

The Relationship between Critical Thinking and Language Learning Strategies of EFL Learners

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Abstract—Critical thinking (CT) is being increasingly discussed in language learning and teaching. Discussions around CT are particularly influencing English for Academic Purposes (EAP) which the teachers' aim for the students is to help them learn all of the skills necessary to succeed in the university career. Accordingly, the study mainly surveys the effect of receiving critical thinking trainings on degree students through the English for Academic Purposes (EAP) program. Participants of the study included 256 freshmen students from four departments at a leading university in China. The experiment group studied EAP, while the control group studied General English within one academic semester. In addition to CT assessment, the two groups were also compared in regards with Language Learning Strategy (LLS). The significant contribution of the study might be to reveal the possible relationship between CT and LLS. The results and discussions would be conducive for language practitioners and administrators.

Index Terms—language learning strategies, critical thinking, EAP, Chinese students

I. INTRODUCTION

This section is first focused on a short background on the two key elements of the research which are critical thinking and language learning strategies followed by a conceptual framework intending to convey the importance of the study.

A. Background

“Critical thinking (CT) has been long viewed as a skill for a lifetime of complicated choices which individuals have to make in their personal, academic and social lives. In this fast-paced and ever-changing world we live in, CT is not a mere luxury; it has been considered by many scholars a basic survival skill (Facione and Facione, 1996) Philosophers of education contend that CT is the fundamental goal of learning and particularly central to higher education (Paul, 1987; Ennis, 1996). A shift has occurred from viewing learning primarily as rote training to conceptualizing learning as a constantly evolving process of discovering, questioning, and reformulating hypotheses (Pennycook, 1994). CT skills have also increasingly gained attention in research related to student achievement and attitudes and a diverse body of educational research has reported the importance of promoting higher-order thinking skills and the positive influence of CT on learners' achievement in EFL contexts” (Hashemi & Ghanizadeh 2012).

“Teaching for critical thinking is an important goal of modern education, as it equips students with the competency necessary to reason about social affairs in a rapidly changing world. To develop such competency, students must go beyond absorbing textbook knowledge and learn to build up skills involved in judging information, evaluating alternative evidence and arguing with solid reasons. These skills in critical thinking are not only vital for students to perform well in school, but also needed in future workplaces, social and interpersonal contexts where sound decisions are to be made carefully and independently on a daily basis. The importance being accorded to critical thinking is now a worldwide phenomenon. In education reports of countries such as the United States, United Kingdom and Australia, critical thinking has been listed as a key area to be cultivated and assessed in higher education” (Ku & Ho, 2009)

In the recent decades more emphasis has been put on the learners and learning rather than the teachers and teaching. Simultaneously, in the area of second language acquisition research, attention from the language learning products shifted to that of the language learning process. Accordingly, in the language proficiency models, LLS considered as the most significant component. “All language learners use language learning strategies consciously or unconsciously when processing new information and performing tasks in language learning process. In order to enhance students' learning, it is suggested to use specific language learning strategies. A number of factors may affect the choice of language learning strategies among the learners such as motivation, age, nationality, career choice, gender, learning style, and critical thinking. Critical thinking improves memory because we engage more closely with ideas. Notwithstanding the emphasis on the ability to think critically, it is a vital necessity for the citizens of the current century. Second language researchers noticed the importance of various learning strategies when they were investigating into 'good language learner' in 1970s. The results indicated that high degree of language aptitude and motivation are not the only effective factors influencing the ultimate success of language learners. In fact, the learner's success is due to their own active and creative participation in the learning process by the use of specific individualized learning techniques named learning strategies. In a sense, Naiman et al. (1978) found that 'good language learner' is in need of such strategies” (Nikoopour, Farsani, & Nasiri, 2011).

B. Conceptual Framework

Due to the increasing necessity of applying critical thinking skills within the academic and social contexts, and also the presumption that better language learners use the higher and diverse extent of language learning strategies, I will survey and assess the critical thinking of students to see to what extent it can affect the choice of language learning strategies among undergraduate students. Besides, by selecting participants from the two groups of EAP and General English students, the effect of receiving and not receiving critical thinking trainings on their critical thinking and the choice of language learning strategies would be surveyed. EAP students are supposed to receive critical thinking trainings, but General English students do not necessarily require critical thinking skills to fulfill the requirements of the course. It is probable to extend the result of this research to the other languages.

Plenty of studies have been conducted so far in the two areas of critical thinking and language learning and teaching, and language learning strategies and language learning and teaching. But the gap is that almost none of them have yet surveyed the relationship between LLS and critical thinking.

As to the fact that critical thinking is a must in education system, and also in EFL or ESL contexts, comprehensive studies have been performed in different perspectives to shed the light. Considering that critical thinking has a direct positive effect on language education, and also that a better language learner is the one who uses a higher variety of strategies in learning the language, why should not this relationship be assessed? That is to say, it is proved by the extensive studies that the better language learners are more critical and strategic in language learning. Therefore as illustrated in Figure 1, the main question to be answered is "Is there any relationship between critical thinking skills and the use of language learning strategies?".

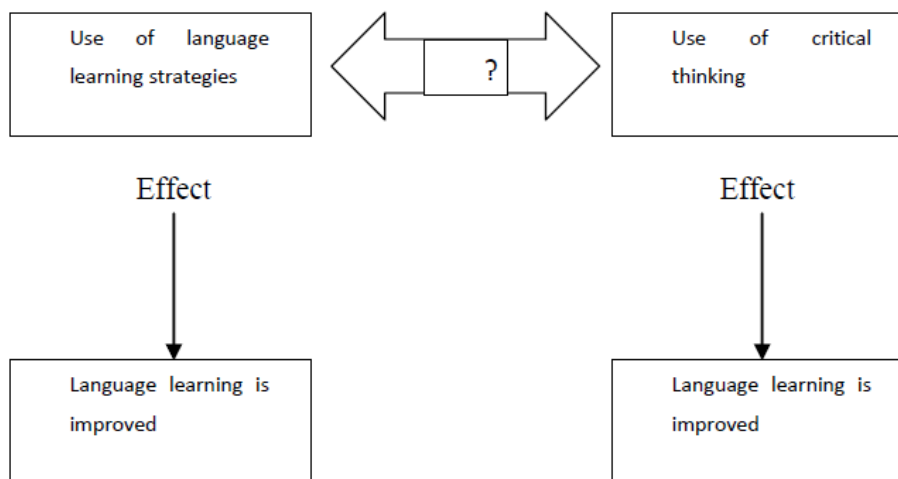


Fig. 1. Relationship between critical thinking and LLS

In addition, the other significance of the study would be studying the quality of language teaching and learning in China by emphasizing the role of critical thinking. In the recent decades that the importance of critical thinking in education system has gained a lot of attention, Chinese education system has been paying attention to this very significant issue especially in the leading universities. This research is trying to obtain results to confirm whether applying critical thinking trainings in China's EFL context would be effective and beneficial (Figure 2). The implications will be of significant importance for policy makers, English language learners and English language teachers.

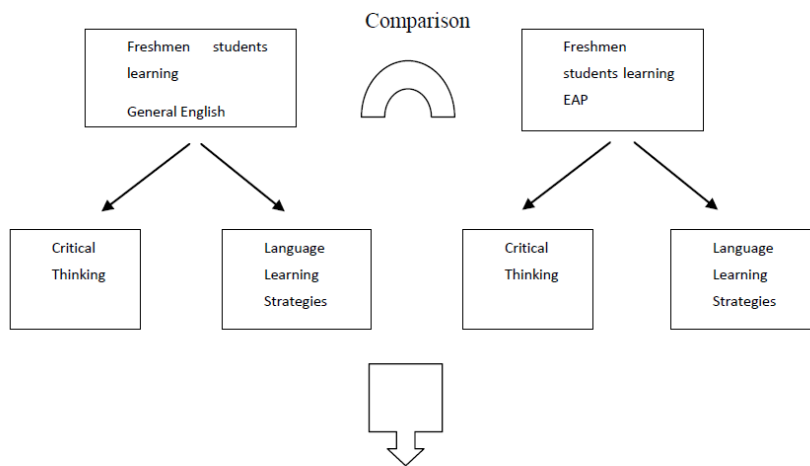


Fig. 2. Comparing CT and LLS of EAP and general English students

Last but not least, as it is already proven that those language learners with high usage of language learning strategies can obtain the higher language proficiency, what is the situation in China? Is it also true for language learners learning English in a leading university? (Figure 3)

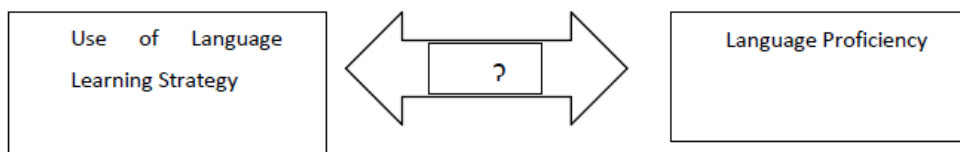


Fig. 3. Relationship between LLS and English language proficiency

Research questions

1. Do the students who receive critical thinking trainings think more critically?
2. Are the students who receive critical thinking trainings more strategic in language learning?
3. What is the relationship, if any, between the students' language proficiency and the language learning strategies used in learning the language?
4. What is the relationship, if any, between critical thinking skills and the use of language learning strategies?

II. LITERATURE REVIEW

The purpose of this part is to survey and evaluate relevant studies on critical thinking and language learning strategies. Important concepts of critical thinking are defined first and then I will go on to an introduction to definition and relevant literature. Secondly, literature review on language learning strategies is provided.

A. Critical Thinking and Language Learning

As the working definition, critical thinking is considered to be the application of cognitive strategies that promote the presumable desirable output. It is goal-oriented, purposeful, and reasoned. It is a mentality that is responsible for problems solving, inferences formulation, likelihoods' calculation and decision making. Critical thinkers are able to apply such skills in the appropriate ways, without hesitation, and often intentionally, depending on the available settings.

The application of critical thinking for teaching and learning foreign languages is a new area of investigation. Critical thinking pedagogies are underpinned by the theory of critical language awareness. This theory explains the role of the learners' cognitive and metacognitive domains in developing his awareness of the new language and the world around him (Fairclough, 1999). In Europe, some researchers and educational bodies have incorporated critical thinking into foreign language classrooms. For instance, in UK schools, the National Curriculum NC introduced thinking skills into Modern Foreign Language classrooms (MFL), and it was found that teaching students to think can help them to communicate in the new language, to produce various types of spoken and written language and to demonstrate creativity in using the foreign language. In addition, it has been found that thinking skills can facilitate language learning, as in the case of drawing inferences from unfamiliar language items and reflecting on links between languages (Lin & Mackay, 2004). Such incorporation of thinking skills could develop learners' awareness of their progress and develop language autonomy (Lin and Mackay, *ibid.*).

B. Language Learning Strategies and Language Learning

“Research in the field of learning strategies has defined language learning strategies as ... strategies that contribute to the development of the language system which the learner constructs and (which) affect learning directly (Rubin, 1987, p. 23). Oxford (1990) further described language learning strategies as steps taken to facilitate the acquisition, storage, retrieval, and use of information. O’Malley and Chamot (1990) viewed learning strategies as the special thoughts or behaviors that individuals use to help them comprehend, learn, or retain new information (p. 1). Holec (1981) argued that learning strategies can foster learners’ autonomy in language learning. Strategies can also assist learners in promoting their own achievement in language proficiency (Green and Oxford, 1995; O’Malley et al., 1985; Oxford, 1990; Politzer, 1983). Learning strategies, therefore, not only help learners become efficient in learning and using a language, but also contribute to increasing learners’ self-directed learning” (Hong-Nam & Leavell 2006).

C. *The Relationship between Critical Thinking and Language Learning Strategies*

Literature on the relationship between critical thinking and language learning strategies is not much. However, a number of studies have been conducted so far.

In a study conducted by Nikoopour, Jahanbakhsh et. al. (2011), they surveyed the relationship between CT and the use of LLS by the Iranian language learners. Their findings reveal a significant correlation between some direct and indirect LLS such as cognitive, meta-cognitive, and social with critical thinking, while no relationship was discovered between CT and memory, compensation and affective strategies.

In another study by Ku, Kelly Y. L. & Ho, Irene T. (2009), they aimed at examining the role of meta-cognitive strategies in critical thinking. Based on the findings “good critical thinkers” are more active in meta-cognitive activities.

D. *The Role of Critical Thinking in English for Academic Purposes*

“Critical thinking is a concept that professors and students alike believe is a fundamental defining concept of a Western university education (Barnett, 1997), but how they define it and subsequently teach or learn is as disjointed as the theories involved in the debate on critical thinking (Phillips and Bond, 2004). Moreover, critical thinking is increasingly being discussed in higher education and consequently invoking discussions in language teaching. This is especially affecting English for Academic Purpose (EAP) language learning settings, where the goal of the instructor is to insure that their students will have acquired or learned all of the skills necessary to succeed in their university career. Thus, influencing researchers in language learning to examine critical thinking, to consider where it belongs in their curriculum and whether teaching critical thinking skills implicitly or explicitly is one of the best methods that might help their students across the disciplines.

As to the Sustained Content-based teaching approach (Pally, 2001), for English for Academic Purposes (EAP) the definition of critical thinking is divided into two sections: analytical thinking and critical thinking.

1) Analytical thinking

- a) Grasping the claims or perspectives of readings and lectures
- b) Understanding the methods of proof used to support those claims/perspectives
- c) Synthesizing claims and support from a range of sources

2) Critical thinking

- a) Noting the social, economic and political contexts of claims and support
- b) Questioning or challenging them
- c) Evaluating them
- d) Using one’s understanding, synthesis, and questions as a basis for formulating ideas of one’s own
- e) Presenting (orally and in writing) ideas/positions of one’s own using appropriate rhetorical conventions” (Paul, 1987).

According to the given theoretical background and the discussions on the possibility of correlation between CT and LLS on the one hand, and LLS and language proficiency on the other, in the next section I will provide a methodology for assessing the mentioned correlations.

III. METHODS

A. *Participants*

The target participants of the study consisted of 256 freshmen students enrolled at a leading in China. A cluster sampling procedure that represents the University population by level (freshman) and stream (Optical Engineering, Biological Engineering, Computer Sciences and Economics) was used. “Representative course sections were selected. The best way was to approach students in university-English courses, which groups students from different streams and levels” (El Hassan & Madhum 2007).

The selected students were all learning English as the foreign language attending two separate courses namely English for General Students (control) and English for Academic Purposes (experiment) with class size of 30 to 40 students. English is usually taught as the mandatory foreign language subject in China among the non-English major undergraduate students. The students receive 4-hour English instruction a week.

B. *Instrument*

To conduct the present study, two instruments were employed: WGCTA (Watson Glaser Critical Thinking Appraisal) and the Strategies Inventory for Language Learning (SILL).

The 80-item Watson Glaser Critical Thinking Appraisal is used to assess the participants' critical thinking. CTA measures the important abilities involved in critical thinking. The 50-item test of Strategies Inventory for Language Learning (SILL), Oxford, is administered to assess the students' use of language learning strategies.

C. Procedure

To gather the required data, upon the end of one academic semester (17 academic weeks), the researcher compared two groups of EAP and General English students from four different departments to survey the difference in their critical thinking skills. Therefore, two types of tests were administered among students majoring Optical Engineering, Biological Engineering, Computer Science and Economics in a leading university of China. Initially, the university classes consisting of the freshmen students were selected. On different occasions two types of tests were taken.

D. Analysis

The quantitative data collected from the two mentioned tests (WGCTA & SILL) were analysed together with the qualitative evidences and information of this study or other studies and the final conclusions was drawn accordingly.

To answer the first and second questions of this study, independent sample T-test was conducted to survey the differences between EAP and General English students in terms of their criticality and strategy. For the last two questions, to assess the relationship between the students' language score and LLS, and between LLS and critical thinking, Pearson Correlation procedure was performed.

IV. RESULTS AND DISCUSSION

Aim of the following section is to render the results of assessing the research variables; and to analyse them for the sake of answering the four research questions presented below.

A. CT Assessment

Based on the results reflected in Chart 1, it is evident that students who have received EAP trainings outperformed the students who have not received such instructions. Actually because EAP course integrates the elements of critical thinking with English education, the students who receive such trainings will do better in terms of critical thinking. Critical thinking is a desirable curricular outcome in EAP program and the data collected from the freshmen students majoring Biological Engineering, Economics, Optical Engineering and Computer Sciences indicates the improvement in students' critical thinking. Mean scores of EAP and General English students, except those majoring Biological Engineering, shows a little significant difference, but this does not indicate the inferiority of the EAP instruction in compare with General English instruction. The reason would be many; First, the students' age (almost 19) and the lack of previous critical thinking education, and second, a short-time in receiving EAP instructions (17 weeks). The normal EAP program in the leading universities of China is one year. It might be probable that after a whole program the students' critical thinking shows significance. Anyway as critical thinking is the key to academic performance (Pally, 2001) the necessity of improving the critical thinking abilities is undeniable.

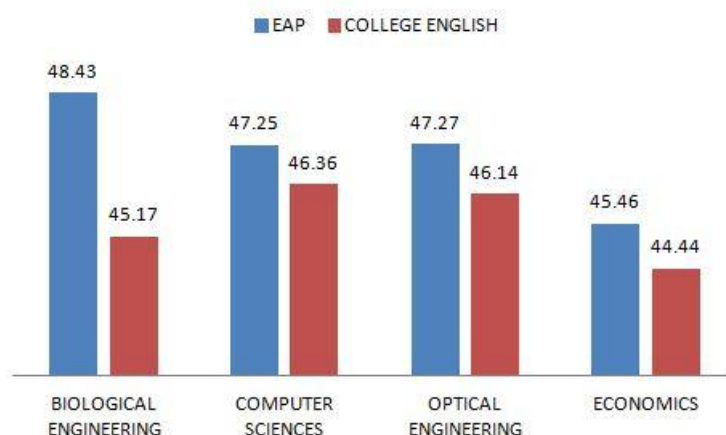


Chart 1. Comparison between CT of EAP and General English students

B. LLS Assessment

Comparing to General English students, the EAP students who have received the critical thinking training for 17 academic weeks showed higher scores in their language learning strategy. However due to some reasons the difference in students' LLS score is not significant. The reason would be the lack of appropriate critical thinking background

which prevents students from improving. Also the students seem to lack the awareness of using different language learning strategies. The steady explicit critical thinking trainings together with raising the students' awareness toward using the variety of LLS could help. Language learning strategies are being used highly frequently by higher level students (Carol Griffiths, 2003). As a result EAP promotes students' critical thinking which ends in increasing the LLS use. Accordingly, those students with higher use of LLS are proved to be the better language learners.

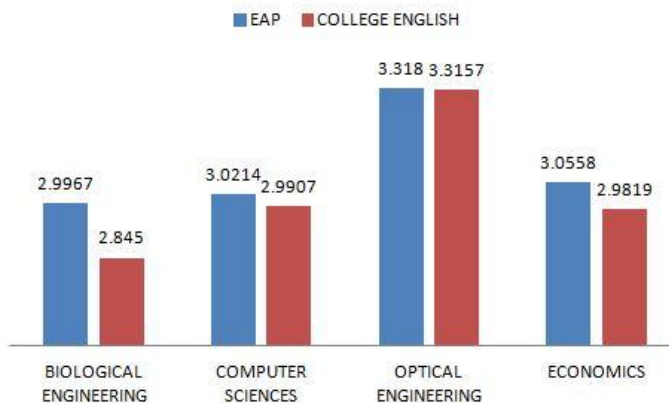


Chart 2. Comparison between LLS of EAP and General English students

C. LLS and Language Proficiency

Table1 summarizes the correlation between the score for speaking and listening and the number of language learning strategies used in learning the language. Accordingly there is a high correlation between the said variables. It proves the positive relationship between the LLS score and language score which support the findings of many ESL/EFL researchers. The test could have properly evaluated the students' language score. In other words, the high correlation between the students' listening and speaking scores and their LLS scores which implies that those students with higher use of LLS could achieve better language learning results.

TABLE 1
SUMMARY OF THE RELATIONSHIP BETWEEN SPEAKING AND LISTENING SCORE AND LLS – ECONOMICS AND ENGINEERING GROUP (N: 54)

	STA	STB	STC	STD	STE	STF	TOTAL
Sig	.129	.001*	.034*	.005*	.649	.134	.003*
Pearson Correlation	.209	.428	.289	.374	.063	.207	.398

Based on the research findings reflected in the below summary table as to the correlation between score for English reading and writing and the LLS score, we may conclude that a positive correlation exists. However by observing at each individual sig. it is presumed that the correlation is weak. It means the language test could not properly assess the students' reading and writing level. The students with higher LLS score might have not obtained the better score or vice versa.

TABLE 2
SUMMARY OF THE RELATIONSHIP BETWEEN WRITING AND READING SCORE AND LLS – BIOLOGICAL ENGINEERING AND COMPUTER GROUPS (N: 58)

	STA	STB	STC	STD	STE	STF	TOTAL
Sig	.881	.057*	.838	.604	.490	.111	.204
Pearson Correlation	-.020	.252	-.027*	.070	.093	.211	.169

D. LLS and CT

The result of correlation tests between the critical thinking score of students and their language learning strategy score signifies a positive significant relationship. Further to the table 3, the answer to the last research question would be “yes”. Therefore, students with the higher critical thinking ability will use more variety of strategies in learning the language. As a result, to compare with those students who use less variety of language learning strategies, their learning is better promoted.

TABLE 3
SUMMARY OF THE RELATIONSHIP BETWEEN CT AND LLS (N: 256)

	STA	STB	STC	STD	STE	STF	TOTAL (2-TAILED)	TOTAL (1-TAILED)
Sig	.880	.051*	.095	.275	.480	.276	.083	.041 *
Pearson Correlation	-.009	.122	.105	.068	.044*	.069	.109	.109

It is drawn from the results that the EAP program at a leading university in China had CT as its teaching's component and at the end of the program, the participants managed to improve their criticality. Further, the correlation between CT and LLS showed to be positive (p value is .041*).

V. CONCLUSION

This study supports the idea of teaching critical thinking within the EFL contexts. It proposes that successful language learners are those with higher critical thinking abilities. One important influence of applying critical thinking in ESL/EFL contexts would be the higher use of language learning strategies. Thereupon, the more language learning strategies used on learning the language, the better language learning will result.

Referring to the data analysis, performed on the data collected from the two questionnaires of LLS and Critical Thinking, the effect of critical thinking trainings through EAP course has been proved to be positive and the students who studied EAP course within one semester seemed to use higher LLS. The reason that the use of LLS does not show significance between EAP students and General English students might be due to the insufficient students' awareness toward LLS.

Furthermore, this study proves the positive relationship between the students' language score and the LLS use. For the speaking and listening examination, the positive correlation was significant, but for the reading and writing examination the positive correlation was weak which would be due to the test itself. Besides, the correlation between critical thinking abilities and the use of language learning strategies also proved to be positive.

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