

The Impact of Anxiety Level Changes on Foreign Language Learning in College Freshmen

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Abstract—College freshmen have experienced dynamic changes in four types of anxiety—environmental adaptation, classroom learning, time management, and learning efficacy—during their adjustment to university life, which systematically hinders foreign language acquisition. Using a literature review combined with a two-phase retrospective questionnaire survey (Phase I: September-October; Phase II: November-January), this paper explores the synergistic evolution of multidimensional anxiety and its impact mechanisms on language learning outcomes throughout the critical adaptation period (3–5 months post-enrollment). The study concludes that while anxiety levels generally decreased over time, time management anxiety showed a significant rebound during high-pressure final examinations; crucially, time management anxiety was found to have the strongest negative correlation with learning outcomes ($r = 0.443$), followed by efficacy anxiety ($r = 0.364$). Additionally, exam anxiety in the final period could trigger cross-dimensional chain reactions—transforming time pressure into self-efficacy doubts and thereby elevating affective filters. These findings provide a basis for targeted interventions, particularly enhanced end-of-term support for time management and long-term mechanisms to alleviate efficacy anxiety.

Keywords—freshmen anxiety dynamics, foreign language learning interference, multidimensional anxiety synergy

I. INTRODUCTION

Freshmen commonly experience dynamic fluctuations in four types of anxiety—environmental adaptation, classroom learning, time management, and learning efficacy—while adjusting to new environments, academic pressures, and self-regulation. Existing research confirms that such anxiety systematically hinders foreign language input efficiency by dispersing cognitive resources and inhibiting learning motivation [1]. While mechanisms of single-dimension anxiety have been preliminarily elucidated—such as environmental anxiety reducing language practice opportunities [2] or time anxiety leading to shallow processing [3]—current studies exhibit significant limitations. Critically, most findings fail to focus on the 3–5-month adaptation period post-enrollment, overlooking differential fluctuations in multidimensional anxiety, including potential anomalous intensification

during specific stages. Furthermore, the prevailing isolated analysis of single dimensions cannot explain interactive effects between anxieties (e.g., whether time pressure triggers self-efficacy doubts) nor determine their relative impact on foreign language learning behaviors like time investment or outcomes such as academic performance. Should this multidimensional dynamic mechanism remain unexamined, theoretical models like the Affective Filter Hypothesis will lack precision in predicting episodic learning disruptions; practically, educational interventions risk misallocating resources by neglecting critical pressures like surging time anxiety during finals. Consequently, this study aims to delineate evolutionary trajectories of these four anxieties, examine their synergistic mechanisms, and analyze relative influence weights to identify dominant factors during critical adaptation windows.

The significance of this study is to reveal the dynamic evolution of multidimensional anxiety and its synergistic mechanism during the critical adaptation period (3–5 months) of university freshmen, filling the gap in the research on the uniqueness and systematic interaction of early anxiety. Theoretically, it can help construct a multidimensional anxiety interaction model to analyze its comprehensive impact on foreign language acquisition, and practically, it can provide a basis for optimizing the support system for new students, so as to systematically reduce the emotional barrier to language learning.

II. THEORIES AND LITERATURE

The freshman stage of university is commonly accompanied by significant anxiety and emotions, and this psychological state is particularly prominent in the process of language learning. The efficiency of foreign language acquisition is systematically impeded when individuals are faced with environmental adaptation, classroom pressure, time management challenges, and self-efficacy doubts. Existing research confirms that anxiety reduces the effective absorption of language input by interfering with the allocation of cognitive resources and inhibiting learning motivation. This review focuses on four key anxiety dimensions and analyses their specific impact on language learning.

A. Theoretical Foundation

This study anchors itself in three foundational theories

to address multidimensional anxiety dynamics. The Affective Filter Hypothesis [1] establishes anxiety as the core variable impeding language input internalization, where fluctuations in multidimensional anxiety dynamically modulate filter intensity. Complementing this framework, Cognitive Load Theory [3] elucidates mechanisms underlying anxiety surges during task-overloaded phases and their disruptive effects on cognitive resource allocation. Simultaneously, Self-Efficacy Theory [4] provides critical insight into how learning efficacy anxiety perpetuates harm through self-reinforcing motivation decline—behavioral avoidance cycles.

Theoretically, the four-dimensional anxiety framework employed in this study is explicitly rooted in this cross-theoretical integration: environmental adaptation and classroom learning anxieties are delineated based on the Affective Filter Hypothesis' emphasis on emotional barriers to input; time management anxiety is operationalized through Cognitive Load Theory's focus on task-induced cognitive resource competition; and learning efficacy anxiety is defined by Self-Efficacy Theory's construct of perceived capability and motivational regulation. This theoretical triangulation not only provides a robust basis for dimension definition but also paves the way for constructing a dynamic coexistence model of multidimensional anxiety.

Based on this integrated theoretical foundation, this research endeavors to transcend the limitations of unidimensional analysis by constructing a dynamic coexistence model of multidimensional anxiety. This model will investigate how environmental, classroom, time management, and efficacy anxieties interact over time and identify the dominant influencing dimensions during critical adaptation periods. For instance, certain anxieties (such as time management or efficacy anxiety) may have a stronger predictive power over foreign language learning outcomes. This integration aims to explore the gaps in the existing research on the synergy mechanisms of multidimensional anxiety.

B. Literature Review

Empirical research by Wolter *et al.* [2] indicates that international freshmen often exhibit social avoidance behaviors due to cultural differences, resulting in missed opportunities to practice with native speakers; Phillips [5] further points out that students during the environmental adaptation period participate in language interaction activities at a frequency three times lower than low-anxiety groups, directly limiting access to comprehensible input. More importantly, Macher *et al.* [6] found through cognitive testing that the attentional resources consumed by freshmen adapting to the campus environment impair text analysis capabilities, making deep processing of classroom language input difficult.

1) The effects of environmental anxiety on language learning

Wolter *et al.*'s [2] empirical study showed that international freshmen often develop social avoidance behaviors due to cultural differences, resulting in missed

opportunities to practice with native speakers; Phillips [5] further noted that students in the environmental adjustment period engage in linguistic interaction activities three times less frequently than the low-anxiety group, directly limiting access to comprehensible input. More importantly, through cognitive testing, Macher *et al.* [6] found that the attentional resources consumed by new students in adapting to the campus environment diminish textual analysis skills, making it difficult to process classroom language input in depth.

2) The effect of classroom anxiety on language learning

The seminal study by Horwitz *et al.* [7] confirmed that 78% of foreign language freshmen refuse to speak in class due to "phonetic apprehension," creating an obstacle to input reception; Young's [8] listening experiments further indicated a 23% decrease in comprehension accuracy among highly anxious students, highlighting the interference of attentional dispersion on input processing. Krashen [1] theoretically emphasized that output avoidance severs the "input verification reinforcement" cycle, a view empirically supported by Horwitz *et al.* [7]—memory blocks triggered by test anxiety further impede input internalization.

3) The effects of time anxiety on language learning

The longitudinal survey by Trueman and Hartley [9] revealed that freshmen under multitasking pressure commonly experience procrastination and planning failures, leading to the fragmentation of language learning time; notably, Diseth's [10] strategy analysis revealed that such students are more inclined to adopt surface-level methods like rote memorization, significantly reducing input processing depth. Sweller *et al.*'s [3] cognitive load theory explains this: end-of-semester task overload (anxiety levels rising from 2.64 to 2.77) forces working memory into overload, causing input to remain at a shallow processing stage.

4) The effect of efficacy anxiety on language learning

Bandura's [4] classic research first elucidated that "ability fixation" beliefs trigger a decline in language learning motivation; Alkış and Taşkaya-Temizel's [11] empirical data reinforced this conclusion: low self-efficacy students accessed learning resources 40% less frequently. More profoundly, Pajares [12], through longitudinal research, found that self-doubt triggers a "pre-judged failure → behavioral avoidance → ability stagnation" closed loop, continuously elevating the strength of the affective filter, ultimately leading to the systematic devaluation of input value.

C. Research Gaps and Research Questions

Empirical research clearly demonstrates that environmental anxiety reduces language practice opportunities through social avoidance [2], classroom anxiety decreases input processing efficiency due to output inhibition [13], time anxiety weakens deep processing by causing fragmented learning [3], and self-efficacy anxiety diminishes input value through motivational decline [12]. These dimensions form a coexisting impact network among freshmen:

environmental stress exacerbates classroom fear [14], and time management failure reinforces self-doubt [6], collectively raising the affective filter barrier.

Current research exhibits two significant limitations: On one hand, most conclusions do not specifically target the freshman adaptation window (the first 3 months post-enrollment), overlooking the unique nature of anxiety during this cognitive restructuring period [15]. On the other hand, there is a lack of systematic analysis of the coexisting state of environmental, classroom, time, and self-efficacy anxiety dimensions, often examining single dimensions in isolation [16].

Addressing these gaps, this study employs a two-phase retrospective questionnaire (September-October and November-January) to synchronously collect data on all four dimensions of freshman anxiety, quantifying the independent impact of each dimension on learning efficacy (e.g., the correlation between time anxiety and grades). Simultaneously, it establishes baseline anxiety characteristics for the freshman cohort (e.g., environmental anxiety decreases with adaptation, while self-efficacy anxiety exhibits persistence). This work provides, for the first time, a multidimensional coexistence framework for understanding language acquisition obstacles in freshmen, laying the foundation for precise intervention.

III. METHODOLOGY

A. Experiment

This experiment adopts methods of literature review, survey and correlation analysis, aiming to investigate the relationship between freshmen's anxiety-emotional changes and their foreign language learning effects. The experimental data were collected through questionnaires; the total number of questionnaires was 101, and 53 valid questionnaires were obtained after screening. The data were analyzed using Excel, and the topics of the questionnaire were divided into four sections, in which questions 5–7 are about environmental adaptation anxiety, questions 8–10 are for classroom and study anxiety, questions 11–13 regard time management anxiety, and questions 14–16 corresponded to learning efficacy anxiety, each of which was divided into two phases, which were collected from the participants in the first half of their freshman year, September-October (Phase I) and November-January (Phase II), respectively. During data processing, the mean and total value of the main part of the questionnaire, i.e., questions 5–18, were first calculated via Excel in order to assess the level of anxiety in each section. Next, Pearson's correlation coefficients between these sections and the effect of anxiety on learning outcomes in question 22 were calculated using the CORREL function in Excel.

B. Experimental Process

The experimental process consisted of three main steps: data collection, processing and analysis.

Firstly, the focus and methodology of the study were determined through a literature review, and then a

questionnaire for freshmen was designed. The questionnaire was designed with a special focus on the effect of anxiety type on learning outcomes. The whole questionnaire consisted of five sections, three of which were anxiety-related questions and two others were basic information with open-ended questions. The questionnaire was distributed through the online questionnaire platform Questionnaire Star (add the website of Questionnaire Star here), and was collected within the specified time. Of the 101 questionnaires collected, 53 valid questionnaires were obtained after screening.

During the data processing stage, questions 5–18 of the questionnaire were statistically analyzed using Excel tools. The mean score for each section was calculated through the AVERAGE function and the total score for each section was calculated through the SUM function. These statistics provided the basis for subsequent correlation analyses. And then the CORREL function in Excel was further used to calculate Pearson's correlation coefficients between the responses of Stage 2 in the four anxiety-type sections (questions 5–18) and the effect of anxiety on learning outcomes in question 22, thus exploring the association between anxiety factors and learning outcomes.

Finally, the four open-ended questions included in the questionnaire will also be content analyzed in a follow-up article to learn more about the respondents' specific thoughts and feelings.

C. Findings

After analyzing the data from the screened 53 questionnaires, this paper found the following phenomena. In terms of the dimension of environmental adaptation, as freshmen gradually feel comfortable with their new university life and environment, their sense of loneliness due to being away from their families or friends decreases in the second stage (November-January), and they become more proficient and masterful in balancing their daily lives. So, for this dimension, the total mean of these three questions decreases from 2.72 in the first stage (first half of freshman year) to 2.437 in the second stage (first half of freshman year).

In terms of classroom and study, the data from the related three questions show that freshmen gradually adapt to the mode and rhythm of the university classroom, so the anxiety level of this dimension gradually decreases, from 2.69 in the first stage to 2.453.

Freshmen's anxiety in the time management dimension also decreased as they gradually adapted to university life and study pace, from 2.88 in the first stage to 2.86. However, for one of the questions in this dimension, "Heavy academic tasks make it difficult to balance study and rest", according to the collected data, the level of anxiety increased slightly, from 2.64 at the beginning of the semester to 2.77 at the end of the semester. However, for one of the questions in this dimension, the anxiety level increased slightly from 2.64 at the beginning of the semester to 2.77 at the end of the semester, but because the second stage includes the final stage, the freshmen's academic pressure and academic tasks increase, so the anxiety of the participants who have difficulty in

balancing study and rest will also increase.

Freshmen also showed a slight decrease in anxiety for the learning efficacy dimension, from 2.777 to 2.73. Therefore, according to the quantitative table in this section, the overall anxiety level of freshmen decreased over time in the four dimensions of the environmental adaptation dimension, the classroom and learning dimension, the time management dimension, and the learning efficacy dimension.

TABLE I. CORRELATION COEFFICIENT RANGE AND MEANING INDICATED

Correlation coefficient range	Meaning
0.7~1.0	Strong positive
0.3~0.7	Moderate positive
0.1~0.3	Weak positive
0	No correlation
-0.1~-0.3	Weak negative
-0.3~-0.7	Moderate negative
-0.7~-1.0	Strong negative

Secondly, this paper carefully analyses the questionnaire's topic of the effect of anxiety on learning effects and then correlates this part of the data with the second stage data of the four dimensions in the second part of the questionnaire through the CORREL function. The second stage of the four dimensions was chosen because it is relatively more synchronous with the period of freshmen's learning perception, which is more meaningful for correlation analysis. Table I shows the range and the meaning of the correlation coefficient.

As shown in Fig. 1, the correlation coefficients of the effect of anxiety on learning effectiveness with environmental adaptation anxiety are 0.252 and with classroom learning anxiety are 0.279, so these two dimensions are weakly positively correlated with the effect of anxiety on learning effectiveness. The correlation between time management anxiety and learning effectiveness anxiety, and the effect of anxiety on learning effectiveness are moderately positively correlated, with correlation coefficients of 0.443 and 0.364, respectively.

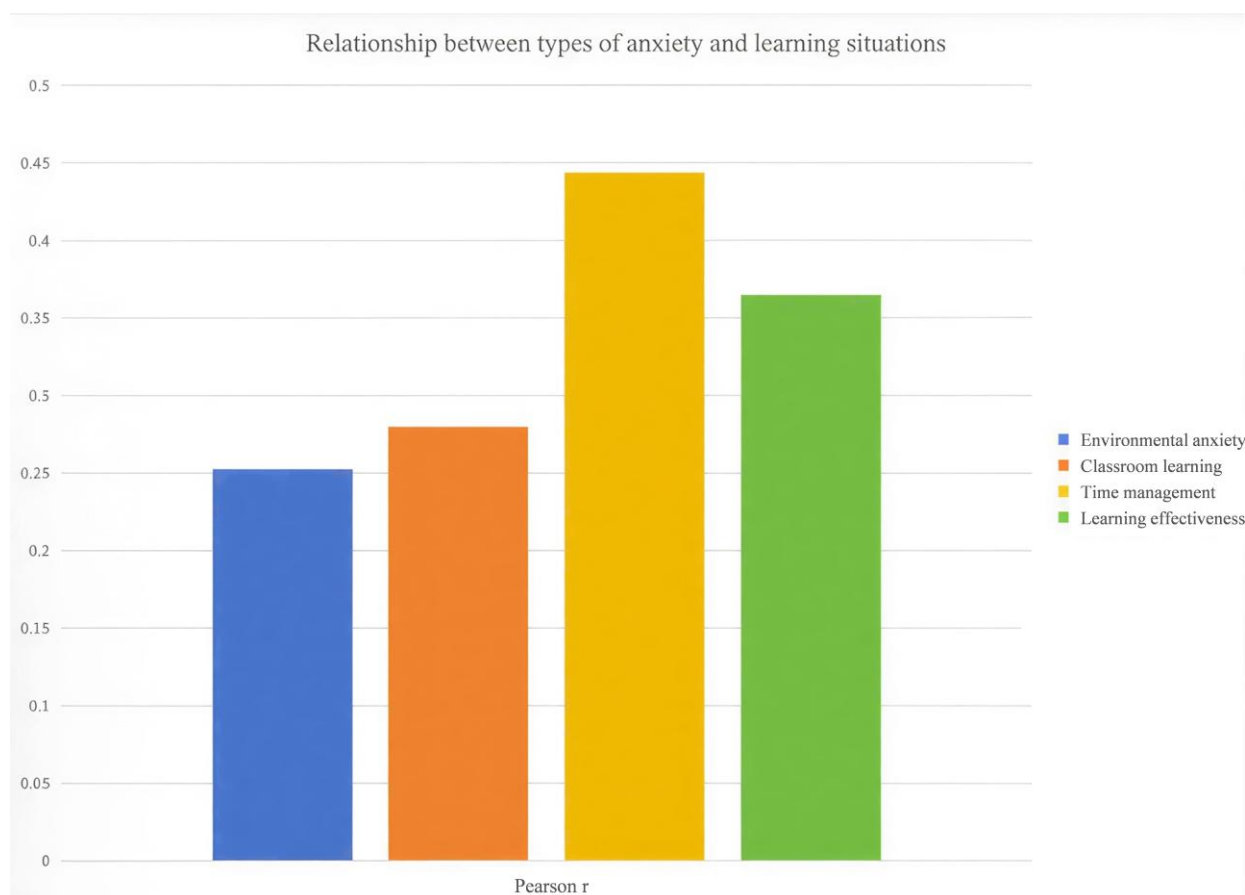


Fig. 1. Correlation coefficients between various types of anxiety and performance in English language learning.

IV. DISCUSSION

A. Open-Ended Questions

Freshmen encounter a variety of other problems when they enter school. In this questionnaire, many participants cited other anxiety factors that affect learning. Environmental adaptation anxiety initially manifests itself

in physical and social stressors such as climate differences, inadequate facilities and dormitory conflicts, but as collaborative classroom activities develop and campus life deepens, most students' anxiety of this type diminishes significantly after 2–3 months of enrolment. Classroom learning anxiety was centered on the fear of interaction (e.g., being stumped by questions, not being able to keep up with listening), and although the tension of improvised

responses decreased after the mid-term period due to the increased frequency of participation and familiarity with the teaching mode, the anxiety caused by the lack of basic competence still persisted. Time management anxiety was highlighted by the dilemma of balancing multiple roles (academics, class members, and part-time jobs), and although some students built up their initial planning ability in the middle of the semester, the pile-up of tasks at the end of the high-pressure period still led to increased procrastination and uncontrollable late nights. Learning efficacy anxiety was mostly caused by doubts about basic abilities (e.g., “inefficiency”, “not being able to learn”), which may have recovered briefly after the midterm due to strategic adjustments, but procrastination behaviors still triggered cyclical self-negativity. Particularly noteworthy is the dynamic fluctuation of test anxiety: a high level in the early stage due to unfamiliarity, a gradual decrease in the middle stage with adaptation to regular tests, and a significant increase in the high-pressure period at the end of the semester, which triggers a chain reaction-squeezing revision time, dismantling time management, and intensifying doubts about efficacy, and is a typical example of a synergistic effect across dimensions.

B. Suggestions

Based on the above analysis, schools can systematically carry out cross-faculty ice-breaking activities in the early stage of freshmen’s enrolment to accelerate interpersonal integration through collaborative tasks (e.g., multilingual cultural experience projects); at the same time, schools can optimize dormitory allocation mechanisms and establish work and rest negotiation conventions and conflict mediation channels to reduce the learning interference caused by social friction in the early stage. For classroom learning anxiety, we can design language practice paths in phases: at the beginning, anonymous voice assignments can be used to reduce the pressure of expression; at the middle, group dialogues can be introduced to train interactive skills; at the later stage, individual keynote speeches can be introduced; and a library of listening materials can be provided to allow students to choose the difficulty of input according to their actual level of proficiency. For time management anxiety, we can focus on strengthening the support system at the final stage, such as the Academic Affairs Office coordinating the examination density of professional courses and language courses to avoid the accumulation of tasks; student-related organizations and societies can set up self-discipline groups to match the mechanism, or daily study punch cards. To address anxiety about learning effectiveness, teachers and students need to break down the perception of ability: teachers can regularly show examples of progress curves of previous students to prove that those with weak foundations can make a leap forward; a progressive task system (e.g., vocabulary ladder challenges) can be embedded in the course design to visualise the growth of ability and rebuild confidence.

V. CONCLUSION

This study investigated the dynamic evolution of

freshmen’s four-dimensional anxiety (environmental adaptation, classroom learning, time management, and learning efficacy) and its impact on foreign language learning by means of a two-period retrospective design. This paper found that anxiety as a whole showed a phased decline, but time management anxiety rebounded significantly during the high-pressure period of the final exam. Time management anxiety had the strongest negative impact on learning effectiveness ($r = 0.364$). However, time management anxiety rebounded significantly during the high-pressure period at the end of the semester. Moreover, time management anxiety had the strongest negative impact on learning outcomes ($r = 0.443$), followed by efficacy anxiety ($r = 0.364$).

Theoretically, this study fills the gap in the multidimensional anxiety synergy mechanism during the critical adaptation period of freshmen, verifying the hypothesis that “test anxiety triggers a cross-dimensional chain reaction”, and providing the basis for dynamic modification of the affective filtering hypothesis. Practically, the study points out that it is necessary to focus on the reinforcement of time management intervention at the end of the semester, and the establishment of a long-term mechanism for the alleviation of performance anxiety.

Due to the sample size ($N = 53$) and the memory bias of the retrospective questionnaire, future research can expand the sample size, combine more professional equipment to test the relevant physiological indicators to objectively quantify the fluctuation of anxiety, and verify the effectiveness of the phased intervention strategy through controlled experiments. In conclusion, the present study provides a new perspective for cracking the emotional barrier of language learning by revealing the dynamic evolution of anxiety and the cross-dimensional path of action, and emphasizes that time management and performance anxiety should be the key intervention targets.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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