Out-of-Class Language Learning Strategies and Thai University Students Learning English for Science and Technology

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Abstract

The present investigation is descriptive-interpretative in nature. It has been designed a) to investigate an overall strategy use of Thai students learning English for Science and Technology (EST); and b) to examine the relationships as well as patterns of variations in frequency of students' reported out-of-class strategy use with reference to their perceptions of English language ability levels (good/very good; fair; and poor), gender (male; and female), and field of study (Engineering; Agricultural Technology; Public Health; and Information Technology). The subjects of this study were 488 students learning English at a university of Science and Technology in Northeast Thailand. They were sampled on the basis of convenience and availability. A written strategy questionnaire based on the language learning strategy inventory developed by the researcher was used as the main instrument for the data collection. The Alpha Coefficient (α) or Cronbach alpha was used to check the internal consistency of the strategy questionnaire. The reliability estimate based on a 488-student sample is .92 which is high when compared with the acceptable reliability coefficient of .70, a useful rule of thumb for research purposes. The simple descriptive statistics were used to describe level of frequency of strategy use, while an Analysis of Variance (ANOVA), and the Chi-square tests were used as the main statistical methods in data analysis to seek the relationship between the frequency of strategy use and the above-mentioned three variables. The findings of the research show that these language learners, on the whole, reported medium frequency of use of out-of-class language learning strategies. The results of the data analysis also demonstrate that frequency of students' overall reported use of individual out-of-class language learning strategies varied significantly in terms of perceptions of English language ability levels. The implications, limitations of the present investigation as well as further research were also discussed.

Keywords: Learning strategies; Thai university students; English for Science and Technology (EST)

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Literature review

An initial review of the available literature and other research materials appear to reveal that much of the research into language learning strategies has been carried out with native speakers of English learning a foreign language, or non-native speakers of English learning English as a second language (ESL). A small amount of research has been carried out with language learners learning English as a foreign language (EFL), such as in the context of Thailand. To date, a few research studies have been carried out with Thai students in terms of their language learning strategies, and a small amount of research has been carried out to investigate language learning strategy use by Thai students studying at the tertiary level. It also appears that the majority of the subjects of these few investigations were students majoring in English. Examples are Sarawit (1986), Mullins (1992), Torut (1994), and Lappayawichit (1998). The use of language learning strategies by English major students or other successful language learners were the focal point of these studies. However, the latest available research carried out with Thai students whose major subject is not English, was conducted by Intaraprasert (2002). This investigation has been the only empirical research carried out exclusively to investigate how unsuccessful language learners employ classroom-related language learning strategies so far. Until now, no empirical research has been carried out exclusively to investigate how students employ out-of-class language learning strategies in order to improve their language skills in general. These out-of-class language learning strategies are referred to as 'classroom-independent strategies' as well. Hence, the researcher will use these two terms interchangeably throughout. The present investigation aims to fill this gap. The researcher decided to undertake an investigation which has been designed to examine the use of classroom-independent strategies based on the inventory generated by Intaraprasert (2000). This investigation is descriptive-interpretative in nature rather than confirmatory, hypothesis-testing, or as termed by Skehan (1989) and Larsen-Freeman and Long (1991), it employs the 'research-then-theory' rather than the 'theory-then-research' format (cf. Graham, 1997). To put it simply, this investigation is not intended to reconfirm any theories or hypothesis about students' use of language learning strategies. Rather, it has been designed to examine the relationships between three variables (two learner-related, and one language performance) and the frequency of use of out-of-class language learning strategies.

Research Objectives

The present investigation aims at understanding how language learners learning English for Science and Technology outside the classroom setting improve their language skills in general, through an investigation of language learning

What is the level of frequency of use of classroom-independent language learning strategies reported by EST students?

In response to this research question, the research findings reveal that the students' reported overall use of these language learning strategies based on the holistic mean score is of medium frequency. The mean frequency score was 1.05. When the reported frequency of use of strategies to achieve the classroom- independent purposes was determined, it was found that students reported medium frequency of use of out-of-class strategies to achieve classroom-independent purposes CIP1, which is to expand one's knowledge of English vocabulary and expressions; CIP2: to improve one's listening skill; CIP4 to improve one's writing skill; and CIP5 to acquire general knowledge in English. The frequency mean scores were 1.32, 1.05, 1.00 and 1.21 respectively. Students reported low frequency of use of strategies to achieve classroom-independent purpose CIP 3, which is to improve one's speaking skill and the frequency mean score was 0.74.

Table 1 A Summary of Variation in Frequency of Students' Overall Reported Strategy Use

'Perceived' Language Ability	Poor (n=232)		Fair (n=245)		Good/very Good (n=11)		Comments	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Significance level	Pattern of Variation
Overall Strategy Use	0.89	0.88	1.18	.95	1.60	1.11	p<.001	Good>Poor Good>Fair

Gender	Female (n = 239)		Male (n = 249)		Comments	
	Mean	S.D.	Mean	S.D.	Significance level	Pattern of Variation
Overall Strategy Use	1.04	.91	1.06	.96	N.S.	—

Field of Study	Engineering (n=243)		Agricultural Technology (n=51)		Public Health (n=80)		Information Technology (n=114)		Comments
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Significance level
Overall Strategy Use	1.09	.94	0.90	.92	0.97	.89	1.10	.93	N.S.

● Use of Strategies to Achieve Classroom-Independent Purposes

The ANOVA results showed significant variations in use of out-of-class strategies to achieve all of the five classroom-independent purposes in relation to this variable. The five language improvement purposes are CIP1, which is to expand knowledge of English vocabulary and expressions; CIP2: to improve listening skills; CIP3: to improve speaking skills; CIP4: to improve writing skills; and CIP5: to acquire a general knowledge of English. The main significant variations of strategy use in relation to this variable are as follows.

1. Self-rated 'good/very good', and 'fair' ability students reported more frequent use of out-of-class strategies to achieve classroom-independent purposes CIP1, CIP 2, CIP 3 and CIP 4 than self-rated 'poor' ability students.
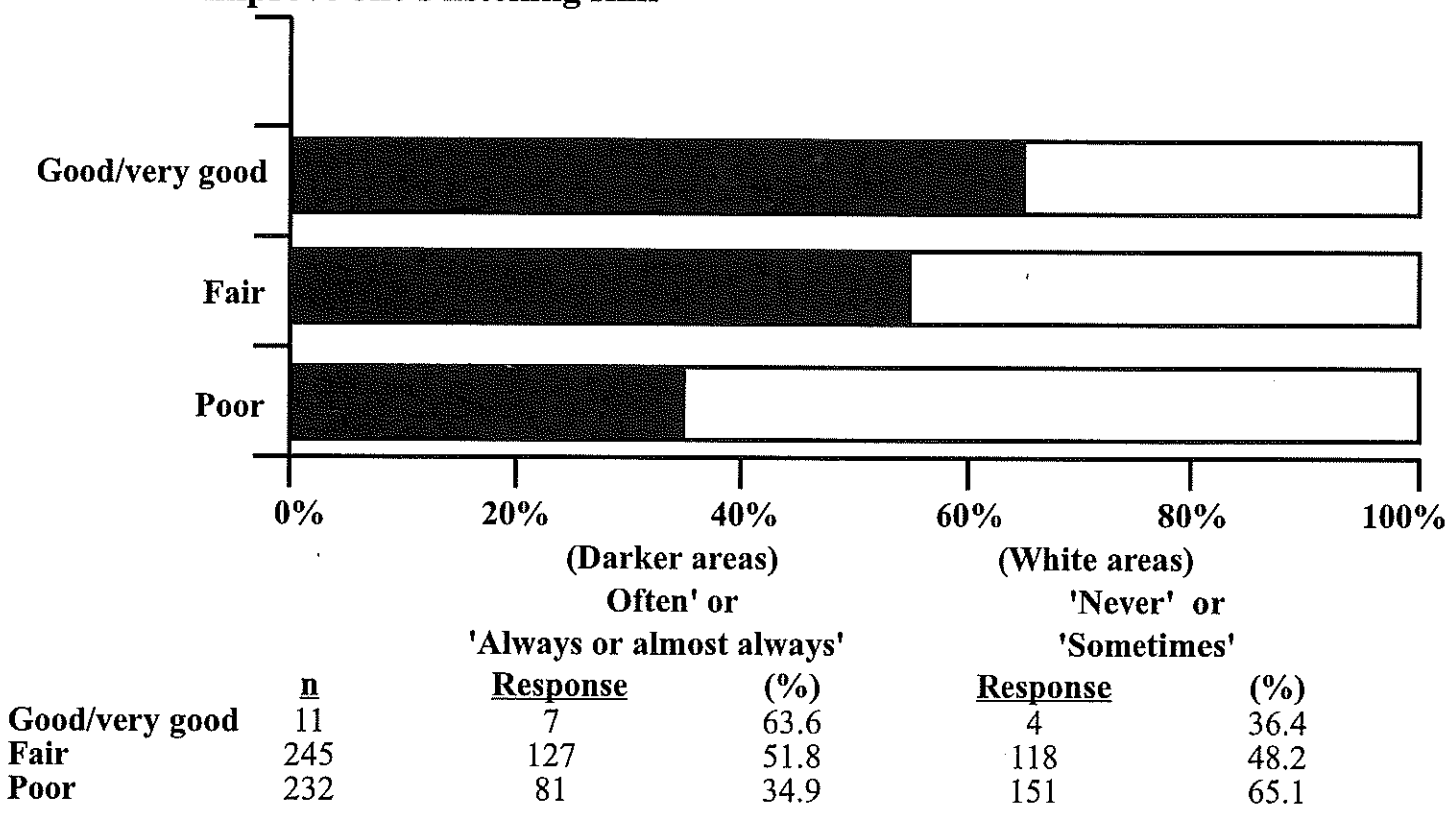
2　Self-rated 'good/very good' students reported more frequent use of out-of-class strategies to achieve CIP5 than those rating their language ability levels as 'fair', or 'poor'.

● Use of Individual Out-of-Class Language Learning Strategies

The Chi-square tests showed that use of 18 out of 20 individual out-of-class language learning strategies (90%) varied significantly according to students' 'perceived' language ability levels. The existing dominant variation pattern was considered positive, indicating that self-rated 'good/very good' ability students reported more frequent use of the out-of-class strategies than did self-rated 'fair' or 'poor' ability students. Seventeen individual strategies exhibit a positive variation and one is mixed.

Figure 1. Example of Variation Patterns Classified as Positive (Good/very good>Fair>Poor).

SCIP 2.2 Listen to English songs or cassette tapes of English conversations in order to improve one's listening skill

	n	(Darker areas) Often' or 'Always or almost always' Response	(%)	(White areas) 'Never' or 'Sometimes' Response	(%)
Good/very good	11	7	63.6	4	36.4
Fair	245	127	51.8	118	48.2
Poor	232	81	34.9	151	65.1

Note: $X^2 = 15.59$ (df = 2), p < .001

Do students' choices of language learning strategies vary significantly according to their field of study? If they do, what are the main patterns of variation?

In response to the fifth research question for the present investigation, the researcher has made an attempt to examine variations in students' reported frequency of use of out-of-class language learning strategies as well as the patterns of variation. The results of the ANOVA showed no significant variations in relation to the student's field of study in students' reported overall strategy use, or use of strategies to achieve any classroom-independent purposes. However, the chi-square tests showed that use of 6 out of 20 individual out-of-class language learning strategies (30%) varied significantly according to this variable. The variation patterns were not consistent, with Engineering students or Information Technology students reporting more frequent use of certain strategies than those whose field of study is either Agricultural Technology or Public Health. Engineering students reported employing three strategies more frequently than students studying the other three major fields. These include SCIP1.2 Play games in English such as crosswords and computer games to expand their knowledge of English vocabulary and expressions; SCIP 5.1 Seek an opportunity to be exposed to English in order to acquire a general knowledge of English; and SCIP2.4 Watch TV programs in English in order to improve one's listening skills. The three strategies which IT students reported employing more frequently than those studying the other three fields include: SCIP5.4 Surf the Internet in order to acquire a general knowledge of English; SCIP 3.1 Talk to oneself in order to improve one's speaking skills; and SCIP 3.4 Use a computer program like a 'chat' program in order to improve one's speaking skills.

Discussions of the Research Findings

As seen above in response to the research questions, the relationships of classroom-independent language learning strategy use reported by 488 students to the three variables, i.e. students' perceptions of their language ability levels, students' gender, and their field of study, have been described. What follow in this section are discussions of the research findings in association with the variables investigated. This section will, therefore, offer possible reasons hypothesised by the researcher as to where significant differences in strategy use with reference to each variable become apparent. It is worth pointing out that it may not be easy to relate strategy use reported by these language learners in the very detailed manner of earlier studies. This is because the present study has a different way of classifying language learning strategies and the resulting analysis has to be performed with regard to the strategy classification. The difficulty in making comparisons of the use of strategies reported in one study with those reported in another has been pointed out previously by Chamot (1987), and Ellis and Sinclair (1989).

learners are different in that the former are able to use strategies appropriately, while the latter also use a number of strategies inappropriately. This is also reported in the study of Vann and Abraham (1990) in which unsuccessful language learners appeared to be active strategy users, but sometimes they applied strategies inappropriately. In addition, these findings are consistent with what has been identified by Nunan (1988, p.14) as 'the failure to use language outside the class' which is one of the main reasons for learner-failure.

Use of Language Learning Strategies and the Gender of Students

The results of most of the previous studies in which the gender of the learner was taken into account have concluded that females employ certain strategies significantly more frequently than their male counterparts, especially social strategies. Emphasis on the significant differences in use of these learning strategies might be explained by the female's greater social orientation, and greater conformity to norms, both linguistic and academic as evidenced in Ehrman and Oxford (1989) and Oxford and Nyikos (1989).

The findings of the present investigation, however, showed no strong relation between the gender of students and their choices of strategy use, which is consistent with studies by McGraorty (1983), Tran (1988), Wharton (2000) and Intaraprasert (2000). The findings in this respect suggest that these language learners reported employing classroom-independent language learning strategies in more or less the same degree, irrespective of their gender. However, there is a minor significant difference in use of individual strategy items which male students reported using significantly more frequently than their female counterparts. This finding is consistent with the report of strategy use by Vietnamese adults in the United States of America with male learners reporting the employment of such strategies as watching television or listening to the radio (Tran, 1988) or the Prokop study (1989) which suggests that male students reported employing risk-taking and a creative approach to the learning tasks more frequently than their female counterparts did. Male students tried to be original in oral and written expressions regardless of correctness of their language. The evidence shown might be considered as the result of male students who may feel more comfortable when dealing with computers or other media.

Use of Language Learning Strategies and the Students' Field of Study

The fields of study of these language learners at a university of science and technology has been classified as: Engineering, Agricultural Technology, Public Health, and Information Technology.

The finding of the present investigation reveals no relationship between use of

strategies and the students' gender as well as the students' fields of study. Some implications for the teaching and learning of English for EST language learners may be drawn as follows:

1.   Arising out of the research findings, students who self-rated their language ability levels as 'good/very good' and 'fair' reported utilising different types of media in English as input sources of the target language in order to improve their language in general. These media include the Internet, English-speaking films, radio, television programs, and cassette-tapes in English. It is recommended that language teachers provide these media in as many different forms as possible and encourage students to make maximum use of them as an alternative means of language learning. Further, some lessons may be combined with the use of web sites which students can visit and thereby improve their language skills.

2.   One of the significant findings of this investigation is that, as a whole, the greatest number of the subjects reported surfing the Internet in order to acquire a general knowledge of English. In this regard, teachers should be able to design lessons involving using the Internet or any types of computer games to enhance their ability in English. Another method which may work is that the university's self-access centre should provide exercises or guidelines which students can make use of when they use the centre and, as a result, students can make full use of the Internet. By doing this, autonomous learning may be promoted.

3.   Nunan (1997) points out that there is enough evidence that strategy training can make a difference. Teachers can teach students how to learn. They can help them to be empowered learners and to take some responsibility for their own success by providing them with a sense of what a strategy is and how they can develop their own strategies (Brown, 1993). Consequently, language teachers teaching English to EST students may need to modify their roles in helping students to employ appropriate language learning strategies. In addition to Nunan and Brown, Prokop (1989) makes a sound comment about training or teaching language learning strategies to language learners, regardless of their language ability levels:

> It has been determined that learning strategies can be taught, even to 'poor' learners, and that the average and low achievers are most likely to benefit from instruction in using effective second language learning strategies. Consequently, the time and effort needed for assisting weaker students to acquire such strategies yields a greater return than similar work with top students, who are likely to be aware of how they should approach a learning task (Prokop, 1988, p.159).

However, it is important for teachers to understand that certain language learning strategies may work with some learners, but not with others. In this respect, Cohen (1990) makes an interesting suggestion:

Notwithstanding the limitations, the research is nonetheless valid, but the researcher acknowledges that some areas might justify further research. These areas could include the following:

1. As discussed earlier in the introductory part, it can be seen that a larger amount of research work on language learning strategies has been carried out with Thai students learning at the Tertiary level. More research work in the area needs to be carried out with a wider range of populations in different contexts, i.e. secondary school students or adult language learners.

2. Through the literature reviews and related materials, to date no researchers in the field appear to have taken such variables as students' socio-economic/academic backgrounds, or parents' attitudes towards language learning into consideration as one of the factors which may affect students' use of language learning strategies. So they should be taken into consideration by researchers in the field.

3. In the Thai context, previous attempts to examine language learning strategies have been made only with English major students or successful language learners. Examples are Sarawit (1986), Rattanaprucks (1990), Mullins (1992), and Lappayawichit (1998). There is a need to examine the use of language learning strategies of students majoring in different fields other than English who may also be successful language learners and a comparison of strategy use of different groups of students should be made.

4. A comparison of teaching styles or habits of teachers teaching different groups of students may be made in order to understand learning strategy use better. The teaching styles or teaching habits may include teaching methods, content areas, teacher's expectations and language skills. The nationality of teachers may also be taken into consideration.

Conclusion

The present investigation has been conducted in a data-based, systematic, and non-judgemental descriptive manner. It has contributed to the field of research on language learning strategies in terms of types of language learning strategy, the variables investigated, and the measurement of students' language ability. The main contribution of the present investigation has been form exclusively on out-of-class language learning strategies. Of the variables investigated, two variables i.e. gender and field of study have rarely been taken into consideration by any researchers previously in this area.

Lastly, the researcher for the present investigation has suggested some implications arising out of the research findings for the teaching and learning of English to EST students and which may also be applicable to contexts similar to that of Thailand. The limitations of the present investigation and some proposals for future research have

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