under conventional teaching methods for speaking skills, utilizing the New Headway Advanced textbook without the incorporation of teacher scaffolding strategies. In this setting, the teacher's role was to facilitate instruction through clear explanations of rules and strategies, alongside relevant exercises. Speaking tasks included recitation, reading aloud, and scripted dialogues, where participants were assigned predetermined scripts or prompts and allowed to use their mother tongue without restrictions. The teacher provided corrective feedback on pronunciation, grammar, and vocabulary during or after the speaking tasks, maintaining an interactive environment while refraining from employing scaffolding techniques. This approach ensured that the primary distinction between the control and experimental groups was the presence or absence of teacher scaffolding strategies. This structured approach was implemented with the same level of rigor and attention to detail as the experimental method, ensuring that both groups received high-quality instruction.

Before and after the instructional period, the pretest and posttest were administered respectively, to check the initial speaking ability and to evaluate the impact of the different teaching approaches on the participants' speaking ability. Both in pretest and posttest, the participants were examined individually by two experienced raters (the teacher and a colleague). Participants were given 10 minutes to review the test prompts and prepare their responses before the assessment began. This preparation time aimed to reduce anxiety and allow participants to organize their thoughts. The test was conducted in a quiet, distraction-free classroom setting at the Cactus English Language Institute, ensuring that external noise did not interfere with the participants' performance or the raters' assessments. Each participant's speaking test lasted approximately 5 minutes, during which they responded to a series of prompts designed to elicit a range of speaking abilities, from structured responses to open-ended discussions. Thus, the testing process was standardized for all participants of the two groups to ensure fairness.

Then, the inter-rater and intra-rated reliability of the pretest and posttest scores were assessed by two experienced raters independently. The interrater reliability correlation coefficient for the pretest and posttest were 0.79 and 0.82, respectively. Additionally, the intra-rater correlation coefficient for the pretest and posttest were 0.84 and 0.88, which were strong reliability values. The assessors also confirmed the validity of the TSE tasks.

Data Analysis

Descriptive statistics was utilized to summarize the quantitative data obtained from OQPT, BAS/BIS scores, and pretest and posttest TSE data. Then, Shapiro-Wilk test was used to assess the normality of the distribution of scores for both groups' pretest and posttest. The equality of the regression coefficients and Levene's test were used to assess the homogeneity of variances across groups, ensuring that the assumptions of regression analysis were met and that the results could be interpreted reliably. Finally, ANCOVA analysis was conducted to examine the differences in the speaking ability of the two groups while controlling for the effects of pretest and BIS/BAS scores as covariates. The effect sizes were also calculated to evaluate the practical importance of the findings.

Results

Descriptive Statistics

The results of the OQPT indicated the following descriptive statistics for the two groups: the experimental group had a mean of 51.39 (SD=4.73), while the control group had a mean of 52.50 (SD=4.09). An independent samples t-test revealed that the difference between the groups was not statistically significant (p=0.94), thus supporting the homogeneity of the two samples.

For the BAS/BIS scores, participants in the experimental group exhibited a mean BAS score of 49.17 (SD=5.21), while those in the control group displayed a mean of 42.20 (SD=8.12). Mean BIS scores were 37.00 (SD=4.54) for the experimental group and 39.95 (SD=7.26) for the control group.

Table 2 shows the descriptive statistics of the participants' TSE scores in the pretest and posttest.

Table 2.
Descriptive Statistics Related to Participants' TSE scores in the Pretest and Posttest

Variable	Phase	Group	Number	Mean	SD
Speaking	Pre-test	Experimental	28	٤٣,٥٠	٦,٥١
		Control	٣٠	٤٤,٥٥	٦,٨٢
Speaking	Post-test	Experimental	28	٥٠,٥٠	٦,٢٣
		Control	٣٠	٤٥,٢٠	٥,٨٧

Normality and Homogeneity Tests

Before comparing the two groups' performance in the pretest and posttest, the normality of the groups' pretest and posttest speaking scores was tested by the Shapiro-Wilk Test. Results indicated that both the pretest and posttest scores met the normality assumption (p>0.05 for both groups), as detailed in Table 3. Additionally, Levene's test confirmed the homogeneity of variances in the speaking scores (p = 0.491). Additionally, the analysis of the equality of the regression line slope showed a non-significant interaction line (p = 0.766 >0.05), supporting the acceptance of the hypothesis of the same regression slope. Levene's test confirmed the homogeneity of variances in speaking for the two groups (p =0.491 >0.05).

Table 3.
Results of Shapiro-Wilk Test for Normal Distribution of Scores

Variable and Test Phase	Group	Statistics	Sig.
Speaking Pretest	Experimental	0.94	0.270
	Control	0.96	0.484
Speaking Posttest	Experimental	0.86	0.074
	Control	0.92	0.075

Analysis of Covariance (ANCOVA)

Next, ANCOVA was conducted twice to compare the two groups' performance in the pretest and posttest controlling the role of pretest proficiency and BAS/BIS tendencies.

Table 4.
Results of Covariance Analysis of Speaking Post-Test after BAS and Speaking Pre-Test Adjustment

Source of Changes	Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Speaking Pretest	160.91	1	160.91	8.45	0.016	0.16
BAS	151.48	1	151.48	6.07	0.019	0.15
Groups	84.61	1	84.61	3.39	0.074	0.09
Error	848.68	34	24.96			
Total	88081	38				

Table 4 displays the results of the covariance analysis for the speaking post-test moderated by BAS sensitivity. The findings reveal a significant relationship between pre-test and post-test scores in the speaking test (F=8.45, p <0.005), with a partial Eta squared value of 0.16. This indicates that 16% of the variance in the dependent variable (speaking in the post-test) is explained by speaking in the pre-test. Similarly, a robust relationship is observed between BAS score and speaking post-test (F=6.07, p <0.05), with a partial Eta squared value of 0.15. BAS accounts for 15% of the variance in the dependent variable.

Thus, the substantial impact of prior knowledge (speaking pre-test) and BAS on speaking post-test scores overshadowed the treatment effect, rendering it minor and insignificant. The adjusted mean for speaking in the experimental group was 49.53, compared to 46.07 in the control group. Therefore, addressing the first research question, upon examining the group differences, it became evident that when adjusting for the pre-test speaking and BAS effects, the difference in speaking post-test scores between the two groups was not significant.

Table 5.
Results of Covariance Analysis of Speaking Post-Test after BIS Adjustment and Speaking Pre-Test

Source of Changes	Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Speaking Pretest	371.37	1	371.37	13.37	0.001	0.28
BIS	55.88	1	55.88	2.01	0.165	0.06
Groups	241.05	1	241.05	8.68	0.006	0.20
Error	944.28	54	27.77			
Total	88081	58				

Table 5 presents the results of the covariance analysis for the speaking post-test moderated by BIS sensitivity. The findings indicated a robust relationship between pre-test and post-test scores in the speaking test ($F=13.37$, $p<0.01$), with a partial Eta squared value of 0.28. This implies that 28% of the variance in the dependent variable (speaking in the post-test) is explained by speaking in the pre-test. However, BIS score shows no significant effect on the model.

Addressing the second research question, further analysis of the group differences reveals that even after adjusting for the effects of pre-test speaking and BIS, the difference in speaking in the post-test phase between the two groups remained significant at the 0.01 level ($F1=8.68$, $p<0.01$). With 99% confidence, the treatment has proven effective in enhancing speaking skills in the experimental group. The power of this training to increase speaking skills is 0.20, signifying that 20% of the speaking variance in the post-test is attributed to the teacher scaffolding. This effect size, represented by Eta of 20%, is considered large. It is noteworthy that, according to the adjusted means wherein the effects of covariance and BIS were statistically removed, the mean speaking score for the experimental group was 50.45, compared to 45.25 for the control group.

Discussion

The current study investigated the effect of teacher scaffolding on Iranian EFL learners' speaking ability, moderated by their BIS/BAS sensitivity. The findings revealed that the psychological factor of BAS overshadowed the social factor of teacher scaffolding in improving Iranian EFL learners' speaking enhancement. Therefore, the BAS demonstrated a significant positive moderating effect. Conversely, when BIS was considered as a covariate, it did not offer a significant moderating role in improving speaking skills. Subsequently, putting aside its non-significant role, teacher scaffolding demonstrated a significant positive effect on Iranian EFL learners' speaking ability.

Furthermore, referring to the theoretical foundations, the findings of the current study supported that Vygotsky's SCT, grounded in constructivism, and his notion of ZPD provides an appropriate framework for addressing the hurdles faced by Iranian EFL learners in developing their English speaking. Thus, the scaffolding approach emerged as a promising methodology to bridge the gap between formal instruction and practical manifestation, particularly concerning speaking proficiency.

The results of this study align with several other research findings (e.g., Abdelshaheed, 2019; Afni, 2019; Alwahibee, 2019; Arfaei Zarandi & Rahbar, 2016; Ghasedi et al., 2018; Li, 2021; Razaghi et al., 2019), indicating that the utilization of scaffolding interactive strategies contributes to the improvement of learners' speaking abilities.

To justify the positive effect of teacher scaffolding on EFL learners' speaking skill enhancement it can be inferred that in the Iranian EFL context, teacher scaffolding provided individualized support to EFL learners, catering to their specific speaking needs and abilities. Hence, through personalized feedback and targeted prompts, teachers could address the linguistic and communicative challenges faced by each learner. In contrast, the traditional method offered limited individualized support, leading to less tailored instruction and slower progress in speaking skills. Moreover, in this study, teacher scaffolding incorporated interactive speaking activities, which might have enhanced learners' motivation, engagement, and psychological well-being.

Furthermore, supporting the previous research (e.g., Dewaele & Furnham, 2000; Dörnyei & Ryan, 2015; Harrington & Loffredo, 2010), the current study confirmed the positive moderating effect of personality traits (i.e., BAS) on improving learners' speaking ability. It is believed that individual differences like personality traits are inherent and stable characteristics that can impact on learners' intrinsic motivation, willingness to take risks, and communication skills, all of which are crucial for speaking proficiency (Caspi et al., 2006).

This finding can be explained by the claim that BAS is associated with approach motivation, reward sensitivity, and the pursuit of goals and rewards. In this study, learners with a high BAS sensitivity were assumed to be more likely to be driven by the desire for positive outcomes and rewards, which aligns with the goal-oriented nature of speaking tasks facilitated by teacher scaffolding. As a result, these learners might have exhibited greater engagement, persistence, and proactive participation in speaking activities, leading to improved speaking performance. Moreover, as Arias-Carrion et al. (2010) claimed learners with a high BAS tendency were assumed more responsive to positive reinforcement and rewards. In the context of teacher scaffolding, where learners received targeted support, constructive feedback, and praise for their speaking efforts, those with a strong BAS tendency might have been more receptive to such reinforcement. This positive reinforcement could enhance their confidence, motivation, and willingness to take linguistic risks, ultimately contributing to improved speaking performance. Furthermore, according to Berridge and Robinson (2003), BAS is linked to the willingness to take risks, explore new opportunities, and seek out novel experiences. Thus, when engaged in speaking tasks under the guidance of teacher scaffolding, Iranian EFL learners with a high BAS tendency demonstrated a greater willingness to experiment with language, express themselves creatively, and engage in communicative challenges. This proactive and exploratory approach to speaking could lead to more fluent, varied, and expressive language use. Finally, according to Li et al. (2015), BAS is associated with adaptive emotional regulation, particularly in response to rewarding stimuli. Therefore, Iranian EFL learners with a high BAS tendency exhibited greater enthusiasm and positive affect when engaging in speaking tasks facilitated by teacher scaffolding. This emotional regulation could contribute to a more relaxed, confident, and expressive speaking performance, as learners were less likely to be hindered by speaking anxiety or self-doubt.

On the other hand, while one of the primary objectives of scaffolding was supposed to be motivating hesitant or shy learners, akin to individuals exhibiting high BIS characteristics, to actively participate in speaking tasks, no significant moderating role of BIS on learners' speaking performance via teacher scaffolding was observed. This result may be attributed to the nature of BIS and its focus on avoidance motivation, threat sensitivity, and inhibition of behavior. According to Balegh (2016), Langarita-Llorente and Gracia-Garcia (2019), and Li et al. (2015), individuals with high BIS sensitivity, characterized by shyness, anxiety, and heightened sensitivity to punishment, often opt for silence when they perceive a lack of mastery over a lesson or assignment. Thus, Iranian EFL learners with a high BIS tendency might have been more focused on avoiding negative outcomes or potential threats, which could lead to a different set of cognitive and affective responses during speaking tasks, potentially impacting their performance distinctly. Therefore, it can be inferred that the neuropsychological characteristics of high BIS individuals are more powerful and also resistant to social and pedagogical manipulations.

Meanwhile, the result of this study is partly in line with Entezari et al. 's (2022) findings about the positive consequences of BAS in enhancing working memory. Working memory, a significant process in cognitive science, allows individuals to temporarily store and manipulate information for current tasks. It plays a fundamental role in various cognitive functions, including problem-solving, planning, arguments, and reasoning in speaking tasks (Christou et al., 2016).

Pedagogical Implications

The outcomes of the present study emphasize the potential of the scaffolding method to enhance the speaking proficiency of language learners; thus, the integration of instructional scaffolding strategies is recommended as an inspiring element in English

courses. By creating a supportive and interactive learning environment, teachers can encourage EFL learners to take risks, participate actively, and practice speaking with confidence. In contrast, the conventional method relied more on language practice, potentially leading to lower levels of motivation and reduced speaking practice (Arfaei Zarandi & Rahbar, 2016). Additionally, in the experimental group receiving teacher scaffolding, language development was a central focus, with the teacher providing modeling of speaking strategies and opportunities for meaningful interaction. However, the conventional method prioritized content delivery over language development, resulting in less intensive language practice and slower speaking improvement.

Furthermore, the learners' characteristics related to BAS, but not BIS sensitivity, served as a positive moderating factor, even more influential than scaffolding, in this educational trajectory. Consequently, in the realm of language teaching, beyond employing effective techniques like scaffolding, as identified in this research, it is imperative to take into account individual learner traits such as BAS to boost instructional outcomes. In addition, efforts should be directed toward mitigating behavioral inhibitions and fostering increased behavioral activation among learners. Moreover, to activate learners with BIS who are reluctant to participate in overt activities like speaking, other interactive and inspiring strategies can be examined.

Limitations and Suggestions for Further Research

Despite the study's contributions, certain limitations must be acknowledged. The study's focus on BAS and BIS sensitivity may not capture the complete spectrum of individual differences affecting speaking proficiency. Thus, future studies could examine additional psychological factors, such as anxiety levels and cultural influences, that may also play a role in language acquisition. By broadening the scope of research to include these variables, a more nuanced understanding of the dynamics at play in language learning can be achieved.

Additionally, the sample was limited to male Iranian EFL learners, which suggests that the findings may not be generalizable to female learners or other contexts and populations. Future research should consider including a more diverse sample that encompasses both genders to provide a more comprehensive understanding of the factors influencing speaking proficiency.

Another notable limitation is the reliance solely on quantitative analysis, which may overlook the richness of qualitative insights that could provide a deeper understanding of the participants' experiences and perspectives. For future research, it is recommended to incorporate mixed-methods approaches that combine both quantitative and qualitative data.

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