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# *A Study on the Relationship between Inner Speech, Oral Learning Strategy, and Speaking Anxiety of English Major College Students*

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***Abstract:*** This study investigated the use of inner speech among English majors and its relationship with oral learning strategy and speaking anxiety. Using a mixed-methods approach, 80 first-year English majors from a university completed questionnaires, and semi-structured interviews were conducted with 3 of these students. The findings revealed that: (1) Students' overall frequency of inner speech use was at a moderate to high level, with evaluative/motivational inner speech being the most frequent and the presence of other voices the least frequent; (2) The overall frequency of inner speech use showed moderately significant positive correlations with both the frequency of oral learning strategy ($r$=0.318) and the level of speaking anxiety ($r$=0.328). This research provides guidance for encouraging students to use positive inner speech, optimizing learning strategies, alleviating anxiety, and designing targeted teacher interventions.

## 1. Introduction

Individual learner differences hold a significant position in second language acquisition research, with studies indicating that anxiety and learning strategy significantly impact acquisition outcomes[1],[2]. Speaking anxiety and oral learning strategy, as two crucial factors at the oral proficiency level, not only directly affect learners' oral output quality[3],[4], but also share a significant negative correlation with each other[5]. Inner speech, defined as silent, self-directed self-talk, can effectively predict anxiety in various contexts and strategies in learning situations[6],[7], thereby influencing learners' anxiety levels and learning strategy use.

According to Sociocultural Theory, inner speech develops through the internalization of social speech and private speech[8], and can positively or negatively impact an individual's thoughts, evaluations, or focus on their own actions, feelings, or ideas[9], playing an important role in individual cognition and emotional regulation[10]. Specifically, at the cognitive level, inner speech enhances attentional control by helping individuals suppress interference[11], while evaluative and motivational inner speech can improve task focus and performance[12] and promote working memory expansion[13]. At the affective level, different types of inner speech produce different

effects. Positive inner speech can reinforce goal-directed behavior, boost self-confidence, and enhance emotion regulation capacity[14], whereas negative inner speech is associated with low self-esteem and depression, easily triggering immersion in negative emotions[15].

This intrinsic linguistic mechanism and its connection to learning strategies and foreign language anxiety form the core concern of this study. Learning strategy, particularly oral learning strategy that make the oral learning process more autonomous and efficient, are crucial for improving oral proficiency and communicative performance[4]. Research has found that individuals who frequently use self-critical inner speech tend to use learning strategies less frequently[7], suggesting that inner speech may indirectly affect oral output by influencing oral strategy choice. Simultaneously, foreign language anxiety, as a unique emotion related to learning[16], has been proven to be significantly negatively correlated with speaking skills and can adversely affect oral output and test performance[17]. The affective regulatory function of inner speech is particularly prominent here, as its nature of use is closely related to anxiety levels. Research showed that the frequency of negative inner speech use is positively correlated with anxiety levels, while positive inner speech is negatively correlated[6]. The relationship has also validated in public speaking contexts[18].

However, although existing research has revealed the broad role of inner speech and its association with general learning strategies and foreign language anxiety, studies focusing specifically on the domain of oral learning remain relatively insufficient. Furthermore, most existing research targets broad student populations, while English majors, due to their disciplinary characteristics involving high-intensity oral output, have unclear inner speech characteristics and specific relationships with speaking anxiety and oral strategies. Given this, this study employs a mixed-methods approach to address the following questions:

(1) What is the level of inner speech among English majors?

(2) What are the relationships between English majors' inner speech, oral learning strategy and speaking anxiety?

## 2. Research Design

### 2.1. Participants

This study surveyed 80 first-year English majors from a university of technology in western China, aged between 18 and 20, all with Gaokao English scores above 100. Questionnaires were completed voluntarily and anonymously by the students, resulting in 76 valid responses, including 16 males and 64 females. Subsequently, 3 students who had completed the questionnaire voluntarily participated in follow-up interviews.

### 2.2. Research Methods and Data Collection

#### 2.2.1. Oral Learning Strategy Scale

The Oral Learning Strategy Scale adapted by Lv[5] from Oxford's Strategy Inventory for Language Learning (SILL) was used to measure students' oral learning strategy. This questionnaire uses a 5-point Likert scale, where 1 to 5 represent "strongly disagree" to "strongly agree," respectively. It consists of 25 items, and higher total scores indicate more frequent strategy use. The scale includes six dimensions: direct strategies and indirect strategies. Direct strategies include memory strategies, cognitive strategies, and compensation strategies, e.g., "When memorizing new words, I place them in a specific context for understanding and memorization." Indirect strategies include metacognitive strategies, affective strategies, and social strategies, e.g., "Even if I cannot produce perfectly correct sentences, I encourage myself to speak." The Cronbach's alpha coefficient

for this scale in the present study was 0.868.

### 2.2.2. Speaking Anxiety Scale

A speaking anxiety scale adapted from Horwitz's Foreign Language Classroom Anxiety Scale (FLCAS) and revised by Wu[19] was used to measure students' speaking anxiety. This scale uses a 5-point Likert scale, where 1 to 5 represent "strongly disagree" to "strongly agree," respectively. It consists of 31 items, and higher scores indicate higher levels of speaking anxiety. The scale has three dimensions: self-cognitive evaluation, self-emotional experience, and external environmental influence. An example item is: "I have never been confident about communicating in English." The Cronbach's alpha coefficient for this scale in the present study was 0.890.

### 2.2.3. Varieties of Inner Speech Questionnaire

The Chinese version of the Varieties of Inner Speech Questionnaire (VISQ) by McCarthy-Jones and Fernyhough[20] was used to measure inner speech. It uses a 6-point Likert scale, where 1 to 6 represent "strongly disagree" to "strongly agree," respectively. It consists of 18 items, and higher scores indicate higher frequency of inner speech use. The scale has four dimensions: Dialogicity, Condensation, Evaluative/Motivational, and Other People's Voices. "Dialogicity" primarily refers to the individual engaging in dialogue-like communication with themselves internally, e.g., "When I am talking to myself about things in my mind, it is like I am going back and forward asking myself questions and then answering them." "Condensation" refers to a more abbreviated and condensed form of inner speech, often containing only keywords or phrases rather than complete sentences, e.g., "I think to myself in words using brief phrases and single words rather than full sentences." "Evaluative/Motivational" relates to how individuals use inner speech to evaluate relevant situations, others, and themselves, e.g., "I talk silently to myself telling myself not to do things." "Other People's Voices" refers to the degree to which inner speech incorporates the voices of others, e.g., "I hear other people's actual voices in my head, saying things that they actually once said to me." The Cronbach's alpha coefficient for this scale in the present study was 0.805.

### 2.2.4. Interview

Semi-structured interviews were conducted. The interview guide primarily focused on the following questions: (1)When preparing for an oral task, do you talk to yourself internally? How does this dialogue affect your nervousness/anxiety and your use of oral learning strategies? (2)Do you ever recall things your teachers or friends have said before? Have those words been helpful or discouraging? How did they affect your performance in oral tasks? (3)Do you tend to think and organize your speech using complete sentences or short words/phrases? Each interview lasted approximately 15 minutes and was audio-recorded with the interviewee's consent.

## 2.3. Data Analysis

Descriptive statistics and correlation analyses were performed using SPSS 25.0. Interview transcripts were analyzed using content analysis, extracting key words and sentences based on the characteristics of inner speech and its relationship with oral learning strategy and speaking anxiety.

## 3. Results

### 3.1. Descriptive Statistics of Inner Speech

The means and standard deviations for inner speech and its sub-dimensions are shown in Table 1. The results show that the average level of inner speech use was 3.66 (*SD*=0.62). Among the sub-dimensions, "Evaluative/Motivational" scored the highest at 4.13 (*SD*=0.59), while "Other People's Voices" scored the lowest at 2.90 (*SD*=1.07). The scores for "Dialogicity" and "Condensation" were 3.99 (*SD*=1.10) and 3.80 (*SD*=0.63), respectively.

Table 1: Descriptive statistics of variables.

| Variables | Oral Learning Strategy | Speaking Anxiety | Overall Inner Speech | Dialogicity | Condensation | Evaluation/ Motivation | Other People's Voices |
|---|---|---|---|---|---|---|---|
| M | 3.40 | 2.62 | 3.66 | 3.99 | 3.80 | 4.13 | 2.90 |
| SD | 0.45 | 0.45 | 0.62 | 1.10 | 0.63 | 0.59 | 1.07 |

### 3.2. Correlation Analysis of Inner Speech, Oral Learning Strategy, and Speaking Anxiety

The correlation analysis between inner speech, oral learning strategy and speaking anxiety is shown in Table 2. As shown in Table 1, the scores for oral learning strategy and speaking anxiety were 3.40 (*SD*=0.45) and 2.62 (*SD*=0.45), respectively. The results in Table 2 show that overall inner speech use had moderately significant positive correlations with both oral learning strategy use ($r$=0.318, $P$<.01) and speaking anxiety ($r$=0.328, $P$<.01). Specifically, "Dialogicity" was significantly positively correlated with both oral learning strategy ($r$=0.299, $P$<.01) and speaking anxiety ($r$=0.265, $P$<.05). Evaluative/motivational inner speech was significantly positively correlated only with speaking anxiety ($r$=0.264, $P$<.05). "Other People's Voices" was significantly positively correlated with both oral learning strategy (r=0.280, $P$<.05) and speaking anxiety ($r$= 0.289, $P$<.05). Condensation was not related to either oral learning strategy or speaking anxiety.

Table 2: Correlation analysis of inner speech, oral learning strategy, and speaking anxiety.

| Variables | Overall Inner Speech | Dialogicity | Condensation | Evaluation/ Motivation | Other People's Voices |
|---|---|---|---|---|---|
| Oral Learning Strategy | 0.318** | 0.299** | 0.106 | 0.183 | 0.280* |
| Speaking Anxiety | 0.328** | 0.265* | 0.117 | 0.264* | 0.289* |

Note: $N$=80. *$P$ < .05, **$P$ < .01

## 4. Discussion

### 4.1. Use of Inner Speech among English Majors

Descriptive statistics revealed that the overall frequency of inner speech use among English majors was at a moderate to high level. Specifically, evaluative inner speech was used most frequently, followed by dialogic, condensed, and other people's voices inner speech. This finding regarding the frequency differences among inner speech types is consistent with the research by McCarthy-Jones and Fernyhough[20], indicating that students commonly and frequently use inner speech during oral activities, with its forms, functions, and effects demonstrating diversity and

situational dependency. Whether during the preparation stage or during the activity itself, students tend to organize their logical thinking through silent internal dialogue. Sociocultural theory posits that language learners' higher mental functions are internalized through social speech[21]. Student B (female, Gaokao English score 109) mentioned in the interview that she repeatedly weighs options in her mind before speaking in oral class, "I feel conflicted every time I need to answer a question. My mind goes back and forth about whether to volunteer to answer. Sometimes I muster the courage to answer, but the next moment I think I might answer incorrectly, so I don't dare to raise my hand." Faced with the choice of whether to speak, Student B engaged in active self-dialogue, the outcome of which directly influenced her oral performance—whether she chose to answer voluntarily. This "self-interrogation" confirms the essence of inner speech as a tool for regulating thought[10] and is an inevitable manifestation of cognitive internalization in the process of language socialization.

The highest frequency of evaluative inner speech use might be related to the immediacy of oral output and the fear of making mistakes, highlighting students' real-time evaluation of their performance. Both Student A (female, Gaokao English score 113) and Student B mentioned using inner speech to evaluate their own behavior, "When preparing a speech draft, just thinking about not only writing the draft well, but also reciting it fluently, coupled with the fact that this is a final exam with only one chance, makes me feel the task is very difficult and I want to simply give up. But giving up isn't an option either, I would fail the course, so I persuade myself to persevere and force myself to complete the task." "Every time I make a mistake while answering a question, the thought 'It's over, why did I perform so poorly' flashes through my mind instantly. Then I silently remind myself that I must prepare carefully in advance next time." These indicate that both students monitored the quality of their behavior through evaluative inner speech[20], i.e., they reflected on whether their actions during the oral activity were correct, assessed and judged the situation at hand, and subsequently adjusted their behavior. Morin[22] also pointed out that high-frequency self-evaluation is positively correlated with enhanced metacognitive awareness, which explains English majors' high reliance on evaluative inner speech during oral tasks.

In contrast, the use frequency of other people's voices inner speech was the lowest and showed task-specific dependency, "During the debate process, time is very tight, and there isn't much time for me to write complete sentences. I remember the teacher said to just jot down key words directly." "The teacher said that arguments should be explained in the simplest terms, so when preparing my debate speech, I try to state my points as simply and clearly as possible. (Student C, male, Gaokao English score 124)". These suggest that students internalize external voices related to specific task requirements only when needed to meet those demands, while relying more on autonomous thinking during daily practice, confirming its role as a cognitive auxiliary resource.

### 4.2. Correlation between English Major Students' Inner Speech, Oral Learning Strategy and Speaking Anxiety

Inner speech can effectively promote the transformation and use of students' oral learning strategies. The study found that more active inner speech was accompanied by greater use of oral learning strategies, which is largely consistent with the findings of Lee et al.[7] on inner speech, learning strategies, and academic performance. The self-reflective function of inner speech includes self-regulatory functions, and learners capable of self-regulation in learning typically have a deeper understanding of different cognitive learning strategies and can select, monitor, and regulate their use of these strategies when completing learning tasks[23]. Student C, when preparing debate notes, would "think of some transition words and templates in advance" to save preparation time, and then "mentally outline the entire framework" based on the points needing debate. Simultaneously, when

facing strong pressure from opponents, Student C believed his team was well-prepared and only needed stable performance. It can be seen that he used inner speech to shield himself from external distractions and focus his attention on the current task, aligning with the "strategic inner speech enhances executive control" mechanism proposed by Galanis et al.[11], concentrating cognitive resources on target strategies. Furthermore, both Student A and Student C primarily used the "keyword note-taking" method during oral expression, organizing logic better by compressing information, thereby ensuring the fluency of strategy execution, reflecting the influence of inner speech on working memory. Therefore, when students use inner speech to manage their behavior and cognitive resources during oral activities, they are more likely to employ effective oral learning strategies.

Additionally, the relationship between inner speech and speaking anxiety also showed a significant positive correlation, and the secondary dimensions of "Evaluative/Motivational" and "Other People's Voices" both had significant positive effects on speaking anxiety. This indicates that active internal self-dialogue is often accompanied by strong anxiety, consistent with the results of McCarthy-Jones and Fernyhough[20]. This study further found that the "Dialogicity" dimension of inner speech also positively influences speaking anxiety. This might be because the "Dialogicity" dimension contains a large amount of self-critical or negative self-dialogue, thereby increasing anxiety during oral communication[18]. Student C mentioned, "I inevitably feel nervous during this process. I'm afraid of mispronouncing words or stammering, afraid that my poor performance will drag down the whole team." In high-pressure competitions, when he felt hesitant internally about whether an argument was valid, he would repeatedly hesitate whether to express it. This mental activity was closely related to the anxiety stemming from team responsibility. The cognitive model of Cognitive Behavioral Theory (CBT)[24] points out that negative self-dialogue can trigger or exacerbate learners' anxiety; even motivational speech, if it carries pressure or perfectionism, can become a source of anxiety. Student B believed her foundation was weaker than other students and felt she must ensure her answers were correct and well-prepared before volunteering to answer, but this was accompanied by anxiety about not allowing herself to make mistakes. This result further suggests that when students more frequently use inner speech to evaluate themselves or perceive that others are evaluating them, this continuous self-checking process may intensify their anxiety.

## 5. Conclusions

This study investigated the use of inner speech among English majors and explored the relationships between inner speech, oral learning strategy, and speaking anxiety. The results showed that students' frequency of inner speech use was at a moderate to high level. In terms of sub-dimensions, all except "Condensation" also showed relatively high levels. Overall inner speech was significantly positively correlated with both oral learning strategy and speaking anxiety. This study provides new empirical evidence for the correlation between inner speech and oral learning strategy and speaking anxiety. Future research could continue to explore whether there are deeper influence mechanisms among these three variables.

This study suggests that when engaging in oral activities, learners can try to use more encouraging inner speech for self-guidance to replace negative suggestions, and improve oral performance by optimizing learning strategies. Simultaneously, they can use the third person or their own name for self-dialogue to effectively alleviate speaking anxiety. For teachers, when organizing oral activities, attention should be paid to the frequency of students' use of critical self-dialogue, and appropriate intervention should be implemented timely. By guiding students to correctly understand the role of inner speech, helping them use effective oral learning strategies, and simultaneously creating a supportive, non-judgmental communication environment, students'

expressive confidence can be enhanced, and speaking anxiety reduced.

This study also has certain limitations. Firstly, although interview data served as supplementary material, the sample size was small, with only 76 valid questionnaires received, limiting the generalizability of the findings. Future research should select larger sample sizes and even expand the scope of participants for further investigation. Secondly, the results only show the impact of negative inner speech on speaking anxiety but do not address the role of positive inner speech. Future research could further investigate the relationship between positive inner speech and speaking anxiety. Finally, the study only explored the correlation between inner speech, oral learning strategies, and speaking anxiety from a cross-sectional perspective, without delving deeper from a longitudinal angle. Future research could start from this point to obtain more comprehensive and reliable results.

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