

Learning Strategies and English Learning Achievements of Non-English Major University Students

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Abstract: This thesis attempts to explore the relationships between learning strategies and English learning achievements of non-English major university students to provide some empirical evidence for English teaching and learning. To achieve the purpose, it aims to provide answers to the following question: How do the learning strategies affect their English learning achievements? To answer the above question, the author conducted an empirical study, in which 147 sophomores from a university in Guangzhou got involved, and two self-reported questionnaires were adopted: In addition, the results of national College English Test, Band 4 (CET-4) were used to measure subjects' learning achievements. Pearson correlation analysis and ANOVA analysis were utilized to reveal the relationship between learning strategies and learning achievements. The major findings of this study are: In terms of learning strategies, meta-cognitive, cognitive and memory strategies are used most frequently, which has an impact on English learning achievements. The research findings have an implication for English teaching and learning. By consciously selecting and utilizing different learning strategies, learners may reach the ultimate goal of education – achieving learner autonomy.

1. Introduction

1.1 Research Orientation

Since the emergence of “student center” concept, studies on English language teaching and learning put more and more attention on learners' leading role and individual differences.

1.2 Rationale

From the perspective of cognitive psychology, learning strategies can indicate the learners' level of learning ability and intellectuality (Wu, 2000). A Learner's proper arrangement of strategies can help him solve problems in study and improve his efficiency so that he can gain better achievements. Improper strategies arrangement, on the contrary, set obstacles in learners' study.

1.3 Research Questions

As mentioned in section 1.1, the present study aims to explore the relationships between learning strategies and learning achievements. If empirical evidence can be found in this field, it may give great inspiration to English language teaching and learning.

English language course is a required foundation course and a part of regular courses for bachelor degree in the universities in China. Students are required to study the course in their freshmen and sophomore years by the regulations from Ministry of Education of the People's Republic of China. The students can be divided into English major and non-English major. Since the latter predominate in amount, studying them should show a more representative picture. To achieve these purposes, this thesis aims to provide answers to the following question:

How do the learning strategies affect their English learning achievements?

1.4 Organization of the Thesis

Chapter One briefly introduces the purpose, significance, questions and organization of the current study.

Chapter Two presents a review on related literature. It includes two parts. First part covers relevant studies on the definitions and categorizations of learning strategies. Second part reviews how previous researches explore the relationship between learning strategies and the effects of learning strategies on learning achievements.

Chapter Three reports the present study methodology, which describes the subjects, instruments, procedures and analytical methods.

Chapter Four gives a detailed picture on the empirical study that shows: (1) significant differences exist in the frequency of learning strategies deployment; (2) certain learning strategies have significant effect on learning achievements; and (3) differences exist between high and low achievers when they deploy learning strategies.

Chapter Five further analyzes and discusses the results from Chapter Four, aiming to reveal the causes that lead to: (1) the significant differences in the frequency of learning strategies deployment; (2) the influence on English learning achievements by effective deployment of learning strategies.

Chapter Six is the conclusion of the present study. It summarizes the major findings and points out some limitations and implications.

2. Literature Review

2.1 Introduction

Section 2.2 discusses the definitions, classifications and measurement tool of learning strategies; and section 2.3 restudies the researches on the relationship between learning strategies and English learning achievements.

2.2 Learning Strategies

The research on learning strategies has a long history.

In western world, learning strategies also receive attention from great philosophers.

2.2.1 The Definitions of Learning Strategies

Studies on learning strategies by education community began from 1956 when Brunner presented the concept of cognitive strategies. Two years later, psychologist Newell, Siimon and Shaw used computer to simulate problem-solving pattern of human brain, thus set up the theory on learning strategies. In 1960s, studies on learning strategies developed rapidly due to abundant theoretical research. The same period also saw the booming development of modern cognitive psychology which stressed strategies as important part of cognitive mechanism. In 1979, Flavell raised the concept of met-acognitive strategies. The next decade formed an upsurge in met-acognitive theories, which simultaneously put forward the researches on learning strategies.

Learning strategies, or more specifically, language learning strategies, has been defined by many western researchers.

They are “specific actions, behaviors, steps, or techniques that students (often intentionally) use to improve their progress in developing L2 skills. These strategies can facilitate the internalization, storage, retrieval, or use of the new language. Strategies are tools for the self-directed involvement necessary for developing communicative ability”.

In Chinese foreign language research, learning strategies are defined as acts and procedures adopted by the students in order for their effective learning and development.

According to the definitions by the above psychologists, educators and applied linguists, the present study defines learning strategies as learners’ methods and skills, including their mental processes and specific acts, to design, choose, organize and monitor their learning during language acquisition.

2.2.2 The Classifications of Learning Strategies

Various classification systems have sought to group language learning strategies. Bialystok (1978) identified three main strategies - practicing (subdivided into formal and functional), monitoring, and inferencing.

O'Malley and Chamot (1990) differentiated learning strategies into three categories: meta-cognitive, cognitive and social/affective.

Based on learners' intentions in strategies use, Cohen (2000) divided strategies into language learning strategies and language use strategies. Oxford (1990) divided language learning strategies into two main classes, direct and indirect. The former has direct connection with the target language while the latter has indirect connection. Oxford classification will be used in the current study and be further explained in the following section 2.3.3.

Compared to western researchers, Wen (1993) raised her classification after observations on Chinese English learners. Learning strategies are group into three categories: Managing, practicing (subdivided into formal and functional, similar to Bialystok's practicing strategies, and mother-tongue strategies (learners using mother language knowledge to understand the target language).

2.2.3 Oxford's Classification on Learning Strategies and Strategy Inventory for Language Learning (Sill)

Oxford's classification on learning strategies is recognized by researchers in the field as a more coherent, more comprehensive and even more superior typology (Ellis, 1994; Hsiao & Oxford, 2002). Therefore, the current study takes her classification as the framework to measure learners' strategies.

In Oxford's view (1990), learning strategies are "specifications taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations". She divided the strategies into two categories and each category further into six sub categories. The two categories are direct strategies and indirect strategies.

Direct strategies are employed to process target language materials, directly related to the language itself. They include memory strategies, cognitive strategies and compensation strategies.

Indirect strategies handle learning management on the macro scale. They provide indirect supports for language learning through such approaches as concentration, planning, evaluation, searching for opportunities, controlling anxiety, reinforcing cooperation and transference. Indirect strategies are subdivided into meta-cognitive strategies, affective strategies and social strategies.

Meta-cognitive strategies control and adjust language learning process; in order to organize and coordinate their learning activities and cognitive process, learners deploy strategies like setting up learning focus, planning for language tasks, arranging time, evaluating outcomes and monitoring errors. Affective strategies manage emotion for learners' active participation in language learning; in learning process, learners use such techniques as self-encouragement, self-consciousness and self-reward to reduce anxiety, develop confidence and gain willpower. Social strategies create opportunities for learners to communicate in target language; for the purpose of language application and more interactions with others, learners, usually in a group, employ strategies as raising questions, cooperation, sympathy and becoming culturally aware. The social strategies defined by Oxford are not only applied to master target language and to keep contact and communication with native language speakers, but also include cooperative strategies with other learners.

Oxford's classification on learning strategies is illustrated in Table 1

Table 1 Oxford's Classification on Learning Strategies

Learning strategies	Direct strategy	Memory strategy
		Cognitive strategies
		Compensation strategies
	Indirect strategy	Meta-cognitive strategies
		Affective strategies
		Social strategies

Oxford's system of six basic types of language learning strategies is a convenient tool for learners to set up effective application of the strategies when studying their target language. Thus

learning language could be arranged in a more independent and enjoyable manner. On the other hand, with the assistance of Oxford's typology, teachers would have better instruments to improve training efficiency.

According to her strategies system, Oxford developed a strategies questionnaire: Strategy Inventory for Language Learning, or SILL for short.

The design of SILL corresponds with Oxford's learning strategies classification.

2.3 Studies on the Relationship between Learning Strategies and English Learning Achievements

The difference between high and low achievers in English learning is one of the interesting issues for language teachers and researchers. Researchers have attempted to do comparative analysis to reveal the elements that promote success in English learning.

Huang and Van Naerssen (1987) suggested that functional training strategies are main prediction factors for successful language learning.

Oxford (1995) stated that strategies deployment is significantly correlative with effective learning. Positive strategies application may lead to higher achievements.

Ma (1997) studied the difference of the learning strategies between high-score and low-score students groups. Data shows that two groups are different only in mechanical-memory strategies deployment. Low-score group tends to apply mechanical-memory strategies more frequently than high-score group.

The above researchers discovered certain correlation between learning strategies and learning achievements. However, they haven't come to agreement on how strategies affect the learning outcomes, and what strategies have the strongest influence on the learning results.

2.4 Summary

From the above literature reviews, there have been progressive researches on the relationships between learning strategies and achievements. The following Chapter Three is going to report the study methodology, which describes the subjects, instruments, procedures and analytical methods.

3. The Empirical Study

3.1 Introduction

This chapter shows the design of the current empirical study. Section 3.2 introduces the subjects; section 3.3 describes three instruments for measuring learning strategies, and learning achievements; section 3.4 introduces the statistical methods for data analysis.

3.2 Subjects

Chinese students who learn English language can be divided into English major and non-English major. Since the latter predominate in amount, studying them should show a more representative picture on the college English learners in Chinese setting.

The current subjects consisted of 147 sophomores from a university in Guangzhou. Among them, 89 were majoring in Finance (60.5%) and 58 were Liberal Arts majors (39.5%). Their ages ranged from 18 to 21. There were 76 male students (51.7%) and 71 female students (48.3%).

With nearly two-year experience in university and previous learning in primary and middle schools, the students had established certain English learning foundations. According to the record of the above mentioned university, approximately 80% of its non-English major students were able to pass College English Test, Band-4 (CET-4) at the end of their first academic year, which means most of the students have reached the English proficiency of non-English major undergraduate students (according to standards by National CET Commission).

3.3 Instruments

The instruments used in this study consist of two self-reported questionnaires and a national College English Test, Band 4 (CET-4). The second questionnaire, Oxford's Strategy Inventory of

Language Learning (SILL, see Appendix 2), is used to survey the subjects' deployment of learning strategies.

3.3.1 Strategy Inventory of Language Learning (Sill)

Strategy Inventory of Language Learning (SILL) developed by Oxford was used to investigate the students' English learning strategies application. It is divided into 6 sub-categories: memory strategies, cognitive strategies, compensation strategies, meta-cognitive strategies, affective strategies and social strategies. The questionnaire uses declarative sentences in Chinese and includes 50 items, each of which is followed by 1-5 degrees that denote "never used" (=1), "generally not used" (=2), "occasionally used" (=3), "frequently used" (=4), and "always used" (=5). After completing the SILL, the students subtotal scores for each set of the strategies and calculated total scores for all 50 items.

3.4 Summary

This Chapter describes the study methodology. With the questionnaire, SILL, the current study employs statistical methods to measure 147 non-English major university undergraduates' learning strategies. The results are presented in the coming Chapter Four.

4. Results for Research Questions

4.1 Introduction

This chapter mainly reports the results of data analysis in accordance with the research question: How do the learning strategies affect their English learning achievements?

Section 4.2 replies to the question.

4.2 The Relationship between Learning Strategies and Learning Achievements

In the present study, strategies of Oxford's SILL comprise the independent variables and the subjects' scores of CET-4 are treated as dependent variables. Pearson correlation analysis was utilized to examine the association between learning strategies and learning achievements. The results are demonstrated in Table 2.

Table 2 Results of Pearson Correlation Analysis on the Relationship between Learning Strategies and Learning Achievements

Learning strategies	Correlation coefficient	Significance (2-tailed)
Memory strategies	0.183**	0.242
Cognitive strategies	0.233**	0.180
Compensation strategies	0.108*	0.777
Meta-cognitive strategies	0.282**	0.055
Affective strategies	0.075	0.604
Social strategies	0.060	0.702

* $p < 0.05$; ** $p < 0.01$;

The results reveal that all learning strategies are positively correlated to the subjects' learning achievements. Meta-cognitive strategies show the most significant correlation. Cognitive and memory strategies are found to be less correlated to the students' CET-4 scores. Cognitive, affective, and social strategies are weakly associated to the subjects' learning outcomes.

According to their CET-4 scores, the subjects are further grouped into high ($n=31$), mid ($n=88$) and low ($n=24$) achievers. Still, learning strategies are taken as the independent variables and the different levels of learning achievements are set as dependent variables. The differences in strategies deployment are revealed in the following Table 3.

Table 3 the Relationships between Learning Strategies and Different Levels of Learning Achievements

Different levels of achievements Learning strategies	High achievers	Mid achievers	Low achievers
Memory strategies	0.463	0.447	0.308
Cognitive strategies	0.482	0.467	0.404
Compensation strategies	0.301	0.412	0.266
Meta-cognitive strategies	0.501	0.470	0.298
Affective strategies	0.392	0.451	0.301
Social strategies	0.422	0.359	0.218

Developed from Table 3, the following Figure 1 compares the strategies deployment between high achievers and mid achievers. The former shows higher efficiency when using meta-cognitive strategies. These two groups of learners have small difference in memory, cognitive and social strategies. It's interesting to find that mid achievers use more compensation and affective strategies than high achievers.

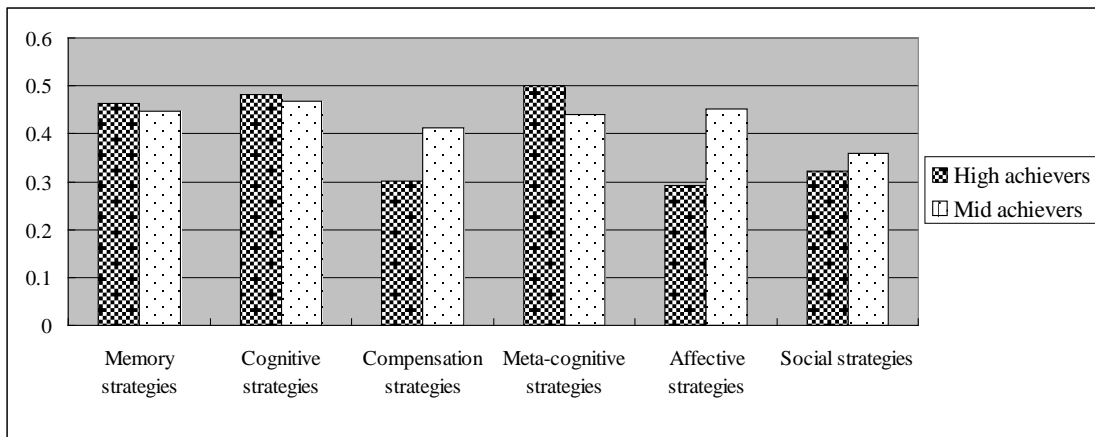


Figure 1 Comparison High achievers' and Mid achievers' Strategies Deployment

Figure 2 also evolves from Table 3 The difference between high achievers and low achievers is reflected in the deployment of every set of learning strategies, especially meta-cognitive strategies.

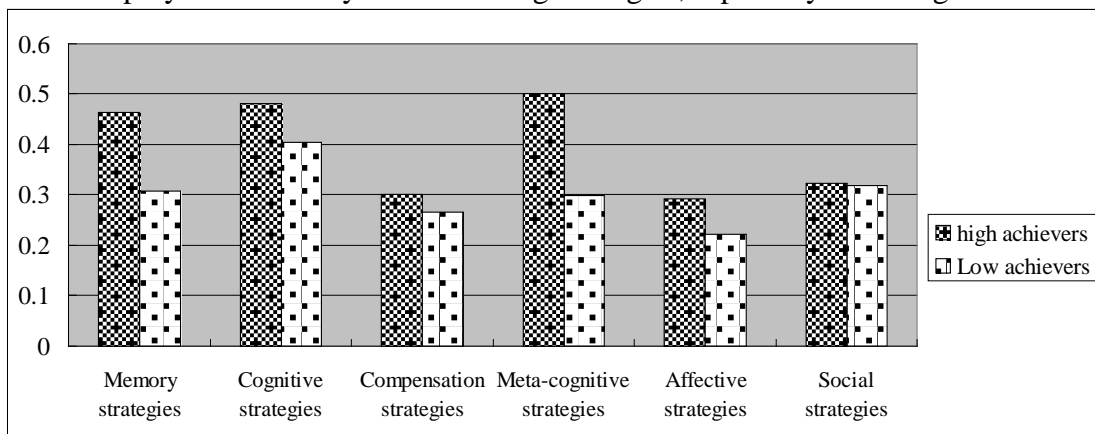


Figure 2 Comparison High achievers' and Low achievers' Strategies Deployment

4.3 Summary

This chapter presents the results of the subjects' learning strategies deployment. In terms of the relationship between learning strategies and learning achievements, the results showed their positive correlation. Among the six sets of learning strategies, meta-cognitive strategies play the most

significant role in affecting English learning achievements.

5. Analysis and Discussion

5.1 Introduction

This chapter analyzes and discusses the results from Chapter Four. Section 5.2 derives possible causes of the learning strategies deployment; and section 5.3 investigates the effects of meta-cognitive strategies on learning achievements and the cause for the difference on learning strategies deployed by high and low achievers.

5.2 Learning Strategies Deployment

The subjects applied meta-cognitive strategies most frequently; then cognitive and memory strategies; compensation, social and affective strategies were used least.

Meta-cognitive strategies play critically important roles in successful English learning. A student may consciously deploy meta-cognitive strategies to focus his/her concentration on promoting language learning efficiency, when he/she encounters new words or expressions, new grammar rules, unfamiliar cultural backgrounds, etc.

Frequent use of meta-cognitive strategies indicates that students form macro view to consciously plan, monitor and assess their own learning performances. Considering their ages, second-year university students have experience college admission examinations. They are growing into adults from immaturity. They begin to work out unambiguous learning targets. Their abilities in planning, managing, self controlling and supervising English learning procedures develop at this stage. Concentrations are set up during learning activities and proper assessments on learning are established.

O'Malley et al (1990) suggested that cognitive strategies play significant role in learning process and are more directly related to learning tasks. Also, smart learners always combined cognitive and meta-cognitive strategies to supplement each other. In this study, cognitive strategies deployment scored an average mean of 3.22. It reveals that learners could actively apply the strategies. The learners' frequent deployment of cognitive strategies might probably be associated with their English teaching goals in Chinese higher education setting. The purpose of college English teaching is to enable students with the abilities to listen to, speak, read, write and translate English language, or expressing ideas and communicating with English. For this purpose, the students need to frequently apply cognitive strategies in their learning process. For instance, they would understand English language on Chinese thinking basis; they consciously use English grammar rules to improve comprehension; they put new words or expressions in meaningful linguistic units to gain better understanding; they make full use of previously obtained information to promote new knowledge learning and etc. These cognitive strategies positively enhance the students' English proficiency.

In the current study, the students deployed memory strategies less frequently than meta-cognitive and cognitive strategies. This is consistent with finding of Wen & Johnson, Bedell & Oxford and Yang. The results indicate that at higher level stages of English learning, students depend less on memory-based learning, they rely more on deeper processing strategies/cognitive strategies such as comprehending, deducting, making conclusions, etc. to master complicated language skills. However, university students in China lack communicating environment for English learning, not to mention direct communication with English native users. Compared to compensation, social and affective strategies, they use more memory strategies. In other words, effective memory strategies may be a substitute to compensation, social and affective strategies in college English learning settings in China.

Compensation strategies are employed to achieve higher goals in language learning tasks and requirements.

Affective strategies were also less applied by the students. This is consistent with foreign researchers' findings (Chamot, et al.1987). Affective strategy refers to methodology used to manage

emotion. It is helpful for learners to develop motivation, self-confidence and perseverance required in language learning activities through adjusting and controlling emotions and attitudes, to reducing anxiety, self-encouraging and calling for help.

The importance of compensation and affective strategies isn't less than that of cognitive and meta-cognitive strategies. Successful English learners know the ways to control emotion and produce positive attitudes. Hutchinson & Waters (1987) pointed out that learning, especially language learning, is an affective experience.

Many learners encounter affective issues to different extents (i.e. over-worrying, losing self-confidence, etc.). Some of them even have serious psychological blocks. That may result from the learners' rarely using use affective strategies. This is probably because they aren't aware of the importance of affective strategies in language learning or don't know how to employ the strategies.

Among all the learning strategies, social strategies were deployed least frequently. This might probably be related to Chinese students' language learning environment. Except for formal English classes, Chinese students seldom get opportunities to learn English in a natural social environment. Without such environment, they ignore social strategies (i.e. asking questions for understand better, transferring feelings, etc.). Another important reason for the least deployment of social strategies may concern with the learners' motivation. The students in the current study have to learn English in order to pass tests and obtain certificates, paying little attention to social needs and practical application of the language. Because social strategies are to provide opportunities and environments for language practice, having no effects on learning process (Shu & Zhuang, 1996), the students take advantage of other learning strategies and neglect the employment of social strategies.

5.3 Relationship between Learning Strategies and Achievements

Results in Chapter Four demonstrate the positive correlation between learning strategies and CET-4. Learning strategies may enhance language learning effectiveness, and hence they are positively correlative with achievements. This reveals learning strategies' key role in English learning process.

5.3.1 Effects of Meta-Cognitive Strategies on Learning Achievements

In relationship between learning strategies and learning achievements, the highest correlation exists between meta-cognitive strategies and CET-4. Such strategies are most closely connected with learning outcomes by guiding and adjusting the learners' activities. Or in other words, English learners need meta-cognitive strategies to reduce blindness, impulsion and irrationality in learning process.

Meta-cognitive strategies include setting targets, planning, self monitoring/controlling, self assessing, self adjusting and other strategies. Their functions are to adjust cognitive processes. And learning itself consists of setting targets, planning, choosing strategies, supervising, assessing and so on. Better achievements are predictable if these activities are performed by the learners, or to say, the learners themselves select and conduct the meta-cognitive strategies.

Thus it can be seen that learners will succeed in English learning when they are able to, on their own initiatives, identify target, develop learning plans in detail, select the appropriate learning strategies, duly perform self monitor/control, evaluate learning process, and make due self adjustment. Wenden's (1991) and Griffiths' (2003) studies shows that successful learners are efficiently capable of applying meta-cognitive strategies, and strengthening individual meta-cognitive level may improve learning efficiency, thus promoting achievements.

Data comparison shows that main difference between high and mid achievers exists in their meta-cognitive strategies deployment; and biggest difference between high and low achievers lies in their meta-cognitive strategies although they are different in all strategies use. This indicates that meta-cognitive strategies lead to main difference of the learners' CET-4 achievements.

Therefore, it is observed that meta-cognitive strategies play more important roles in high CET-4 outcomes. They are bridges to independent learning and better English learning achievements.

5.3.2 Difference on Learning Strategies Deployed by High and Low Achievers

Learning strategies deployed by successful high and low achievers are different. The former uses all strategies more frequently than the latter. The biggest difference between them exists in meta-cognitive and memory strategies. Smaller difference exists in social and compensation strategies. The comparison between learning strategies used by high and low achievers also indicates that learning strategies are highly correlative with learning achievements.

Memory strategies are put in an important place in learning in Chinese traditional culture. Learners have always paid attention to such strategies and considered as essential condition to successful learning. For English learners, high achievers may use memory strategies in conjunction with techniques such as comparison, contrast and summarization, etc. Their more frequent and effectively deployment of memory strategies surely leads to better scoring in CET-4 exam.

Therefore, difference between learning strategies deployed by high and low achievers exists mainly in meta-cognitive strategies and memory strategies. This implies that low achievers can start to learn and use such strategies to improve their English proficiency.

5.4 Summary

This chapter consists of two parts: Firstly analyzes possible causes of the learning strategies deployment; secondly, it discusses the important effect of effective strategies deployment on different levels of learners.

6. Conclusions, Implications and Limitations

6.1 Summary of Major Findings

Firstly, most students actively deploy learning strategies. But there are significant differences in strategies deployment frequency. Meta-cognitive and cognitive strategies are the highest frequent used learning strategies. Affective and social strategies are least used.

Secondly, learners' effective and rational deployment of the learning strategies is positively correlative to their learning achievements.

Thirdly, the empirical data on the strategies deployment of high, mid and low achievers reveals the positive effect of meta-cognitive strategies on learning achievements. High achievers use meta-cognitive strategies more effectively. Furthermore, high achievers use more learning strategies, which gives inspiration to other learners and teachers: efficient and flexible employment of the learning strategies may improve academic performance.

6.2 Implications of the Study

In college English teaching and learning in China. Teachers and students rarely understand the importance and deployment of compensation, affective and social strategies. This study thus suggests teachers and students develop their awareness in this field. By consciously selecting and utilizing different learning strategies, learners may truly become the masters of learning, thus reach the ultimate goal of education – achieving learner autonomy.

6.3 Limitations of the Study

There are two limitations that need to be addressed regarding the present study. The first limitation concerns the research method. Only quantitative analysis is employed. The research lacks qualitative approaches and case study, thus making it difficult to observe individual learners' traits.

6.4 Suggestions for Further Research

Further research can randomly select subjects from different majors and expand the samples to cover each grade of university students, thus can be more representative.

In terms of research methods, more measurement tools can be introduced into future studies. Interviews, students' daily records or cases study can complement the quantitative approaches, so that the analysis on the results can be more comprehensively confirmed.

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