**Development and Validation of EFL Speaking Strategy, Speaking Anxiety, Learning Motivation, and Learning Attitude Questionnaires**

ABSTRACT

Effectively assessing the speaking performance of English as a Foreign Language (EFL) students remains a major challenge for language educators, particularly in the context of Chinese universities. Speaking strategy use, speaking anxiety, learning motivation, and learning attitude are four critical constructs that significantly influence EFL learners’ speaking proficiency. While previous studies have examined these factors individually or in limited combinations, few have focused on developing a comprehensive tool that measures them collectively within the Chinese EFL context. Therefore, this pilot study aimed to develop and validate a questionnaire, designed to assess speaking strategies, speaking anxiety, learning motivation, and learning attitudes among Chinese EFL students, which consist of 45, 30, 22 and 49-items scale for each respectively. The purpose of this pilot test was to ensure the reliability and validity of the instrument before it is used in a larger-scale study. The questionnaire was assessed by surveying on 60 participants selected from 1st and 2nd year non-English major undergraduate students at a university in China, with a sample of 27 males and 33 females, along with 34 freshmen and 26 sophomores. A five-phase approach was followed: item development based on literature review, definition of constructs, expert validation by two applied linguistics scholars, and a pilot administration involving 60 first- and second-year Chinese university students. The results showed strong content validity and high internal consistency, with a reliability value of 0.787 for speaking strategies, 0.674 for speaking anxiety, 0.775 for learning motivation, and 0.796 for learning attitudes, making the questionnaire highly reliable and valid tool for future research. This study offers a valuable instrument for educators and researchers to investigate the interconnected roles of these key psychological and behavioral factors in EFL speaking development, particularly within the Chinese academic context.

**Keywords:** *Speaking Strategy, Speaking Anxiety, Learning Motivation, Learning Attitude, Reliability.*

# INTRODUCTION

The significance of English as a second language has grown alongside globalization, with the number of English speakers increasing from 1.13 billion in 2019 to 1.46 billion in 2023 (Talbot, 2023). China, aiming to align with international standards, has emphasized English education, particularly in higher education, where even non-English major students must complete the prescribed courses and the duration of English learning (Chen et al., 2020). This reflects the increasing role of English in global communication and China's proactive approach to adapting its education system for international development. As China's economic globalization deepens, English has become a key language in cross-cultural business communication, further fueling the demand for English proficiency among students (Alneyadi et al., 2023; Phan, 2021; Yao & Du Babcock, 2023).

Non-English major students in China encounter significant challenges in developing their speaking skills, largely due to limited practice opportunities and heightened speaking anxiety (AbdAlgane & Idris, 2020; Dashti, 2020). These issues are exacerbated by the uneven distribution of educational resources and a curriculum prioritizing exam performance over practical language use, leaving students underprepared for real-world oral communication (Vattøy, 2020). This leads to speaking anxiety and negative affect on the learning motivation and attitude of the students, along with building speaking strategies to cope with the issues. Speaking strategies are the learning strategies, techniques, and approaches used by the learners of a language (especially a second language) to learn and recall the phonological and prosodic and content information (Wael et al. 2018). Speaking anxiety is the result of the individual reflection of lack of competence in the learning language or due to the social discriminatory instances that affects their learning motivation and attitudes (Gregory & Noto, 2018). Learning motivation, both extrinsic and intrinsic, is the culmination of the positive attitude towards the learning language and the willingness to communicate with the same (Erniyati & Putra, 2022). This implies that speaking anxiety and dilemma in choosing the right strategy can hinder the motivation towards learning, which can induce negative evaluations by the learner, thus affecting the learning attitude as well. Nevertheless, speaking anxiety and strategies to cope with it have shown to influence learning motivation and attitudes, though findings are mixed regarding the strength of these relationships (Le & Le, 2022; Luo et al., 2020; Liu et al., 2021; Pabro-Maquidato, 2021). The current discussion on the relationship between speaking strategies, speaking anxiety, learning motivation, and learning attitudes is still lively, but there is currently a dearth of a comprehensive survey questionnaire. In addition, the current questionnaires for measuring speaking strategies, speaking anxiety, learning motivation, and learning attitudes are uneven, and there are differences in the ways and methods of measuring them, without forming a unified standard (Aida,1994; Al-Muslimawi & Al-Shamarti, 2023; Aydin et al., 2014; Erniyati & Putra, 2022; Tran, 2020; Nguyen et al., 2022; Paneerselvam & Yamat, 2021). Therefore, this study develops a comprehensive questionnaire on speaking strategies, speaking anxiety, learning motivation, and attitudes to provide insights for more targeted language education interventions.

# LITERATURE REVIEW

*Previous Instruments Developed on Speaking Strategies*

Numerous questionnaires have been developed to investigate speaking strategies among EFL learners. Among these, the majority of research has utilized the Oral Communication Strategy Inventory (OCSI), a scale developed by Nakatani (2006), which has been widely applied in the context of EFL learners (Nguyen et al., 2022; Nowak & Przybył, 2023; Rayati et al., 2022; Sausan, 2023; Widianti, 2024). Nakatani's (2006) scale consists of 32 questions, offering a detailed classification of speaking strategies, including Social Affective, Fluency-Oriented, Negotiation for Meaning, Accuracy-Oriented, Message Reduction, Nonverbal, Message Abandonment, and Attempt to Think in English strategies. Metcalfe & Noom-Ura (2013) stated that since the OCSI was initially developed in Japanese, the English version published by Nakatani (2006) contains complex vocabulary that may hinder comprehension among EFL learners. However, the questionnaire developed by Nakatani (2006) is still a model for many researchers to refer to (Kusuma & Adamson, 2020; Luque, 2023; Shirkhani & Meigouni, 2020). For example, the study by Wright et al. (2022) adapted Nakatani's (2006) design by balancing six listening and six speaking strategies for between-mode comparisons, maintaining high internal consistency, and focusing on meaning vs. form distinctions, and two strategies were reframed to allow for comparability while adjusting for listening and speaking in English.

*Previous Instruments Developed on Speaking Anxiety*

Horwitz et al. (1986) developed the Foreign Language Classroom Anxiety Scale (FLCAS), consisting of 33 items designed to measure students' self-reported anxiety levels. The scale categorizes anxiety into three primary dimensions: fear of negative evaluation, communication apprehension, and test anxiety. Building on this framework, Aida (1994) conducted a factor analysis of the FLCAS to explore the underlying structure of its 33 items, subsequently adapting the scale to assess learning anxiety among Japanese students. Aida's analysis revealed four factors: speech anxiety, fear of failure, comfort, and negative attitudes. Pérez-Paredes and Martínez-Sánchez (2000-2001), referencing Aida's work, applied the Spanish version of the FLCAS, identifying four distinct factors: communication apprehension, anxiety related to language learning processes and situations, comfort with using English both inside and outside the classroom, and negative attitudes toward language learning. Tóth (2008) further analyzed the FLCAS in the context of Hungarian learners of English, identifying four key factors of foreign language anxiety: speaking apprehension, fear of negative evaluation, fear of inadequate performance, and classroom-related anxiety, with the first factor encompassing most items related to speaking performance and fear of negative evaluation. In addition to these scholars, the questionnaire developed by Horwitz et al. (1986) continues to serve as a key instrument for assessing speaking anxiety in numerous recent studies (Dellah et al., 2020; Kabigting & Nanud, 2020; Paneerselvam & Yamat, 2021). Despite variations in the dimensional frameworks proposed by these researchers, their findings consistently identify four core factors of foreign language anxiety: speaking apprehension, fear of negative evaluation, fear of inadequate performance, and classroom-related anxiety.

*Previous Instruments Developed on learning motivation*

Zubairi and Sarudin (2009) assessed learners' motivation to study a foreign language using 16 questions that examined both intrinsic and extrinsic factors. Similarly, Dhanapala and Hirakawa (2016) categorized students' learning motivation into internal and external dimensions. In recent years, many scholars have continued to classify EFL learners' motivation into two main types: intrinsic and extrinsic motivation (Erniyati & Putra, 2022; Kulusakli, 2021; Salehpour & Roohani, 2020; Santovac & Popović, 2022). For instance, Pranawengtias (2022) measured the motivation of undergraduate students at an Indonesian university to learn English by dividing it into intrinsic and extrinsic components, utilizing 30 questions for the assessment. In contrast to these studies, Aydin et al. (2014) provided a more detailed categorization of motivation in the context of biology learning, using 19 questions to assess four distinct factors: intrinsic motivation, extrinsic motivation, extrinsic career motivation, and extrinsic social motivation.

*Previous Instruments Developed on Learning Attitude*

Abidin et al. (2012) developed a 45-item attitude questionnaire, drawing on prior research (Boonrangsri et al., 2004; Gardner, 1985) and teaching experiences, to assess participants' attitudes toward learning English. The questionnaire measured three key dimensions of attitude: behavioral, cognitive, and emotional, using a 5-point Likert scale. Similarly, Tran (2020) employed 12 questions to evaluate learning attitudes by focusing on cognitive and affective-behavioral components. Ahmed et al. (2021) also assessed students' attitudes toward learning English with 10 questions, examining the cognitive, behavioral, and emotional aspects. Ali Ahmed et al. (2021) used 10 questions to measure learners' cognitive, behavioral, and emotional aspects of learning. In recent years, numerous studies have continued to explore and measure learning attitudes based on these three dimensions (Al-Muslimawi & Al-Shamarti, 2023; Al-Obaydi et al., 2023; Ghanizadeh et al., 2020; Yuliani et al., 2023). However, while most studies cover the same dimensions, the number of measurement items tends to be smaller compared to Abidin et al. (2012), making their survey questionnaire more comprehensive in capturing learners' learning experiences.

*Research Gap*

Although various scales have been developed to assess speaking strategies and language anxiety among EFL learners, certain gaps remain in the literature. For instance, Nakatani's (2006) OCSI has been widely adopted, but its complexity, particularly for non-native speakers, can limit its applicability in different cultural and linguistic contexts. Moreover, despite modifications and adaptations, such as those by Wright et al. (2022), no unified framework has emerged that fully balances both speaking and listening strategies across different EFL contexts. Additionally, while Horwitz et al.'s (1986) Foreign Language Classroom Anxiety Scale (FLCAS) remains a cornerstone for measuring language anxiety, most studies focus on anxiety in classroom settings, with limited exploration of anxiety during real-life communication outside the classroom. Furthermore, although the intrinsic and extrinsic dimensions of learner motivation are well-established, detailed classifications, such as those presented by Aydin et al. (2014), have not been sufficiently applied to speaking strategies research. Lastly, while attitudes toward language learning are often measured using behavioral, cognitive, and emotional dimensions (Abidin et al., 2012), there is a need for a more comprehensive tool that integrates these attitudes with specific speaking strategies and anxiety factors. This study aims to address these gaps by developing a comprehensive questionnaire that integrates speaking strategies, anxiety, motivation, and attitudes to provide a more holistic understanding of EFL learners' speaking experiences.

*Purpose of the Study*

# The purpose of this study is to develop a comprehensive questionnaire that integrates speaking strategies, speaking anxiety, learning motivation, and learning attitudes among EFL learners. Building on existing frameworks such as Nakatani's (2006) OCSI and Horwitz et al.'s (1986) FLCAS, this study aims to address gaps in the literature by creating a tool that not only captures speaking strategies but also accounts for real-life communication anxiety, a detailed classification of learner motivation, and a holistic view of attitudes toward language learning. By combining these elements, the study seeks to provide a more in-depth understanding of the factors influencing EFL learners' speaking experiences across diverse educational and cultural contexts.

**METHODOLOGY**

This study employed a pilot research design aimed solely at developing and validating a questionnaire. The primary objective was not to test hypotheses or analyze relationships among variables, but rather to ensure that the instruments designed to measure speaking strategies, speaking anxiety, learning motivation, and learning attitude were both reliable and valid for use in future large-scale investigations*.*

*Process for Developing the Instruments*

A five-phase model for the questionnaire development process, established by Meerah et al. (2012), was utilized (see Figure 1).



Figure 1: Five-phase Model (adapted from Meerah et al. (2012))

1. *Phase I*

Conduct an extensive literature review to outline the direction of the questionnaire on speaking strategies, speaking anxiety, learning motivation, and learning attitudes. The study identified several deficiencies in the survey questionnaires about speaking strategies, speaking anxiety, learning motivation, and learning attitudes. For instance, Nakatani's (2006) classification of speaking strategies reveals an imbalance, with some dimensions comprising six measurement items while others include only two. A similar inconsistency is observed in the measurement of speaking anxiety. Additionally, certain expressions used to assess attitude and motivation are excessively similar, resulting in potential overlaps that may not accurately capture the respondents' true sentiments.

1. *Phase II*

Provide operational definitions for speaking strategies, speaking anxiety, learning motivation, and learning attitudes. The operational definitions of the constructs are as follows:

1. Speaking strategies: The direct and indirect strategies used by non-English major students when speaking English.
2. Speaking anxiety: The tense emotions felt by non-English major students when speaking English.
3. Learning motivation: The combination of intrinsic interest, lack of interest (amotivation), career-related goals, and social recognition drives non-English major students' engagement in learning English.
4. Learning attitudes: The set of beliefs learners hold towards language learning, which consists of behavioral, cognitive, and affective aspects.

Clear and well-justified instruments are essential for obtaining accurate and reliable results when computing variables. In this study, several items were adapted from previously developed questionnaires on speaking strategies, speaking anxiety, learning motivation, and learning attitudes. For example, the item “When I can’t think of a word, I use mime to try and convey the meaning” was revised to “I use mime to try and convey the meaning when I can’t think of a word,” ensuring a clearer and more precise expression. This modification aligns with recommendations from previous research (Derrick, 2016), which emphasizes the importance of clear phrasing in language learning instruments to reduce potential confusion. Some speaking anxiety items, which contained multiple pieces of information, were split into separate items. For instance, the item “I get nervous and confused when I am speaking in my language class” was separated into “I am nervous when I am speaking in my English class” and “I am confused when I am speaking in my English class” to improve clarity and focus. This change is consistent with suggestions from item analysis studies (DeVellis & Thorpe, 2021), which argue that splitting multi-faceted items can improve response accuracy by ensuring each construct is measured independently. Similarly, for learning motivation, the item “I enjoy making discussions on biology subjects” was modified to “I enjoy making discussions in English” to better align with the study’s focus. This revision ensures that the item more directly reflects the study's emphasis on language learning motivation, aligning with earlier research that advocates for instrument alignment with the specific context (Yang, 2023). The learning attitude items were also modified for clarity; for example, “Studying English is important because it will make me more educated” was changed to “I think studying English is important because it will make me more educated.” This adjustment clarifies the subject's perspective and reduces the likelihood of misinterpretation. These revisions were made to enhance the precision of the instrument and ensure that the items accurately capture the intended constructs. After these modifications, the final questionnaire consisted of 146 measurement items. However, it is important to note that some item revisions were made without detailed empirical reasoning or cognitive testing, which could be considered a limitation in justifying the changes. Future research could benefit from more rigorous cognitive testing or empirical validation of these revisions to strengthen the instrument's validity.

1. *Phase III*

Inviting two experts in the field of applied linguistics determines the validity of the questionnaire's content. Inviting experts to review a questionnaire is crucial for ensuring content validity, question clarity, and overall reliability (Leon et al., 2020). Experts help verify that the questionnaire comprehensively covers the study's objectives, eliminates ambiguities, and ensures technical accuracy (Rea & Parker, 2014). Their review enhances the relevance and construct validity of the questions, refines the instrument before pilot testing, and boosts the research's credibility by demonstrating a commitment to thorough and accurate data collection (Gehlbach & Brinkworth, 2011). In this present study, two experts from the field of applied linguistics were involved in the validation process of the questionnaires. The experts have adjusted the Chinese and English expressions in the questionnaire to better align with the understanding of non-English major students in China.

1. *Phase IV*

Following adjustments, the final questionnaire was developed. During this phase, all items were thoroughly reviewed once more, and a 5-point Likert scale was incorporated into the questionnaire. After meticulous and repeated evaluations, the final version of the questionnaire was established.

1. *Phase V*

A pilot survey questionnaire was conducted on 60 Chinese non-English major students, and the reliability was assessed.

# *Participants*

The participants for this study have been drawn from a cohort of non-English major undergraduate students enrolled at a university in China. This cohort consists of freshmen and sophomores for whom English is not a mandatory component of their academic curriculum. Despite the non-compulsory nature of English instruction, these participants exhibit homogeneous educational backgrounds and share comparable experiences in English language acquisition. The sample included 27 males and 33 females, with 34 freshmen and 26 sophomores. Among them, 19 participants are majoring in humanities, 20 in science and engineering, and 21 in business and social sciences. Their selection into the university indicates a certain level of academic proficiency and commitment to higher education, making them an appropriate sample for investigating the targeted variables within the realm of English language learning.

*Development of research instruments*

The research instruments employed in this study comprise a survey questionnaire designed to assess various dimensions of EFL speaking strategies, speaking anxiety, learning motivation, and learning attitudes. The construction of the survey questionnaire drew upon established literature in the field. Specifically, the items of speaking strategy were adapted from seminal works by Chuanchaisit and Prapphal (2009), Metcalfe and Noom-Ura (2013), Nakatani (2006), and Sun et al. (2016). Similarly, items related to speaking anxiety were derived from studies conducted by Aydin (2008), Aydin (2014), and Horwitz et al. (1986). Learning attitude items were adapted from the research of Abidin et al. (2012), while learning motivation items were sourced from studies by Aydin et al. (2014), Schreglmann (2018), Lim (2012), and Selvarajah et al. (2021).

The administration of the survey questionnaire took place via face-to-face interactions, with the informed consent of all participants secured before their involvement in the study. The sample size consisted of 60 participants, evenly divided into two groups of 30 individuals each, who responded in sequential batches. The survey questionnaire comprised two types of questions: multiple-choice questions addressing participants' demographic information and questions on the variables measured using a 5-point Likert scale. On the Likert scale, respondents indicated their level of agreement with statements, with SD denoting "strongly disagree," D indicating "disagree," N signifying "neutral," A representing "agree," and SA indicating "strongly agree.".

1. *Speaking Strategies*

The classification of speaking strategies utilized in this study aligns with Nakatani's (2006) taxonomy of English as an EFL learners' Oral Communication Strategy Inventory (OCSI). Nakatani provides a detailed classification of speaking strategies, including Social Affective Strategies, Fluency-Oriented Strategies, Negotiation for Meaning while Speaking, Accuracy-Oriented Strategies, Message Reduction and Alteration Strategies, Nonverbal Strategies while Speaking, Message Abandonment Strategies, and Attempt to Think in English (Table 1). These detailed strategies comprehensively measure different speaking methods; therefore, this study adopts Nakatani's (2006) 36-item questionnaire for assessing speaking strategies. However, given that some speaking strategies, such as “Attention to Think in English,” are represented by only two types of measurement questions” I think first of a sentence I already know in English and then try to change it to fit the situation” and “I think of what I want to say in my native language and then construct the English sentence” additional measures have been deemed necessary. To enhance the measurement standards of these strategies, the research instruments also incorporate elements from the works of Chuanchaisit and Prapphal (2009), Metcalfe and Noom-Ura (2013), and Sun et al. have also been adapted. Furthermore, certain questions have been modified to better align with the comprehension levels of Chinese students, resulting in a refined questionnaire containing 45 items.

Table 1: Questionnaire of speaking strategies

|  |  |  |
| --- | --- | --- |
| **Dimension** | **Number of questions** | **Source** |
| Social Affective Strategies | 6 | Nakatani (2006) |
| Fluency-Oriented Strategies | 6 | Nakatani (2006) |
| Negotiation for Meaning while Speaking | 5 | Nakatani (2006); Sun et al. (2016) |
| Accuracy-Oriented Strategies | 6 | Nakatani (2006) |
| Message Reduction and Alteration Strategies | 6 | Nakatani (2006); Chuanchaisit & Prapphal (2009) |
| Nonverbal Strategies while Speaking | 6 | Nakatani (2006); Metcalfe & Noom-Ura (2013) |
| Message Abandonment Strategies | 5 | Nakatani (2006); Metcalfe & Noom-Ura (2013) |
| Attempt to Think in English | 5 | Nakatani (2006); Sun et al. (2016) |

1. *Speaking Anxiety*

This study references Horwitz et al.'s (1986) questionnaire due to its comprehensive and seminal taxonomy for delineating dimensions of speaking anxiety, as outlined in their "Foreign Language Classroom Anxiety" measurement scale. This scale categorizes speaking anxiety into six distinct types: Interaction Anxiety, Audience Anxiety, Confidence Anxiety, Language Proficiency Anxiety, Negative Evaluation Anxiety, and Test Anxiety (Table 2). By employing this well-established framework, the study ensures a robust and nuanced measurement of speaking anxiety, facilitating a thorough exploration of its various facets and their impact on English language learning. Furthermore, to enhance the comprehensiveness of the measurement scale utilized in this study, measurement items have been sourced and adapted from the works of Aydin (2008) and Aydin (2014). Following adjustments and modifications, a total of 30 items have been retained for inclusion in the measurement scale.

Table 2: Questionnaire of speaking anxiety

|  |  |  |
| --- | --- | --- |
| **Dimension** | **Number of questions** | **Source** |
| Interaction Anxiety | 5 | Horwitz et al. (1986) |
| Audience Anxiety | 5 | Horwitz et al. (1986) |
| Confidence Anxiety | 5 | Horwitz et al. (1986) |
| Language Proficiency Anxiety | 5 | Horwitz et al. (1986) |
| Negative Evaluation Anxiety | 5 | Horwitz et al. (1986), Aydin (2008) |
| Test Anxiety | 5 | Horwitz et al. (1986), Aydin (2014) |

1. *Learning Motivation*

The classification of learning motivation dimensions in this study is based on Aydin et al.'s (2014) "Academic Motivation Scale for Learning Biology," which categorizes motivation into four distinct types: Intrinsic Motivation, Amotivation, External Motivation - Career, and External Motivation - Social. The choice of Aydin et al.'s scale is motivated by its divergence from the traditional classification of intrinsic and extrinsic motivation used by many predecessors, as it incorporates Amotivation. Additionally, it more specifically divides extrinsic motivation into two categories: occupational and social (Table 3). Utilizing Aydin et al. (2014)'s scale allows for a more nuanced understanding of motivation across various contexts and domains. Furthermore, to enhance the comprehensiveness of the measurement scale used in this study, measurement items were sourced and adapted from the works of Schreglmann (2018), Lim (2012), and Selvarajah et al. (2021). Following adjustments and refinements, a total of 22 items were retained for inclusion in the measurement scale.

Table 3: questionnaire of learning motivation

|  |  |  |
| --- | --- | --- |
| **Dimension** | **Number of questions** | **Source** |
| Intrinsic Motivation | 6 | Aydin et al. (2014) |
| Amotivation | 6 | Aydin et al. (2014), Schreglmann (2018) |
| External Motivation - Career | 5 | Aydin et al. (2014), Lim (2012) |
| External Motivation - Social | 5 | Aydin et al. (2014), Selvarajah et al.,(2021) |

1. *Learning Attitude*

The decision to adopt Abidin et al.'s (2012) survey questionnaire is based on its well-established framework for categorizing learning attitudes among EFL students. Their measurement scale, EFL Students' Attitudes towards Learning English Language, systematically classifies three distinct types of attitudes: affective, behavioral, and cognitive. This comprehensive categorization provides a structured approach to understanding how students perceive and engage with the process of learning English, encompassing emotional, behavioral, and cognitive dimensions. By utilizing Abidin et al.'s scale, this study ensures a thorough assessment of the various facets of learning attitudes relevant to EFL contexts. The adaptation and refinement of their questionnaire to include 49 items further enhance its applicability and relevance to the specific research objectives (Table 4). This approach not only facilitates a detailed exploration of students' attitudes toward learning English but also supports the development of targeted interventions and educational strategies aimed at improving learning outcomes. Overall, Abidin et al.'s scale offers a robust foundation for examining and interpreting the complex interplay between attitudes and language learning processes among EFL students.

Table 4: Questionnaire of learning motivation

|  |  |  |
| --- | --- | --- |
| **Dimension** | **Number of questions** | **Source** |
| Affective Attitude | 17 | Abidin et al. (2012) |
| Behavioral Attitude | 16 |
| Cognitive Attitude | 16 |

Given that the participants were Chinese students, the survey questionnaire was designed in a bilingual format, incorporating both Chinese and English to facilitate comprehension. To ensure the accuracy and fidelity of the translation, two professors specializing in English language teaching from a reputable Chinese university conducted a comprehensive review of the questionnaire. After this rigorous review process, the final version of the questionnaire was completed. During the on-site administration of the survey, 39 students expressed uncertainty regarding whether the term "native language" in the EFL Learning Attention questionnaire referred to dialects or Standard Chinese. In response, adjustments were made to clarify this ambiguity. Ultimately, a total of 60 valid responses were collected.

# *Data Collection Procedure*

The data for this study were collected in a single day from first- and second-year non-English major undergraduate students at a university in China. Prior to administering the questionnaire, the researchers provided a detailed explanation of the study's purpose and the privacy protection policy. Participants were then given a consent form, which they all signed, indicating their informed consent to participate in the study. To facilitate the efficient management of participants and ensure timely feedback on the survey, the 60 participants were divided into two groups, completing the questionnaire sequentially. During data collection, 39 participants expressed uncertainty regarding the term "mother tongue" in the learning attitudes section, specifically whether it referred to dialects or Mandarin. To address this, the researchers clarified that "mother tongue" referred to Mandarin Chinese.

The survey instrument was structured into five sections. The first section focused on demographic information, while the remaining four sections assessed the core areas of interest: speaking strategies, speaking anxiety, learning motivation, and learning attitudes. Participants were allocated 40-45 minutes to complete the questionnaire. Upon completion, the researchers prompted participants to review their responses to ensure completeness. After cleaning and organizing the data, all 60 responses were deemed valid. In conclusion, the data collection process was conducted in a supportive environment, allowing participants to seek clarification when necessary.

# *Reliability of the Instruments*

Reliability refers to the consistency and stability of a measurement instrument, indicating its ability to produce the same results under similar conditions over time (Sürücü & Maslakci, 2020). Key indicators of reliability include test-retest reliability, which assesses consistency when the same individuals are tested multiple times; internal consistency, often evaluated using Cronbach's Alpha, which examines the coherence of items within a scale; inter-rater reliability, which measures the agreement between different observers; and parallel forms reliability, which evaluates consistency across different versions of the same test. Cronbach’s Alpha is typically interpreted as follows: a value above 0.9 indicates excellent reliability, above 0.8 is good, above 0.7 is acceptable, and values below 0.7 are deemed questionable or poor (Ahady et al., 2017). Reliability contributes to data integrity by minimizing random errors and enhances the generalizability of findings across diverse populations and settings (Barnett et al., 2023). Thus, reliability is fundamental for producing accurate, trustworthy, and dependable data in research contexts.

**RESULTS AND DISCUSSION**

The primary aim of this study is to design and validate a comprehensive questionnaire that encompasses four critical constructs: speaking strategies, speaking anxiety, learning motivation, and learning attitudes (Table 5). This multifaceted approach seeks to capture the complexities of language learning experiences among students, thereby providing a robust tool for future research. To assess the reliability of the instrument, data were rigorously analyzed using Cronbach's alpha and Kaiser-Meyer-Olkin (KMO) and Bartlett’s Test within SPSS version 27.

As stated by Chen et al. (2020) and following their rule of thumb in Table 5, reliability is considered to be not reliable if it is 0.30 or below, barely reliable if it is between 0.30 and 0.40, and slightly reliable if it falls between 0.40 and 0.50. Reliability is considered acceptable within the common range of 0.50 to 0.70, very reliable between 0.70 and 0.90, and highly reliable if it exceeds 0.90.

Table 5: Classification of Reliability Coefficients and Their Credibility

|  |  |
| --- | --- |
| **Reliability Coefficient** | **Credibility** |
| reliability ≤ 0.30 | Not reliable |
| 0.30 < reliability ≤ 0.40 | Barely reliable (preliminary study) |
| 0.40 < reliability ≤ 0.50 | Slightly reliable |
| 0.50 < reliability ≤ 0.70 | Reliable (common range) |
| 0.70 < reliability ≤ 0.90 | Very reliable (second common range) |
| 0.90 < reliability | Highly reliable |

Source: Courtesy of Chen et al. (2020)

To determine the suitability of the dataset for factor analysis, the KMO Measure of Sampling Adequacy and Bartlett’s Test of Sphericity are commonly employed. The KMO index assesses whether the partial correlations among variables are small, which is a prerequisite for valid factor analysis. According to Kaiser (1974), KMO values between 0.70 and 0.79 are considered “middling,” values above 0.80 are regarded as “meritorious” or “excellent,” while values below 0.50 are deemed “unacceptable.” Bartlett’s Test of Sphericity, on the other hand, examines whether the correlation matrix significantly deviates from the identity matrix (Table 6). A statistically significant result (typically p < 0.05) indicates that the variables are sufficiently correlated to justify the application of factor analysis (Bartlett, 1954).

Table 6: Classification of Validity Coefficients and Their Credibility

|  |  |
| --- | --- |
| **KMO Value Range** | **Interpretation** |
| 0.90 to 1.00 | Marvelous / Excellent |
| 0.80 to 0.89 | Meritorious / Good |
| 0.70 to 0.79 | Middling / Average |
| 0.60 to 0.69 | Mediocre / Fair |
| 0.50 to 0.59 | Miserable / Poor |
| Below 0.50 | Unacceptable / Very Poor |

Source: Courtesy of Kaiser (1974) and Bartlett (1954)

***Speaking Strategies Questionnaire***

Table 7: Reliability of questionnaire on speaking strategies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Speaking strategies Subscales** | **Number**  **of Items** | **Cronbach’s**  **Alpha** | **Reliability** |
| 1 | Social Affective Strategies | 6 | 0.740 | Very reliable |
| 2 | Fluency Oriented Strategies | 6 | 0.802 | Very reliable |
| 3 | Negotiation for Meaning while Speaking | 5 | 0.751 | Very reliable |
| 4 | Accuracy Oriented | 6 | 0.763 | Very reliable |
| 5 | Message Reduction and Alteration Strategies | 6 | 0.769 | Very reliable |
| 6 | Non-verbal Strategies while Speaking | 6 | 0.767 | Very reliable |
| 7 | Message Abandonment Strategies | 5 | 0.771 | Very reliable |
| 8 | Attempt to Think in English Strategies | 5 | 0.742 | Very reliable |
|  | All items | 45 | 0.787 | Very reliable |

Table 7 presents the reliability analysis of the survey questionnaire for non-English major undergraduate students, comprising eight subscales, with the main speaking strategy scale containing a total of 45 items. The results indicate that all subscales of the speaking strategy scale exhibited acceptable reliability, with an overall Cronbach’s α of 0.787. According to the classification of reliability coefficients by Chen et al. (2020), this falls within the range of 0.70 < reliability ≤ 0.90, indicating a "very reliable" level. This confirms the internal consistency of the scale and supports its reliability for measuring speaking strategies. These findings are consistent with Nakatani’s (2006) OCSI, which reported an alpha value of 0.86. Similarly, Kusuma and Adamson’s (2020) speaking strategy questionnaire achieved an alpha of 0.943, indicating a highly reliable instrument. However, some researchers, such as Nowak and Przybył (2023), have identified issues with the reliability and validity of adapted questionnaires, necessitating the removal of certain items to enhance reliability. Compared to these prior studies, the current questionnaire demonstrates superior reliability, offering a robust tool for assessing speaking strategies among non-English major undergraduate students.

Table 8 shows the results of the KMO test, and Bartlett’s Test of Sphericity confirmed the suitability of the data for factor analysis. The KMO value was 0.783, which falls within the “middling” range according to Kaiser (1974), indicating a moderate level of common variance among variables and supporting the appropriateness of proceeding with factor analysis. Bartlett’s Test was significant (Chi-Square = 120.391, df = 28, p < 0.001), suggesting sufficient correlations among variables to justify factor analysis.

Table 8: KMO and Bartlett's Test on Speaking Strategies

|  |  |  |
| --- | --- | --- |
| **Kaiser-Meyer-Olkin Measure of Sampling Adequacy.** | | 0.783 |
| **Bartlett's Test of Sphericity** | **Approx. Chi-Square** | 120.391 |
| **df** | 28 |
| **Sig.** | < 0.001 |

***Speaking Anxiety Questionnaire***

Table 9: Reliability of questionnaire on speaking anxiety

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Speaking Strategies Subscales** | **Number of Items** | **Cronbach’s Alpha** | **Reliability** |
| 1 | Interaction Anxiety | 5 | 0.640 | Reliable |
| 2 | Audience Anxiety | 5 | 0.645 | Reliable |
| 3 | Confidence Anxiety | 5 | 0.621 | Reliable |
| 4 | Language Proficiency Anxiety | 5 | 0.668 | Reliable |
| 5 | Negative Evaluation Anxiety | 5 | 0.612 | Reliable |
| 6 | Test Anxiety | 5 | 0.604 | Reliable |
|  | All items | 30 | 0.674 | Reliable |

Table 9 presents the domain-specific reliability analysis of the speaking anxiety questionnaire administered to non-English major undergraduate students. This questionnaire encompasses six domains: Interaction Anxiety, Audience Anxiety, Confidence Anxiety, Language Proficiency Anxiety, Negative Evaluation Anxiety, and Test Anxiety. The overall reliability of the 30-item scale was found to be acceptable, with a Cronbach’s α of 0.674. Each of the six subscales demonstrated a reliability coefficient exceeding 0.6, indicating an acceptable reliability. Consequently, both the subscales and the full set of items were confirmed to be reliable.

These findings align with the work of Horwitz et al. (1986), who developed and validated an FLCAS based on six anxiety domains, reporting a high Cronbach’s α. Kabigting and Nanud (2020), building on Horwitz et al.’s framework, reduced the questionnaire to 31 items and reported a similarly high reliability coefficient of α = 0.87. Paneerselvam and Yamat (2021) further validated Horwitz et al.’s instrument, achieving a Cronbach’s alpha of α = 0.894. The consistently high reliability across studies, including the current one, highlights the robustness of speaking anxiety questionnaires based on Horwitz et al. (1986)’s work. This study reinforces the instrument’s efficacy in reliably measuring speaking anxiety among non-English major students, thereby contributing to the broader literature.

Table 10 presents the results of the KMO and Bartlett’s Test for Speaking Anxiety, confirming the suitability of the data for factor analysis. The KMO value for Speaking Anxiety was 0.739, which falls within the “middling” range according to Kaiser (1974), indicating an adequate level of sampling adequacy for factor analysis. Bartlett’s Test of Sphericity was significant (Chi-Square = 45.55, df = 28, p < 0.001), suggesting that there are sufficient correlations among the variables related to Speaking Anxiety to support the application of factor analysis.

Table 10: KMO and Bartlett's Test on Speaking Anxiety

|  |  |  |
| --- | --- | --- |
| **Kaiser-Meyer-Olkin Measure of Sampling Adequacy.** | | 0.739 |
| **Bartlett's Test of Sphericity** | **Approx. Chi-Square** | 45.55 |
| **df** | 28 |
| **Sig.** | < 0.001 |

***Learning Motivation Questionnaire***

Table 11: Reliability of questionnaire on learning motivation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Speaking Strategies Subscales** | **Number of Items** | **Cronbach’s Alpha** | **Reliability** |
| 1 | Intrinsic Motivation | 6 | 0.745 | Very reliable |
| 2 | Amotivation | 6 | 0.684 | Reliable |
| 3 | External Motivation - Career | 5 | 0.694 | Reliable |
| 4 | External Motivation - Social | 5 | 0.751 | Very reliable |
|  | All items | 22 | 0.775 | Very reliable |

Table 11 presents the domain-specific reliability analysis of the learning motivation questionnaire administered to non-English major undergraduate students. The 22-item scale demonstrated a high level of reliability, with an overall Cronbach’s α of 0.775. Among the four subscales, Intrinsic Motivation (α = 0.745) and External Motivation - Social (α = 0.751) exhibited very high reliability (α > 0.75), while Amotivation (α = 0.684) and External Motivation - Career (α = 0.694) showed acceptable reliability (α > 0.68), indicating a strong internal consistency across the scale. These results are consistent with the findings of Aydin et al. (2014), who reported reliability values of α = 0.875 for Intrinsic Motivation, α = 0.841 for Amotivation, α = 0.844 for External Motivation - Career, and α = 0.736 for External Motivation - Social, concluding that the motivation scales demonstrated good reliability.

Although limited research has been conducted using the same dimensions as Aydin et al. (2014), various studies employing learning motivation questionnaires that assess both internal and external motivation have reported similarly satisfactory reliability. For instance, Salehpour and Roohani (2020) found a Cronbach’s alpha of 0.76, while Hsu (2017) reported values of 0.75 for Extrinsic Motivation and 0.67 for Intrinsic Motivation. Similarly, Vakilifard et al. (2021) reported a reliability coefficient of 0.79. These findings suggest that motivation scales, particularly those measuring both intrinsic and extrinsic components, consistently demonstrate strong internal consistency across different studies.

Table 12 reports the results of the KMO Measure of Sampling Adequacy and Bartlett’s Test of Sphericity for Learning Motivation, both of which confirm the appropriateness of the data for factor analysis. The KMO value for Learning Motivation was 0.762, which falls within the “middling” range according to Kaiser (1974), suggesting a moderate level of sampling adequacy for conducting factor analysis. Furthermore, Bartlett’s Test of Sphericity yielded a significant result (Chi-Square = 61.375, df = 6, p < 0.001), indicating that the correlation matrix differs significantly from the identity matrix, thus demonstrating that the variables related to Learning Motivation are sufficiently interrelated to justify the application of factor analysis.

Table 12: KMO and Bartlett's Test on Learning Motivation

|  |  |  |
| --- | --- | --- |
| **Kaiser-Meyer-Olkin Measure of Sampling Adequacy.** | | 0.762 |
| **Bartlett's Test of Sphericity** | **Approx. Chi-Square** | 61.375 |
| **df** | 6 |
| **Sig.** | < 0.001 |

***Learning Attitude Questionnaire***

Table 13: Reliability of questionnaire on learning attitude

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Speaking Strategies Subscales** | **Number of Items** | **Cronbach’s Alpha** | **Reliability** |
| 1 | Cognitive | 16 | 0.675 | Reliable |
| 2 | Behavioral | 16 | 0.725 | Very reliable |
| 3 | Affective (Emotional) | 17 | 0.767 | Very reliable |
|  | All items | 49 | 0.796 | Very reliable |

Table 13 demonstrates the high reliability of the questionnaire assessing non-English major undergraduate students' attitudes toward learning English, with all items exhibiting strong internal consistency. The Learning Attitude Questionnaire achieved an overall Cronbach’s α of 0.796, indicating very high reliability. Among the three subscales, Affective (Emotional) (α = 0.767) and Behavioral (α = 0.725) demonstrated very high reliability (α > 0.70), while Cognitive (α = 0.675) showed acceptable reliability (α > 0.67), suggesting slightly lower but still sufficient internal consistency. These findings confirm that the questionnaire effectively captures distinct dimensions of learning attitudes with stable and reliable measurement properties. These findings align with Abidin et al. (2012), who reported an overall Cronbach’s alpha of 0.878, indicating acceptable reliability. The reliability coefficients for the three attitude dimensions—behavioral, cognitive, and emotional—were 0.731, 0.772, and 0.677, respectively, reflecting adequate internal consistency.

Furthermore, Al Obaydi et al. (2023) confirmed the validity of these three dimensions, reporting an overall reliability coefficient of 0.936. Similarly, Gregory and Noto (2018) reported a reliability of 0.8. Katsantonis and Katsantonis (2024) clarified that the Cronbach's alphas for the cognitive, behavioral, and emotional dimensions in their study were 0.905, 0.956, and 0.924, respectively, further supporting the robustness of attitude scales in measuring students' learning attitudes.

Table 14 presents the results of the KMO Measure of Sampling Adequacy and Bartlett’s Test of Sphericity for Learning Attitude, both of which confirm the suitability of the data for factor analysis. The KMO value for Learning Attitude was 0.70, which falls within the “middling” range according to Kaiser (1974), indicating a moderate level of sampling adequacy for factor analysis. Additionally, Bartlett’s Test of Sphericity produced a significant result (Chi-Square = 54.376, df = 3, p < 0.001), suggesting that the correlation matrix significantly deviates from the identity matrix, thus confirming that the variables related to Learning Attitude are sufficiently interrelated to support the application of factor analysis.

Table 14: KMO and Bartlett's Test on Learning Attitude

|  |  |  |
| --- | --- | --- |
| **Kaiser-Meyer-Olkin Measure of Sampling Adequacy.** | | 0.70 |
| **Bartlett's Test of Sphericity** | **Approx. Chi-Square** | 54.376 |
| **df** | 3 |
| **Sig.** | < 0.001 |

**CONCLUSION**

This study aimed to develop and validate questionnaires assessing speaking strategies, speaking anxiety, learning motivation, and learning attitudes. The results indicated that all four instruments demonstrated high reliability, confirming their suitability for the intended research. These findings are significant as they addressed potential ambiguities related to the data collection process and familiarized the researcher with the procedural aspects of the main study. The primary objective of the pilot study was to enhance both the efficiency and quality of the subsequent full-scale study while broadening the researcher’s practical experience (Pearson et al., 2020). Additionally, Teresi et al. (2022) underscored the value of pilot studies in identifying unforeseen issues that may compromise the flow and integrity of the main investigation. Furthermore, this study successfully developed and validated instruments that can be utilized in the main research, with the validation process serving as a reference for future scholars. This study holds significant value for the scientific community, particularly in the field of language education, by contributing to the development and validation of reliable instruments for assessing speaking strategies, speaking anxiety, learning motivation, and learning attitudes. These constructs are crucial components of language learning and can offer insights into the factors influencing learners' language proficiency. While the study primarily focuses on the validation process of the questionnaires, it lays a strong foundation for future research that can utilize these tools to explore the dynamics of language learning. By offering a systematic and empirical approach to questionnaire development, this research enhances the methodological rigor in language education studies and provides a valuable resource for scholars seeking to further investigate the complexities of language acquisition. The pilot study provided critical insights regarding the adequacy of research tools, the feasibility of the main study, and the financial considerations associated with its implementation. However, certain limitations should be noted. First, the data were collected exclusively from first- and second-year university students, which may limit the generalizability of the findings. Future research is encouraged to incorporate larger and more diverse samples. Second, only Cronbach’s alpha was employed to assess the reliability of the questionnaires; subsequent studies might consider employing additional reliability measures, such as inter-rater reliability or split-half reliability techniques. Lastly, the questionnaire was adapted and validated within the specific context of China and the aims of this research. Future researchers are advised to further adapt and validate these instruments in alignment with their own research contexts and objectives.

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1.

2.

3.

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