



An Empirical Study of Gender Effect on L2 Vocabulary Acquisition Strategies

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Received 28 September 2014; accepted 15 November 2014
 Published online 26 December 2014

Abstract

This research examines the gender effect upon L2 vocabulary acquisition strategies used by Chinese EFL university students in terms of total amount and breadth. Catalan's research method was employed. 630 Chinese students from three universities of science participated in an investigation which consisted of questionnaire, EFL proficiency test and EFL vocabulary test. Results indicated that there were no significant gender differences between males and females with respect to the total amount of EFL vocabulary acquisition strategies they used. As for the breadth, there were significant differences between them for the twelve of the discovery and consolidating strategies. The results were explained within the framework of socio-cognitive theory which combined physiological factors with social ones, suggesting that the mastery and use of languages were closely associated with both of them. Contrastive analysis also revealed that participants in this research and those from other countries had much in common in their ESL/EFL vocabulary acquisition strategies, which might provide further evidences for both universalism and cultural relativism. Implications of the results were also discussed.

Key words: Gender effect; EFL vocabulary acquisition strategies; Social cognition; Universalism; Cultural relativism

Wei, X. M. (2014). An Empirical Study of Gender Effect on L2 Vocabulary Acquisition Strategies. *Studies in Literature and Language*, 9(3), 86-93. Available from: <http://www.cscanada.net/index.php/sll/article/view/5710>
 DOI: <http://dx.doi.org/10.3968/5710>

INTRODUCTION

Vocabulary acquisition is an important component of ESL/EFL learning. Without vocabulary, it is not possible for people to express anything (Knight, 1994; Sun, 2007). As a component of L2 vocabulary acquisition researches, vocabulary acquisition strategies play an important role in the whole process of language learning. Before the 1990s, researches with respect to vocabulary acquisition strategies was often marginalized. Two reasons might be in a position to account for the marginalization. Firstly, structural linguistics and generative grammar were the essential aspects of linguistic researches at that time. In view of EFL learning, grammar and phonetics teaching became the focus and vocabulary was not considered to have universal principles (Coady, 1997; Gu, 2010). Secondly, factors that affected L2 vocabulary acquisition strategies proved to be complicated. It was common knowledge that learners' memory type, learning style, motivation and cultural background all exerted more or less influence upon their strategies and the difficulty level of researches in this field was comparatively high (Kojic-sabo & Lightbown, 1999).

Since the 1990s, with the development of foreign language teaching and relevant disciplines, great importance has been given to L2 vocabulary acquisition strategies and researches about them have emerged in an endless stream. Most of them were believed to be the application and progress within the vocabulary field of learners' strategy researches that came into being in the early 1990s. In the identification and categorization of the general language learning strategies, some scholars discussed about various strategies in L2 vocabulary learning in an all-round way, gave a detailed description and categorization, and established theoretical framework related to them (Schmitt, 1997). Outside China, relevant researches focused on the relationship between vocabulary acquisition strategies and learners' gender, learning motivation, age and characteristics of personality (Oxford

& Nyikos, 1989; O'Malley & Champt, 1990; Schmit, 1997). In China, although there were some relevant empirical researches in the Chinese context, most of them aimed at university students of English majors. Few investigations focused on the 30 million non-English majors with significant differences between them in their English levels (Zhang, 2011). There were a lot more statistics than empirical researches with respect to the relationship between non-English majors' gender factors and their vocabulary acquisition strategies. Few researches dealt with the topic within the theoretical framework of universalism and cultural relativism, which were the first motivation for this research.

Research on learners' gender factor and their cognitive abilities in EFL teaching is merely one of the attempts to integrate foreign language teaching with social linguistics and cognitive psychology. It may enrich and deepen researches related to social linguistics, cognitive psychology and second language acquisition, and thus provide implications for the various stages and levels of foreign language practice, which was the second motivation for this research.

Hence there were three questions to be answered: (a) Are there any gender differences in the cognitive process between Chinese university EFL learners in their vocabulary acquisition strategies in terms of total amount and breadth? (b) Suppose differences do exist, mean that they significant? How to explain them to cultural and cognitive levels? How to exchange the results of this research with those of relevant ones outside China within the theoretical framework of universalism and cultural relativism? (c) To what extent is the product of this research significant for EFL teaching and research?

1. THEORETICAL FRAMEWORK

For a long period of time, there have been debates between views of universalism and those of cultural relativism in the field of cultural and linguistic researches (Yao, 2011). The former finds that there exist some universal principles of conditionality or similarities behind different cultures and language phenomena. Representatives are the medieval speculative grammar under the guidance of rationalism, universal grammar in the 17th century, Humboldt's thought of linguistic philosophy in the 19th century and Chomsky's transformational-generative grammar. School of language type is based on functionalist theory shares the above ideas. On the other hand, cultural relativism holds that human languages and cultures affect each other but there are few similarities between different languages and cultures. In addition, cultural researches aim at particular and specific phenomenon, and the ancient world-famous Sapir-Whorf Hypothesis is represented by this type. In the field of L1 acquisition, debates between universalism and cultural relativism lie in the conflicts between "nature" and

"nurture". In other words, is L1 acquisition competence inborn or acquired after one's birth (Gu, 2010)? In the field of L2 acquisition, there are similar debates between the two. The former is represented by the second language acquisition theory guided by generative linguistics and neurolinguistics, which suggest that in human brains there are born language rules and language acquisition mechanism. Schools of "nurture" seem to be complicated. Its primary representative is behaviorist acquisition theory and the current one is mainly represented by second language acquisition modes with various cognitive approaches and social cultures as the dominant factors (Yang, 2010). To be more specific, it involves gender factor research in the second language acquisition. "Nature" attempts to explain the gender differences in language acquisition and use from the perspectives of cognitive development, brain function lateralization, gene genetics and other biological differences, while "nurture" interprets the gender differences in the aspects of language acquisition, use and learning stages from the angle of acquired factors such as different social status, sub-cultural systems and learners' roles in daily life and work. In this research, the author intends to examine the gender effect upon L2 vocabulary acquisition strategies for Chinese EFL university students of non-English majors within the theoretical framework of universalism and cultural relativism in terms of "nature" and "nurture". Conclusion from it will be more or less contribute to the essential proposition of whether linguistic competence is innate or acquired. It will be of great help not only to a better understanding of the statement "nature vs nurture", but also of the debates between universalism and cultural relativism at philosophical level (Pang, 2003).

2. METHODS

2.1 Questionnaire

For the sake of convenience, the author of this research referred to Catalan's method (Catalan, 2003). In view of the differences between Chinese context and other language ones, the author made some alterations for Catalan's questionnaire so that it could meet the needs of Chinese learners. For example, there were some strategies such as etymology utilization that Chinese students seldom used. Hence some items in Catalan's questionnaire had to be removed. The internal consistency reliability for the revised questionnaire was 0.87.

2.2 English Proficiency Test and Vocabulary Test

Participants' final EFL test was used as their English proficiency test with reliability coefficient of 0.89, which included listening, speaking, reading and writing. The vocabulary test was based on the 2012 national English vocabulary competition and the reliability coefficient of the revised test was 0.90.

2.3 Participants

630 Chinese sophomores of non-English majors participated in the investigation, 285 of them were males and 345 were females. They were from three universities of science in Hubei province with the average age of 19.5 and about 10 years of English learning. In addition, 8 teachers who taught the participants were interviewed and they had been EFL teachers for at least eight years.

2.4 Procedures

English proficiency test, vocabulary test and questionnaires were given at the end of the third semester (January, 2014). Before questionnaires were distributed, the researcher interviewed the 8 teachers so as to have a holistic view of participants' EFL learning. Then she had a respective *t*-test of the English proficiency test result and vocabulary test result and found that there were no significant gender differences between males and females ($p > .05$). 630 questionnaires were distributed and retrieved, and 600 proved to be valid. In the process of data collection, the researcher referred to O'Malley & Chamot's criteria for questionnaire data collection. Finally she had a follow-up interview with some of the participants in order to combine quantitative analysis with qualitative one and make the research result as objective and convincing as possible.

3. RESULTS

For statistics for participants' use of vocabulary acquisition strategies, see Table 1. It can be clearly seen from the table that the total amount of vocabulary acquisition strategies used by females was smaller than by males (14.507 vs 14.741) but no significant difference was found ($P > .05$). Previous research revealed that successful L2 vocabulary learning did not lie in the frequency of strategy use but in how to effectively and appropriately use the strategies (Ding, 2006). Among the 52 strategies investigated, the most and the least frequently used ones were at the two extremes and might represent most of the learners' general use of strategies (Catalan, 2003). Hence the researcher chose ten of the most frequently used as well as ten of the least frequently used (see Table 2 and 3).

Table 1
Statistics for Participants' Use of Vocabulary Acquisition Strategies

Gender	Number	Mean	Standard deviation
Males	275	14.741	4.125
Females	325	14.507	3.986
Total	600	14.624	4.055

Table 2
Ten Strategies Most Frequently Used With Gender as Independent Variable

Strategies used	Gender		Percentage	
	Males	Females	Males	Females
Consulting English-Chinese dictionary	1	1	82.21	93.78
Respelling	2	3	82.19	71.31
Guessing from the context	3	2	69.97	79.14
Reciting the vocabulary list in each unit	4	4	69.95	60.03
Consulting the vocabulary list in the appendix	5	5	49.82	60.02
Rereading aloud	6		49.80	
Consolidating from the context	7	6	48.72	58.90
Consolidating according to the phonemes	8	7	45.72	57.53
Taking notes in class	9	9	44.84	49.32
Directly consulting classmates	10	8	40.10	55.68
Pronunciation association	9		49.32	

Table 3
Ten Strategies Least Frequently Used With Gender as Independent Variable

Strategies used	Gender		Percentage	
	Males	Females	Males	Females
Self-made word cards	1	1	5.17	1.37
Initial letter association	1	2	5.17	2.74
Labeling objects in English	3	3	6.90	4.11
Trying to use the word when communicating with native speakers of English	3	4	6.90	5.48
Using relevant pictures and photos	3	8	6.90	6.88
Subordinate relationship of word meaning	6	10	10.43	9.59
With the help of relevant pictures	7		12.07	
Imitating action that conforms to word meaning	10	8	14.07	7.02
Asking the teacher to explain the sentence that contains the word	7	5	12.07	6.85
Asking the teacher to give the word meaning	7	5	12.07	6.85
Categorization of the same rhymes	5		6.85	

Table 2 reveals that among the ten strategies most frequently used by both males and females, there were nine mutual ones which ranked about the same for both of them. In addition, among the nine mutual strategies three of them were discovery strategies and six were consolidating strategies. From Table 3 it can be seen that

among the ten strategies least frequently used by both males and females, there were nine mutual ones that also ranked about the same for both of them. Table 2 and 3 indicated that among the ten strategies that were most or least frequently used, most of them ranked about the same for both of the participants. Statistics for the fifty-two strategies used revealed that there were significant gender differences in the use of the twelve specific strategies ($P < .05$; see Table 4 and 5), and all the strategies could be found in Table 2 and 3 except “discussing with classmates”. The next section is about the detailed explanation and interpretation of the results.

Table 4
Percentage for Vocabulary Acquisition Strategies Used With Significant Gender Differences (Females > Males)

Strategies used	Males	Females	P value
Consulting English-Chinese dictionary	82.21	93.78	0.030
Guessing from the context	69.97	79.14	0.037
Consulting the vocabulary list in the appendix	49.82	60.02	0.020
Consolidating from the context	48.72	58.90	0.029
Consolidating with the help of phonemes	45.72	57.53	0.019
Directly consulting classmates	40.10	55.68	0.022
Pronunciation association	37.76	49.32	0.030
Discussing with classmates	17.07	29.31	0.021

Table 5
Percentage for Vocabulary Acquisition Strategies Used With Significant Gender Differences (Females < Males)

Strategies used	Male	Females	P value
ResPELLing	82.19	71.31	0.045
Reciting the vocabulary list in each unit	69.95	60.03	0.043
Rereading aloud	49.80	32.44	0.032
Imitating action that conforms to word meaning	14.07	7.02	0.017

4. DISCUSSION

4.1 Similarities

In terms of breadth, Table 2 revealed that the strategies both males and females used ranked about the same with “consulting English-Chinese dictionary” at the top, followed by “guessing word meaning from the context” and “consulting the vocabulary list in the appendix”. When consolidating learnt words, both of them used “respelling”, “reciting the vocabulary list in each unit”, “consolidating from the context” and “consolidating with the help of phonemes”. In Table 3, among the

ten strategies least frequently used by both males and females, the mutual strategies also ranked about the same with “self-made word cards” at the top, followed by “initial letter association”, “labeling objects in English”, “trying to use the word when communicating with native speakers of English” and “turning to the teaching for help”. The possible explanation for the above result might be that as both male and female participants were from urban areas (according to the previously collected data on their personal information) and shared similar social and learning atmosphere, background, learning tasks and conditions, there had many similarities between them in their sense of perception or cognition and EFL learning strategies in spite of the variety of their choice. This observation can be extended to ESL/EFL context. The similar sense of perception might account for the fact that they unconsciously used almost the same strategies to obtain the meaning of new words and consolidate them (Duan, 2008).

4.2 Differences

Firstly, it can be observed from table 4 that female learners used four of the strategies significantly more frequently than males in their obtaining the meaning of new words and three of the strategies were ranked among the mutual strategies, namely “consulting English-Chinese dictionary”, “guessing from the context” and “consulting the vocabulary list in the appendix”. The possible reason might be that males and females had different ways of cognition, learning style and preference in terms of specific vocabulary acquisition strategies. Oxford (2002) believed that learning style was closely associated with learning strategies and that learning strategies depended on learning style. Females’ learning style is comprehensive, tends to depend on field-dependence, and more on environments and help of others or media when solving a problem. In the use of the three discovery strategies with significant differences between females and males, female participants revealed their learning style of field-dependence to a great extent. In other words, compared with males, they turned more to the language environments (“guessing from the context”), paper or electronic media resources for help (“consulting English-Chinese dictionary” and “consulting the vocabulary list in the appendix”).

From Table 4 it can be seen that in the process of consolidation, females used four strategies significantly more frequently than males. At the top was “consolidating from the context”, followed by “consolidating with the help of phonemes”, “directly consulting classmates” and “pronunciation association”. Among them, the first three came from the mutual strategies in Table 2, indicating that compared with males’ preference of “respelling” and “mechanically reciting”, females had mastered some formal learning strategies in their consolidation and had already used them unconsciously. Relatively speaking,

males used these strategies much less, instead they merely mechanically and passively recited new words and expressions, which had been validated in foreign language vocabulary acquisition under other cultural background (Kaylani, 1996; Catalan, 2003). “Visual and tactile” and “auditory” theories may account for the above phenomenon. Oxford (2002) observed that compared with male learners’ learning style of “visual and tactile” preference, female learners preferred “auditory” style or liked “oral-aural learning channel” more than others, and more actively participated in discussions, conversations and team work. Strategies of “consolidating with the help of phonemes” and “directly consulting classmates” conformed to this style in a great sense. In addition, Kaylani held that “auditory” preference was also revealed in the use of authentic materials in language learning instead of mechanically consolidation, and “consolidating from the context” was simply one of the manifestations. Males used “respelling” and “mechanical recitation” comparatively more frequently, indicating that they were more inclined to prefer “visual and tactile” style.

In Table 4, “pronunciation association” and “discussing with classmates” were not among the top ten frequently used strategies, indicating that females preferred comprehensive, field dependence and “auditory” style. Female participants in this research actively consulted their classmates and had discussions with them when coming across new words and expressions. When consolidating new words, they turned to world knowledge for help which was acquired through communication and self-study. They used “pronunciation association” more than others to consolidate, actively associated pronunciation with word meaning, intentionally used some cognitive strategies that were helpful to consolidation. It reveals that in foreign language learning, females are more sensitive and open-minded in new language forms and will more possibly use them in their own world knowledge system (Ellis, 1999).

Table 5 revealed that male participants used some strategies significantly more frequently than female ones. In consolidating the learnt words, there were four strategies that males used significantly more frequently than females and these strategies could be found in Table 2 and 3 with “respelling” at the top of the list, followed by “reciting the vocabulary list in each unit”, “rereading aloud” and “imitating action that conforms to word meaning”. It indicated that in consolidating ESL/EFL words, males used mechanical and passive recitation strategies more often. The reason might be that in foreign language learning, males tend to prefer field-independence and objective learning style, depend less on social environments, not sensitive to their change and in most cases depend on their own internal knowledge framework to analyze and solve problems (Oxford, 2002).

4.3 Reasons for the Similarities and Differences

In the above part, gender differences were attributed to participants’ different learning styles. But the point is how the different styles are formed? At present socio-cognitive theory seems to be more than convincing to explain it. The theory integrates physiological factor with the social one, suggesting that the mastery and use of languages are not only attributed to human biological properties, but also to the socially mediated world (Firth & Wagner, 1997).

Firstly, for quite a long period of time, psychological and physiological researches have found that females have innate advantages in the aspects of language ability development and skill of language learning. Results of known neurologic and medical research indicated that man’s left and right cerebral hemispheres had different functions in the processing of languages and that the left one mainly dealt with word meaning and the right one was mainly associated with intonation, rhymes and rhythms (Oxford, 2002). According to Leaver (1986) and Willing (1988), the learner whose left side of brain played a key role in foreign language learning tended to have learning style of field-independence and the learner whose right side of brain played a key role might have the style of field-dependence. Based on this, Springer & Deutsch (1989) and Elias (1992) concluded that most of the males were learners whose right cerebral hemisphere played a key role while females were mostly those who integrated the left one with the right one with the left playing a dominant role. Medical researches have also found that it is the brain fiber bundle which links the left and right cerebral hemispheres. Compared with brain’s total amount of weight, females’ brain fiber bundle is greater than that of males, which has provided more biological evidence for the sake of convenience of information exchange between the left brain and the right one and will exert significant influence on ESL/EFL acquisition (Kaylani, 1996).

Secondly, the above result can be also explained in terms of social factors, and social constructivist theory seems to be more than convincing (Wang, 2009). According to the theory, gender is not innate or unchangeable, instead it is the product created in social communicative activities, and the concept of community of practice has been widely used and proves to be theoretically convincing.

As far as foreign language learning is concerned, the theory suggests that gender differences in terms of cognitive abilities such as reading and vocabulary learning are attributed to the products that are continuously created in their own social communicative activities (Mills, 1980). Relevant sociology researches found that since the early childhood, parents began to teach their children behaviors that conformed to their genders to reveal different social community relationship and identity authentication. For males, parents stressed sense of achievement, awareness of competition, independence and control of affections;

for females, however, they think more of interpersonal relationship and expression of affections. Hence affected by this traditional education form, the early male behaviors were more represented by masculine physique while female ones by tenderness and love of socialization, which affected teenagers' foreign language learning. In other words, males reveal field-independent and objective learning style while females have field-dependent and comprehensive one (Oxford, 2002).

Participants in this research were all born in the 1990s with most of them the only child in the family and began to learn English at the age of three or four. Males and females have different social community relationship and gender behaviors of identity authentication which has been formed since early childhood and affects their later foreign language learning. This impact seems to be much stronger for females who have positive attitude, strong sense of crisis and desire for success regarding foreign language learning. Hence they are eager to achieve the purpose, actively participate in various learning activities (Kaylani, 1996; Sun, 2007).

From the above analysis, it can be seen that it will be difficult to interpret the participants' performance merely from the angle of biological properties or social environments. Appropriate explanation can be provided only through integrating the two, the continuous interactivity between them so as to form *structural coupling*. In other words, social environments are not cognitive objects that are separated from the nervous system with biological significance. Nervous system endows social environments with the present meaning and the latter also participates in the process creation of biological objects (Foley, 1997). As far as foreign language learning is concerned, learners' choice of strategies is restricted by their concept of language learning, their own factors, learning background and environments.

4.4 Contrastive Analysis

4.4.1 Evidence for Universalism

Compared the data of this research with the ten most frequently used strategies in Catalan's research (Catalan, 2003), it was found that in obtaining the meaning of new words, EFL learners with different cultural background had some mutual vocabulary learning strategies, such as "consulting dictionaries" and "guessing from the context". When consolidating the learnt words, learners "took notes" and "recited the vocabulary list" across cultures, indicating the consistency of learning behaviors under different cultural background. In other words, despite their different cultural background, male and female participants followed some similar cognitive modes. Are these modes "human universal language abilities" in ESL/EFL acquisition in Humboldt's words (Yao, 2011)? Evidently, as time goes by and technology develops, this point of view has become one of the hot topics within

the field of ESL/EFL acquisition with the focus on the position and application of Chomsky's linguistic theory in ESL/EFL teaching (Ma, 2011). There is no doubt that the relevant discussion may provide some evidence for the existence of universalism in this field.

Some western scholars' (Kaylani, 1996; Catalan, 2003) researches indicated that in ESL/EFL vocabulary acquisition, female learners in general preferred oral-aural, comprehensive and field-dependent learning style while males preferred visual and tactile learning channel and field-independent style, which has been validated in the present research, indicating that Chinese learners and participants in Catalan's research did use similar learning strategies, and that it was the learning style that played decisive role in their strategies. As discussed above, learning style revealed learners' some biological properties which might play dominant role in learners' choice of strategies, thus providing further evidence for the existence of universal behaviors in ESL/EFL teaching and learning.

4.4.2 Evidence for Cultural Relativism

The significant gender differences in terms of the total amount of strategies used in the investigations of Catalan (2003) and Oxford et al. (1989) were not manifested in the present research, indicating that in addition to biological factors, learners' learning behaviors were also associated with the educational forms they had received as well as specific ESL/EFL classroom. In the present research, male and female participants received similar higher education, and they were in the similar social and learning environments and had identical social and psychological sense of cognition. In some aspects of EFL vocabulary acquisition, these postnatal factors exert much greater influence on learners' language acquisition, use and learning phases than the innate ones, which may account for the differences between the result of the present research and those from western countries and provide evidence for cultural relativism within the field of ESL/EFL teaching and learning.

In addition, the researcher also found that the "social strategy" widely used in Catalan's research was not obviously revealed in Table 3. In other words, most of Chinese students' learning behaviors outside classroom belonged to self-fulfillment style, lacked communication and interactivities with others, which might also supply evidence for the existence of cultural relativism. In another word, the existence of certain communicative behavior is significantly affected by sub-culture. The possible explanation might be that traditionally Chinese students merely learnt by themselves and were not good at cooperative learning or team work. Although they did know some social skills and strategies, they failed to realize the significance of using them in EFL learning. On the other hand, it indicated that participants simply regarded memorizing words and expressions as their

ultimate objective, which might have been influenced by Chinese culture, as this sort of learning channel was greatly affected by the Confucian educational thought. From the Confucian point of view, the world had to be explained by the Confucianists who were the unchallenged authorities and what students had to do was merely reciting and memorizing the works written by these authorities so as to show their respect for the authors. For hundreds and thousands of years of this learning channel has been deeply rooted in Chinese education and formed the mainstays in Chinese educational system (Nelson, 2002). Influenced by the traditional culture, students deemed that relevant strategies had to be used in order to improve memory efficiency. Hence they focused on the language forms, neglected communication with others in EFL learning, thus decreasing the use frequency of social strategies.

It can be seen from the above comparison and contrast analysis that there were similarities as well as differences between Chinese students and those from other countries in terms of ESL/EFL vocabulary acquisition strategies, indicating that the opposing universalism and cultural relativism in the field of culture and language researches also exist in foreign language acquisition. In reality the similarities and differences have a dialectical relationship of mutual complementation.

CONCLUSION

From the above analysis the following conclusion could be arrived at that there were no significant gender differences between males and females with respect to the total amount of EFL vocabulary acquisition strategies. As for the breadth, there were significant differences between them to the twelve of the discovery and consolidating strategies, which was attributed to participants' different learning styles. The result can be explained within the framework of socio-cognitive theory which combines physiological factors with social ones, suggesting that the mastery and use of languages are closely associated with both of them. Contrastive analysis also revealed that participants in this research and those from other countries had much in common in their ESL/EFL vocabulary acquisition strategies, which have provided further evidences for both universalism and cultural relativism. In other words, universalism and cultural relativism in the field of culture and linguistics is also reflected in ESL/EFL acquisition. There are important implications for the results.

Firstly, in terms of linguistic theory, discussion on the opposing similarities and differences indicates that there are no unchangeable theories in linguistic and applied linguistic researches. In contrast, they tend to be opposite to each other and complement each other. Hence the perfectness of the relevant researches is manifested as

comparatively and not eternally perfect or reasonable (Yang, 2002).

Secondly, explanation of the result and relevant contrast analysis reveals that the necessity and urgency for interdisciplinary discussion ought to be realized for linguistic research in the new century. Hence only when biology, psychology, sociology and anthropology are integrated can be new theoretical hypothesis come into being (Yang, 2007).

Thirdly, intercultural comparison and contrast reveal that discussion about "information asymmetry" in cross-culture communication and avoidance of cultural misunderstanding may help realize the drawbacks and demerits in EFL teaching and improve teaching quality (Sunderland, 1992).

Fourthly, due to the teachability of learning strategies (Oxford et al., 1989), the most and the least frequently used strategies can be used as reference in relevant training. Intentional and specific training on consolidation should be done and vocabulary acquisition techniques and strategies ought to be appropriately taught, in particular the cognitive consolidating strategy, so as to change students' harmful concept of vocabulary learning.

Fifthly, as Chinese learners did not use the EFL vocabulary acquisition strategies frequently enough, it is suggested that various contexts should be provided as much as possible for students to use, practice and experience the implied meaning of the words that they have learnt, and discuss about them. It has been proved that words in a certain context can be memorized better than those without context (Zhang, 2006).

There are also some limitations to this research. As the participants were from three universities of science in Hubei province, China, possibly the limited sample is not sufficiently able to represent all the Chinese university students. In addition, the analysis merely concentrated on the most and least frequently used vocabulary acquisition strategies and those who had significant gender differences, not all of the strategies. The data collected came from elicitation of questionnaires and were merely "second personal data". To arrive at more convincing conclusion, "third personal data" should be collected, namely for the research on corpus data, there is need to put all linguistic knowledge into corpus for observation and verification (Feng, 2011).

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