

## **CHAPTER III**

### **RESEARCH DESIGN AND PROCEDURE**

Since this study aimed to investigate the effects of the degrees of support for learner independence through web-based instruction (WBI) on the general English reading comprehension ability of Thai undergraduate students, it was designed as a pure experimental study based mainly on the quantitative technique. However, the qualitative technique was also utilised for data collection. This study therefore used the mixed research approach. This chapter presents the research design and procedure, which is divided into eight main parts. The first part explains the research design. The second part describes the population and subjects of this study. The third part discusses the learner training programme. The fourth part deals with the instruments and their quality. The data collection and analysis procedure were in the next parts. After that, values and limitations of the mixed research approach were discussed.

#### **3.1 Research Design**

As pointed out earlier, this study takes the form of the pure experimental research due to random selection and random assignment of the subjects. According to Fraenkel and Wallen (2000: 9), 'experimental research is the most conclusive of scientific methods. Because the researcher actually establishes different treatments and then studies their effects, resulting of this type of research are likely to lead to the most clear-cut interpretations'. Experimental research is categorised under the 'quantitative' research paradigm.

For the sake of readers' convenience, the research objectives of this study are restated.

1. to compare the main effects of different degrees of support for learner independence, i.e. most support (MS), semi-support (SS), and least support (LS) through web-based instruction on English reading comprehension ability of the students, and their effect size.
2. to compare the main effects of different levels of students' general English proficiency, i.e. high and low proficiency levels on English reading comprehension of the students, and their effect size.

3. to study the interaction effect of degrees of support for learner independence and levels of students' general English proficiency on English reading comprehension ability of the students, and its effect size.
4. to investigate learners' attitudes towards learner independence through web-based instruction.

The present study would like to study the main and interaction effects of the two categorical independent variables (called 'factors'), i.e. degrees of support for learner independence with three levels: MS, SS, and LS; and general English proficiency levels of the students with two levels: high and low on the continuous dependent variable, i.e. general English reading comprehension ability. In other words, these two factors have 3 and 2 levels; and each cell contains equal subjects of 18. Therefore, this study has a *3x2 factorial design*.

Based on the *3x2 factorial design*, there are 6 experimental groups, i.e. MS with high proficiency (group 1), SS with high proficiency (group 2), LS with high proficiency (group 3), MS with low proficiency (group 4), SS with low proficiency (group 5), and LS with low proficiency (group 6). Table 3.1 depicts the research design of this present study.

**Table 3.1: Research Design**

Levels of students' proficiency	Degrees of support for learner independence		
	Most support for learner independence (MS) <i>X1</i>	Semi-support for learner independence (SS) <i>X2</i>	Least support for learner independence (LS) <i>X3</i>
High proficiency <i>Y1</i>	18	18	18
Low proficiency <i>Y2</i>	18	18	18

### 3.2 Population and Subjects

The background of the population and subjects of this present study can be described as follows. They were students who graduated from the secondary school level or Mattayom Suksa 6 studied in the second year of the Day programme at DPU.

All of them were female and male whose age was 19 years approximately. These students were categorised by their fields of study into 9 faculties namely Business Administration, Accountancy, Economics, Law, Arts and Sciences, Communication Arts, Engineering, Fine and Applied Arts, and Information Technology.

Upon admission, students were required to take the Remedial English course based on the 'S' or 'satisfactory' pass in the first semester before taking the GE 1 course in the second semester of the same academic year. Then, in the first semester of the second year, they took the GE 2 course. These two GE courses were compulsory with 3 credits each. Besides that, students will be required to take two courses of English for specific purposes, of which contents are related to their field of study such as English for Accountancy 1 and 2, Business English 1 and 2 (DPU, 2006).

In order to organise English classes, students, although with different majors, of the same faculty or similar fields of study are grouped for the study of every English course by Language Institute, DPU. However, the student groupings are executed according to their levels of English proficiency based on their English scores. Students are regrouped after every final examination at the end of the semester (Vongvipanond, 2004).

The population of the study comprised second year students who obtained the scores of 75 – 100% (A and B+), and low English proficiency students who received scores of less than 60% (D+ and D) from the previous English course -- General English 1. Therefore, the population was 841 students (294 high and 547 low proficiency students). The criteria used to judge the proficiency level of the students were based on the scoring criteria applied at DPU as follows: **80 up A**, **75-79 B+**, **70-74 B**, **65-69 C+**, **60-64 C**, **55-59 D+**, **50-54 D**, **<50 F**. It is noted that English major students were not included as the population of the study since their English proficiency was considerably higher than that of the students of other majors, according to the results of the placement test administered by DPU when they entered the university.

In addition to the GE 2 course, the subjects of the study studied five other subjects on general education or compulsory subjects of their faculty for 3 credits each subject (DPU, 2006). All of these subjects were taught in Thai; therefore, in total they took 6 courses.

### 3.2.1 Subject Selection and Subject Compatibility

The sample size for 841 population suggested by Krejcie and Morgan (1970) when sampling error is less than or equal to 0.05 and reliability equals 95% is 265. However, only 108 subjects (54 high and 54 low proficiency ones) were the subjects of the study as mentioned earlier in the 'Limitation of the Study' part.

Based on the nature of the population, who are second year students taking the GE 2 course, and who are grouped by the Language Institute mainly according to their faculty and fields of study, '*cluster sampling*' technique is the most appropriate for subject selection. Therefore, three clusters or faculties were randomly selected. After that, individual random sampling was employed. Only high and low English proficiency students as the population of the study in each cluster were randomly selected. This is called *two-stage random sampling* -- a combination of cluster sampling and individual random sampling (Fraenkel and Wallen, 2000). Only 18 high and 18 low students from each of the three clusters were randomly selected by drawing from their student identification numbers. Therefore, 36 students from each cluster were randomly selected, which made the subject total for the study 108. These three groups were later randomly assigned to each experimental group, i.e. most support (MS), semi-support (SS), and least support (LS) for learner independence.

The results of the subject random selection and random assignment to the experimental groups were as follows:

- Group 1: Accountancy students / Most support (MS)
- Group 2: Communication Arts students / Semi-support (SS)
- Group 3: Business Administration students / Least support (TS)

In regard to the subject compatibility, i.e. in order to ensure that the subjects in each group in the high and low proficiency levels were of the similar characteristics, i.e. the three groups of the high proficiency level were comparable in terms of their high proficiency level, and the three groups of the low proficiency level were compatible in terms of their low proficiency level, a pre-test was administered to all the subjects. Scores of the pre-test were used for statistical tests of the compatibility of the high and low proficiency groups prior to the experiment, which was dependent on the fulfillment of the basic assumptions of normal distribution and homogeneity of variances. The non-parametric *Kruskal-Wallis Test* (see Appendix A) was used due to a violation of the normal distribution basic assumption (Kinnear and Gray, 2000).

Tables 3.2 and 3.3 depict the *Kruskal-Wallis* test statistics of the high and low proficiency groups respectively.

**Table 3.2: Compatibility of the English Proficiency of the Three High Proficiency Groups**

	Pre-test
Chi-Square	.394
df	2
Asymp. Sig.	.821

Table 3.2 shows that  $X^2(2) = 0.394$ ;  $p > 0.03$ . Therefore, on average, the pre-test scores of the three high proficiency groups were not significantly different. This means that on average, the English reading proficiency of the three high proficiency groups of students was the same at the outset of the study. The findings confirmed the subject compatibility of the three high proficiency groups.

**Table 3.3: Compatibility of the English Proficiency of the Three Low Proficiency Groups**

	Pre-test
Chi-Square	.115
df	2
Asymp. Sig.	.944

Table 3.3 shows that  $X^2(2) = 0.115$ ;  $p > 0.03$ . Therefore, on average, the pre-test scores of the three low proficiency groups were not significantly different. This means that on average, the English reading proficiency of the three low proficiency groups was the same at the outset of the study.

In addition, to ensure that high and low proficiency subjects in each treatment group did differ significantly in terms of their English proficiency, different statistic tests were conducted based on a fulfillment of the normal distribution assumption. The non-parametric *Mann-Whitney test* was utilized for the MS group since the normal distribution was violated (see Appendix A), while the parametric *Independent-Sample t-test* for the SS group because of the normal distribution. *Mann-Whitney test* was also employed for the LS group due to a violation of the normal distribution. Tables 3.4 – 3.6 show the test statistics of the three experimental groups.

**Table 3.4: The Difference between the English Proficiency of the High and Low Proficiency Students of the MS Group**

	Pre-Test
Mann-Whitney U	1.000
Wilcoxon W	172.000
Z	-5.128*
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.001(a)

\*p < 0.03

Table 3.4 indicates that  $Z = 5.128$ ;  $p < 0.03$ . Therefore, on average, the pre-test scores of the high and low proficiency students in the MS group were highly significantly different. This means that on average, their English reading proficiency was not the same at the outset of the study.

**Table 3.5: The Difference between the English Proficiency of the High and Low Proficiency Students of the SS Group**

Group	N	Mean	SD	df	t-value
SS High	18	19.06	2.96	34	8.569*
Low	18	11.44	2.33		

\*p < 0.05

Table 3.5 shows that  $.05 t_{34} < 8.569$ ;  $p = 0.05$ . Therefore, on average the English proficiency of the high students ( $\bar{X} = 19.06$ ,  $SD = 2.96$ ) and that of the low students ( $\bar{X} = 11.44$ ,  $SD = 2.33$ ) of this group were significantly different ( $\alpha = 0.05$ ). This meant that on average the English proficiency of the high proficiency students was greatly higher than that of the low students.

**Table 3.6: The Difference between the English Proficiency of the High and Low Proficiency Students of the LS Group**

	Pre-Test
Mann-Whitney U	.000
Wilcoxon W	171.000
Z	-5.152*
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.001(a)

\*p < 0.03

Table 3.6 indicates that  $Z = 5.152$ ;  $p < 0.03$ . Therefore, on average, the pre-test scores of the high and low proficiency students in the LS group were highly significantly different. This means that on average, their English proficiency was not the same at the outset of the study.

To gain information on the pre-test mean scores, a comparison of the pre-test mean scores of each group was performed and the results are shown in Table 3.7.

**Table 3.7: The Pre-Test Mean Scores of Each Group of Students**

Groups		n	Mean	SD
1. MS	High	18	19.28	2.80
	Low	18	11.33	3.25
2. SS	High	18	19.06	2.96
	Low	18	11.44	2.33
3. LS	High	18	19.22	3.89
	Low	18	11.56	1.65

In conclusion, it can be said that the three groups of students of this study were compatible in terms of their high or low English proficiency. Meanwhile, the English proficiency of the high and low students in each group was significantly different. The English proficiency of the high proficiency students was significantly higher than that of the low proficiency ones in every group.

### 3.2.2 Generalisability of the Findings

Since the present study is the true experimental design under the quantitative paradigm, the ultimate goal is to generalise the findings to the population of the study and those beyond the particular study. Two major factors that are essential for the generalisability of the findings or external validity are representativeness and sufficiency of the subjects in relation to the population of the study.

Since this study employed the cluster sampling and random selection of the individual subjects as well as random assignment to each experimental group, the probability sampling techniques can well ensure the representativeness of the subjects to the population. Concerning the sufficiency of the subjects, as pointed out previously the subjects of this study were unavoidably limited due to a class size policy of DPU. According to the pre-test results, a lack of sufficiency of the subjects

caused a problem on normality assumption of the parametric tests. However, the statistical tests of the post-test, and the pre- and post-questionnaires were in accordance with the basic assumptions. Therefore, it is possible to generalise from the findings to the population provided that this is done with care and caution since the concept of good representativeness of the subjects is fulfilled, and characteristics of the subjects are described in a thick and rich manner. A thorough description of the subjects' characteristics can lead to the ecological generalisability as well (Fraenkel and Wallen, 2000).

Besides the attempt for generalisability or external validity of the study in terms of representativeness and solutions for a lack of sufficiency of the subjects, the present study tried to minimise threats to the external validity. Threat to *specificity of variables* was minimised such as execution of the study with a specific kind of subjects. This study was conducted with a general kind of subjects, i.e. second year undergraduates from a variety of academic fields, and during the academic calendar. *Selection-treatment interaction* tended not to occur since the subjects were randomly selected from the population for treatment, so the representativeness of the subjects was not questionable. *Experimenter-personal-attributes effect* should be minimised since only the researcher taught every group and treated them in the same manner. *Reactive arrangement* which is a number of factors associated with the way in which a study is conducted and the feelings and attitudes of the subjects involved, such as *Hawthorne effect*, is possible to be minimised. To minimise the Hawthorne effect, the researcher tried to control the independent variables by following pre-determined teaching principles and every group was taught by the same teacher or researcher for the same duration with the same materials and teaching aids during the regular class (Fraenkel and Wallen, *ibid.*).

Generalisability of the findings or the external validity of the experimental research brings great utility to the study. However, before achieving the external validity the internal validity of the study has to be achieved first (Fraenkel and Wallen, *ibid.*).

Internal validity is the condition that observed differences on the dependent variable are a direct result of manipulation of the independent variable, not some other variables. In other words, the outcome of the study is the result of what the researcher did, not something else. There are many threats to internal validity such as history,



maturation, testing, instrumentation, statistical regression, differential selection of subjects, and mortality.

To control *History*, the subjects had the similar backgrounds as explained earlier. They were randomly selected and assigned to each experimental group. The researcher could take care of the selection procedure by herself. Good representativeness of the subjects was assured. *Maturation* could be controlled since the subjects were in the treatment for 15 weeks or one academic semester, which was not sufficiently long for the maturation threat. Threat to *testing* was minimised since the gap between the pre and post-test administration was 15 weeks, which was long enough to prevent memorisation by the subjects. Also, students did not know the correct answers, thus it was assumed that any test familiarity was minimal. *Instrumentation* was effectively controlled due to the reliability of the tests (see 3.4.1). To prevent *statistical regression*, subject randomisation was applied. *Differential selection of subjects* was prevented due to a random selection of subjects and a use of statistical tests to confirm the compatibility of the subjects. *Mortality* was minimal since English was a compulsory subject and the subjects were in the second year, and this much less likely to withdraw from the university compared to first year students (Fraenkel and Wallen, 2000).

In conclusion, it can be said that this present study has high internal validity, which leads to external validity. Although there is a problem of limited subjects, solutions were proposed for sound generalisability or application of the findings to groups or environments outside the experimental setting. In other words, the findings of the study can be expected to be reconfirmed with other groups, in other settings, at other times, as long as the conditions are similar to those of the study.

### 3.3 Learner Training Model

In the mode of independent learning, learner training is essential as the precondition of autonomy. Not all learners are ready or prepared for the independent learning since it requires a lot of effort of the learners. Therefore, in order to help the learners to be effective to assume responsibility for their own learning in the independent learning mode and to prevent any resistance to this mode of learning, the learners were prepared for the learning by obtaining the training in both psychological

and methodological preparations. Details regarding these two types of preparations are in 2.3.

### 3.3.1 Justifications for the Learner Training in the Study

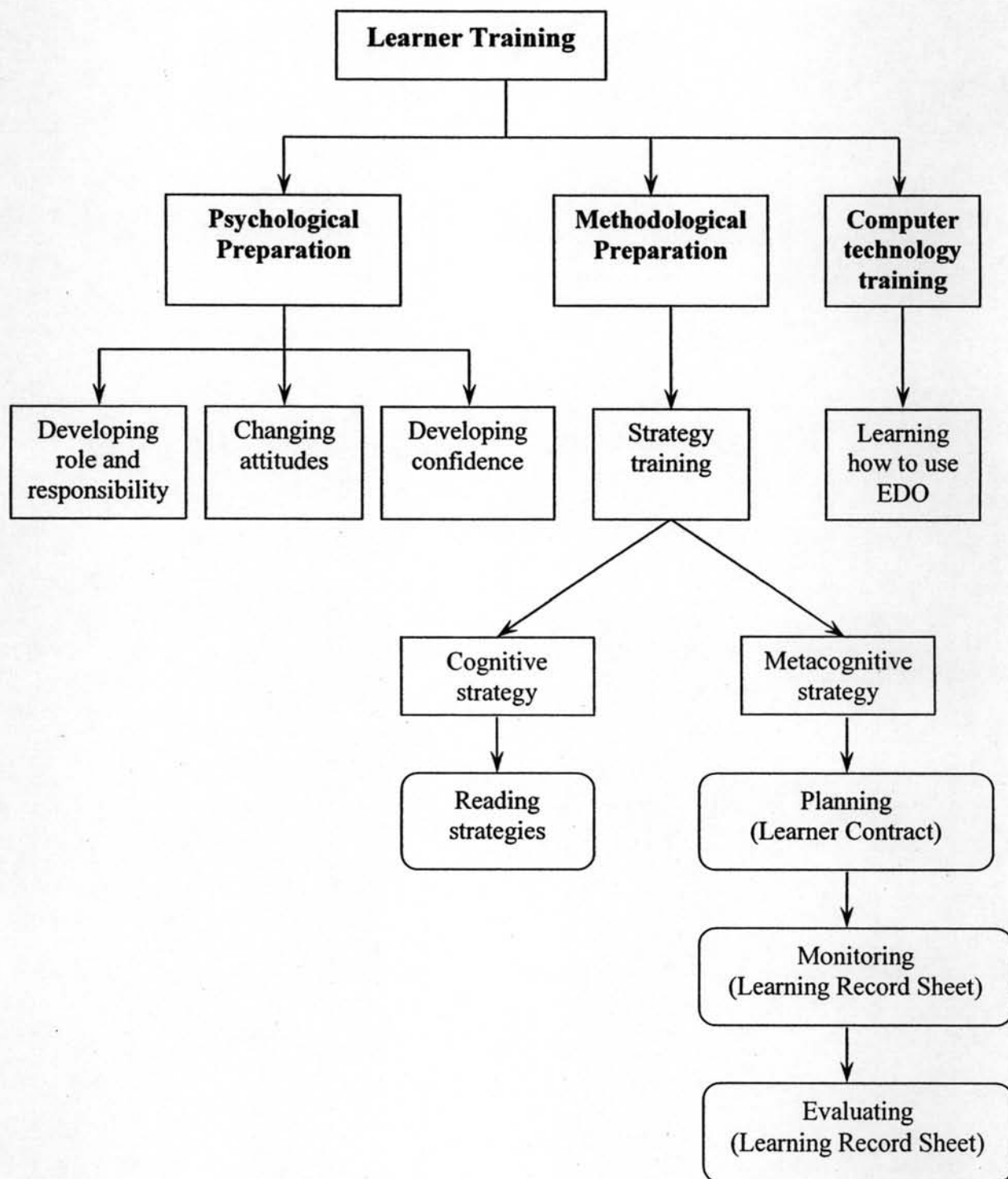
The present study applied both types of preparations for the learner training based on the beliefs that effective learning results from active involvement of learners in a language learning process. Being active learners signifies that they need to change their role from teacher-dependence to self-dependence. Performing this new role requires them to be able to learn independently, which means that they have to be responsible for their own learning. Since learners cannot become independent learners by just being told to (Dickinson, 1987), learner preparation is essential to fulfil this learning purpose. As pointed out by Ellis and Sinclair (1993: 2),

‘learner training aims to help learners consider the factors that affect their learning and discover the learning strategies that suit them best so that they may become more effective learners and take on more responsibility of their own learning. It focuses their attention on the process of learning so that the emphasis is on *how* to learn rather than on *what* to learn’.

It is noticeable that learner training should help learners to be affectively and cognitively active in the language learning process. To be affectively and cognitively active, learners need to be psychologically and methodologically prepared. Psychological preparation can help learners to be affectively active since it aims at changing learners’ attitudes to be positive towards learner independence, and willing to carry out the independent learning, and be confident in their ability to learn independently. Nevertheless, only being affectively active in the learning process does not ensure learning effectiveness. Therefore, methodological preparation is beneficial to help learners to be cognitively active since it provides learners with a powerful tool for their learning, i.e. cognitive and metacognitive strategies. Metacognitive strategies in particular help them plan, monitor, and evaluate their learning. In other words, they learn to manage their own learning or learn *how* to learn.

The framework for learner preparation in this present study was mainly adapted from that of Dickinson (1995). However, the training on computer technology which was used as the web-based instruction of this study was included as

the third area of the preparation. Figure 3.1 portrays the framework for the learner training. More details regarding each area of the training are described in each separate section with reference to the framework for the learner training.



*Figure 3.1: The Framework for Learner Training (adapted from Dickinson, 1995)*

### 3.3.2 Psychological Preparation

Based on the Dickinson's (1987) conceptual framework, this study psychologically prepared learners to learn independently through the English Discoveries Online (EDO) based on the attempt to change learners' role and help them develop responsibility; to change their attitudes; and to develop their confidence. Lesson and activities developed for each objective can be seen from Table 3.8. Full details of each activity can be obtained from the lesson plans in Appendix B.

**Table 3.8: Psychological Preparation Plan**

<b>Lesson 1: Psychological Preparation</b>	<b>Objective</b>
Activity 1: Unfreezing	To develop learners' personal role and learning responsibility
Activity 2: Describing Independent Learning	To develop learners' positive attitudes towards independent learning
Activity 3: Independent Learning in Practice	To build learners' self-confidence to learn independently.

All these psychological preparation plans were trained during the intensive learner training during the first three weeks. Schedule of the training is in Table 3.12.

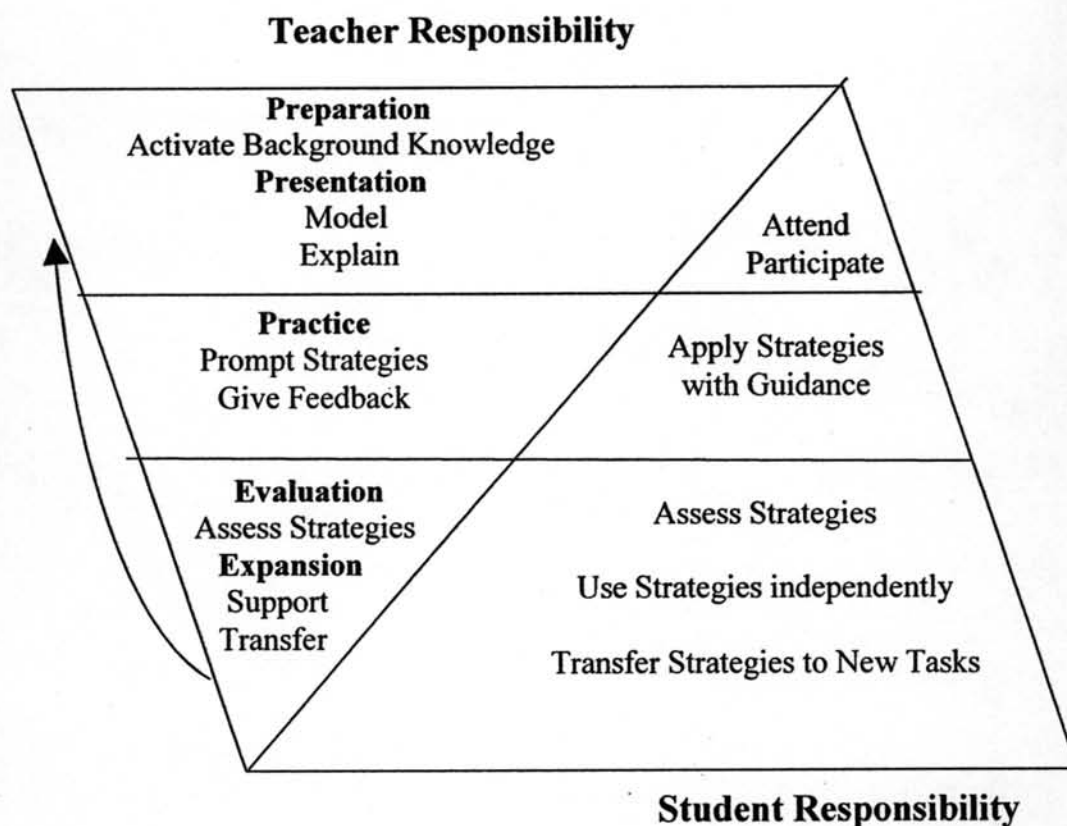
### 3.3.3 Methodological Preparation

Dickinson (1987) points out that methodological preparation is the process to acquire the abilities and techniques learners need for their self-instruction in the independent learning mode. Learners are aware of the techniques they use implicitly, and then this knowledge is combined with some certain skills that are usually expected in teachers rather than learners. Teachers' role is important to facilitate learners' acquisition of necessary 'learning skills'. Therefore, based on Dickinson's (1995) conceptual framework, this study employed 'strategy training' which is divided into cognitive and metacognitive strategy training.

#### 3.3.3.1 Cognitive Strategy Training

In regard to cognitive strategy training, this study with the main aim to develop English reading comprehension ability of learners applied the CALLA (The

Cognitive Academic Language Learning Approach) instructional framework (Chamot and O'Malley, 1994 in Chamot et al., 1999) for reading strategy training (Figure 3.2).



*Figure 3.2: Framework for Strategy Training (Chamot and O'Malley, 1994 in Chamot et al., 1999: 46)*

The five phases of the CALLA strategy training framework are as follows:

### **Preparation**

Learners prepare for strategy training by identifying their prior knowledge about and the use of specific strategies. This is to reinforce existing strategies and build on them.

### **Presentation**

The teacher demonstrates and models the new learning strategy and uses the name of the strategy so that learners can refer to the strategies they use when asked to evaluate their strategy use, and to discuss which strategy is appropriate for a reading task. Moreover, the teacher explains the importance of the strategies and tells when and

how to use them. Presenting strategies is the foundation for building independent learning.

### **Practice**

Learners practise using the strategy with regular class activities of moderate difficulty. This phase is the real construction of independent learning, which happens when learners practise strategies and develop strategic thinking themselves. Therefore, emphasis is put on the learning process, not just products.

### **Evaluation**

Learners self-evaluate their use of the learning strategy and how well the strategy is working for them. The evaluation mostly done by learners themselves is a way to develop their metacognitive ability or their ability to reflect on their own approaches to learning. Self-evaluation provides an opportunity to learners to take control of their own learning by selecting or rejecting particular learning strategies. This phase is important for independent learning.

### **Expansion**

Learners extend the usefulness of the learning strategy by applying it to new situations or learning tasks. However, the emphasis of this study is put on the expansion of particular strategies to other reading tasks only, not to other language skills.

The five phases are recursive which means that the teacher can move between phases if necessary in order to help learners develop skills for understanding and using learning strategies. The recursive nature of the CALLA framework allows flexibility in planning language lessons that integrate learning strategy training.

In regard to reading strategy lessons, a range of strategies were trained based on the strategies that are useful for reading comprehension. Most strategies were trained in combinations, rather than separately. This is based on the justification that normally we use strategies in combinations to complete the task and learning strategies when being used are complex behaviours that rarely occur as single instances (Chamot et al., 1999). Chamot and Rubin (1994) strongly argue that strategies are most useful when employed effectively together so that success depends on the effective management of a repertoire of strategies, not on the use of an individual strategy. Therefore, the teacher/researcher determined reading strategies that learners should need for reading comprehension and studied the reading texts of

the GE 2 course, and then used the reading texts for the strategy training. The cognitive and metacognitive strategies deemed useful for reading comprehension and for the learner training in this study are as follows: using background knowledge, prediction, summarising, taking notes, verification of prediction, inferencing, using resources, self-talk, deduction, transfer, evaluating strategies, imagery, selective attention, ask if it makes sense, self-assessment, planning by setting goals, monitoring learning, and checking goals.

It should be noted that the reading strategy training, although under the notion of the cognitive strategy incorporates both cognitive and metacognitive strategies for reading. This corresponds to the interactive reading model which consists of both bottom-up and top-down models.

Lessons and activities for the reading strategy training were adapted from Chamot et al., (1999) and are presented in Table 3.9. Full details of each activity and strategy objective can be obtained from the lesson plans in Appendix C. The reading materials used for the lesson plan developments were taken from the GE 2 course book, which consisted of 6 units (Appendix C for Unit 1). However, the first three units were employed for the intensive learner training.

**Table 3.9: Reading Strategy Training**

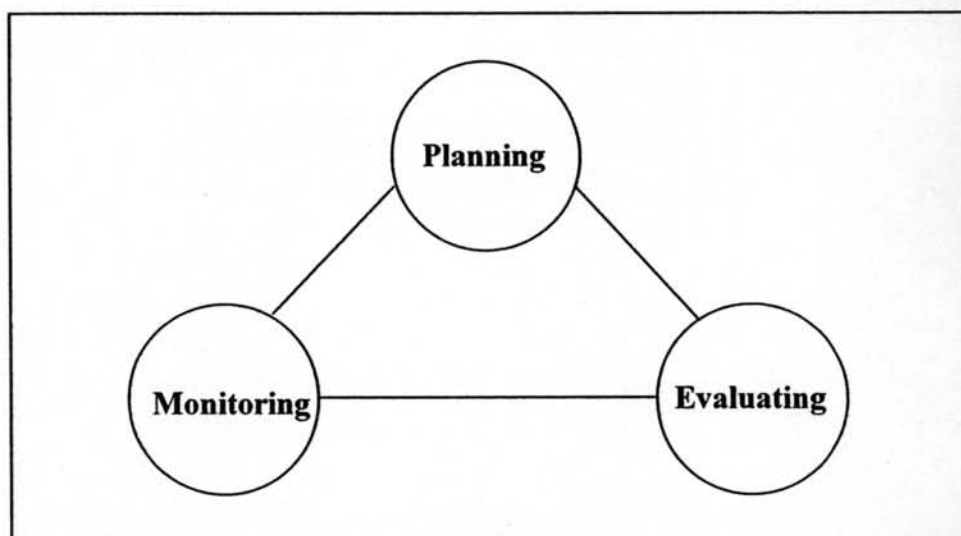
<b>Lesson 1: Education</b>
Activity 1: Using Background Knowledge/Prediction
Activity 2: Summarising/Taking Notes/Verification of Prediction
Activity 3: Inferencing/ Using Resources
Activity 4: Self-Talk
<b>Lesson 2: Global Warming</b>
Activity 1: Imagery/Deduction/Transfer/Evaluating Strategies
Activity 2: Selective Attention/Ask If It Makes Sense/Self-Assessment

All these focus strategies were trained during the intensive learner training in the first three week. Schedule of the training is in Table 3.12.

### 3.3.3.2 Metacognitive Strategy Training

Metacognitive strategies are related to the management of learning (Dickinson, 1995). This study also aimed to develop learners' ability to manage their

own learning outside class time since they had to perform independent learning through the web by themselves. As a result, metacognitive strategies were included in the training programme. The Metacognitive Model (Chamot et al., 1999:13) was adapted and utilised as the framework for metacognitive strategy training in this study. The Model consists of three recursive metacognitive processes: planning, monitoring, and evaluating (Figure 3.3).



*Figure 3.3: The Metacognitive Strategy Model (adapted from Chamot et al., 1999)*

### **Planning**

Planning is an important first step towards becoming an independent learner. During the planning process, good learners think about how they are going to tackle and perform the language task. They set goals by thinking of their objectives for the task, and produce a plan of strategies to help them through the task so that they will meet those objectives.

### **Monitoring**

After preparing themselves for the task by planning their learning, good learners use monitoring strategies to measure their effectiveness while working on the task. They also need to solve problems arising during the task.

### **Evaluating**

After completing part of or the entire task, good learners reflect on how well it went. The evaluating process allows them to see if they carried out their plans and to check how well strategies helped. Strategic learners assess whether they achieved their



objectives for the task and if they did not, why they did not meet those objectives and what they can do differently next time. Regardless of whether their self-evaluation is positive or negative, it is crucial that students learn from it so that they can make improvements on the next task.

Lesson and activities for metacognitive strategy training are described in Table 3.10. Full details of each lesson can be obtained from the lesson plans in Appendix C. The training method is based on the CALLA model.

**Table 3.10: Metacognitive Strategy Training**

<b>Lesson 3: Women's Roles</b>	<b>Strategy Objective</b>
Activity 1: Planning learning by setting learning objectives/Monitoring learning.	Identify and discuss language learning objectives and responsibility in reaching those objectives.
Activity 2: Checking Objectives	Check learning progress towards objectives.

Based on the metacognitive strategy framework, this study helped learners manage their independent learning by using the learner contract and learning record sheet as the supportive documents. Table 3.11 provides details on application of the strategy and its justification. These strategies were trained during the intensive training.

**Table 3.11: The Metacognitive Strategy Training**

<b>Strategy</b>	<b>Application</b>	<b>Justification</b>
1. Planning	Learner Contract	Learner Contract helped students plan their learning in advance by setting the learning objectives.
2. Monitoring 3. Evaluating	Learning Record -Sheet	Learning Record Sheet helped students monitor and evaluate their learning progress.

In conclusion, the justification for both psychological and methodological preparations for the independent learning of this study can be supported by the view point of Hurd (1994) that learning independently is not a favourable mode for many students at first. They need to have support and guidance for their independent

learning; otherwise, they may be demotivated and frustrated. Therefore, it is deemed necessary to prepare learners before they exercise the independent learning.

It should be noted that the learner training in this study was intensively conducted during the first three weeks of the GE 2 course, i.e. every session during weeks 2-4. There were two sessions of 1.30 hours each in a week; however, the first session was devoted to the administration of the pre-test. Therefore, it took 7.30 hours for the intensive training in class and in the computer laboratory in the Self-Access Language Learning Centre (SALLC) at DPU. Later on, learners received extensive training particularly the reading strategy training in class when they studied the reading part of each unit in the course textbook. The course book consisted of vocabulary, grammar, listening, speaking, and writing parts, besides reading. The learners received another 4.30 hours for the extensive training.

In regard to other English skills, i.e. grammar, listening, speaking, and writing covered by the GE 2 course syllabus, the teacher/researcher mainly taught those skills as per the requirements stipulated in the course syllabus. There was no learner training on these skills.

#### 3.3.4 Computer Technology Training

Computer technology training entailed training the students how to study on the EDO. The teacher/researcher took them to the computer lab and demonstrated how to use the EDO, and then had them practise studying on the EDO with the help and guidance of the teacher. Providing learners with hands-on experience could help them be more confident to carry out the independent learning through the web.

The EDO training was done during the last session of the intensive learner training programme in week four. Each student was given the username and password for the study on the EDO.

#### 3.3.5 Schedule of Learner Training

This part entails the schedule of the intensive learner training during weeks 2-4 (Table 3.12). Week one was not scheduled for instruction, but for the introduction of the course. The training was conducted in class during the class time. Each week consisted of two sessions for 1.30 hours each. However, the first session of the second week was reserved for the pre-test, which took 1.10 hours. The extensive learner training would be conducted later in three more sessions for 1.30 hours each

and based on the reading part of units 4-6 in the textbook. Therefore, each unit took one session for the training, and the strategy instruction framework (Chamot et. al., 1999) was applied. Details of the extensive learner training (Lessons 4-6) are shown in the lesson plans in Appendix C.

**Table 3.12: Schedule of Learner Training**

Week	Session 1 (1.30 hours)	Session 2 (1.30 hours)	Learner Support
<i>Intensive Learner Training</i>			Starting from week 5 onwards
2	Pre-test of reading comprehension	Psychological Preparation Lesson 1, Activity 1, 2, 3	
3	Methodological Preparation Lesson 1, Activity 1, 2, 3	Methodological Preparation Lesson 1, Activity 4 Lesson 2, Activity 1, 2	
4	Methodological Preparation Lesson 3, Activity 1, 2	Computer Technology Preparation Pre-questionnaire on attitudes towards learner independence	
<i>Extensive Learner Training</i>			<b>Counselling</b> MS: meet once every 2 week SS: meet once every month LS: no required counselling  <b>Feedback from the teacher</b> MS: every week SS: once every month LS: no feedback
5			
6			
7	Reading strategy training		
8			
<i>Midterm examination week</i>			
9	Reading strategy training		
10			
11	Reading strategy training		
12			
13	Reading strategy training		
14		Evaluation of Learner Training Post-test, Post-questionnaire	

**Learner training overview:**

1. Weeks 2-4 were for intensive psychological and methodological preparations as well as the computer technology preparation or the EDO training.
2. Weeks 5-14 was for extensive training on cognitive strategy or reading strategies of both cognitive and metacognitive strategies. There was no class and no independent learning assignments on the mid-term examination week.
3. Evaluation of the independent learning tasks was 5% out of 100% of the total course evaluation.

**Remark:**

1. Each student performed his or her weekly independent learning through the EDO starting from week 5 to week 14.
2. Other sessions were for the instruction of other skills according to the GE 2 course syllabus.

### 3.3.6 Roles of the Teacher and Learners

The research design and procedure of this present study incorporated both the quantitative and qualitative research approaches. The first research approach was utilised to collect the quantitative data to answer the research questions. The second research approach was applied to collect the qualitative data from the learner training process, which was theoretically essential for the development of independent learning capacity. The justification was based on the notion of '*qualitative involvement*' as pointed out by Tudor (1996: 18) that 'learner autonomy' is used to refer to a certain *mode of study* or to a *qualitative involvement*. The second view of autonomy has been of increasing interest to researchers and become the central concern since autonomy relates to the notion of awareness of learning goals, participation in decision-making and personal assumptions of responsibility. Learner independence can be achieved slowly through careful training and preparation on the part of teacher and learner. Both the teacher and learners have a vital role to play.

This part will therefore be described as the conclusion of the qualitative research design how independent learning in this present study took account of the qualitative involvement on the part of the teacher and learners.

#### 3.3.6.1 The Teacher

The teacher/researcher had many roles to play. As a facilitator, the teacher provided the independent learning facility, i.e. the EDO to foster learner independence, as complementary to the regular GE 2 course. As a trainer, the teacher prepared learners for independent learning by providing them with a 3-week intensive training (weeks 2-4) during the GE 2 class time. The first week was not considered since most students usually were not present in week one. The training programme aimed for both psychological and methodological preparations. Then, learners practised their learning independence by learning through the web-based instruction

or the EDO outside the class time as complementary self-access language learning lessons.

The teacher also supported the independent learning of the learners by providing some documents, namely learner contract, learning record sheet, reading strategy checklist. The teacher introduced the learner contract and learning record sheet and trained learners to use them effectively for their learning.

All learners in the three groups were required to keep records of their learning in the 'learning record sheet' every time that they performed the reading tasks through the web and checked the reading strategies they used. Through the learning record sheet, learners performed self-monitoring and self-evaluation of their learning process, which let them see their learning progress in terms of learning results or developments of thinking process, decision making, and problem-solving skills. The reading strategy checklist helped them become consciously aware of the use of strategies and monitor whether these were effective in relation to the learning results. It was hoped that this would lead to an increase of motivation to learn, positive attitudes and more self-confidence towards independent learning.

The teacher was a facilitator and counsellor during weeks 5-14. For the regular class, the teacher taught the GE 2 course based on the course syllabus. However, the teacher still trained the students for the reading strategies by using the reading part in the course book as the training materials. This was considered as the extensive training; therefore, it could be said that the training was an ongoing process throughout the semester. There was every attempt to create a positive class environment and good rapport between the teacher and learners, and learners and learners by using collaborative learning.

Starting from week 5 onwards, the teacher was a helper by providing written feedback to each learner after collecting their learner contract and learning record sheet and checking their independent learning through the EDO. From the web, the teacher could know learning results and their learning progress. With the information from the learning record sheet and the web, the teacher would provide written feedback to each learner. Feedback given was in terms of both cognitive and affective sides. Frequency of written feedback given was in relation to the degrees of support for learner independence designed for each group. In addition, during this same period, the teacher acted as a counsellor providing face-to-face counselling to

learners according to the degrees of support for independence that learners of each group were assigned.

### 3.3.6.2 The Learners

Learners were active participants in the learning process. They received the intensive psychological and methodological preparations for three weeks at the beginning of the semester in order to *decondition* any false assumptions about language learning and to be trained to be independent learners. Then, they studied the contents of the GE 2 course as per the course syllabus. Outside class time starting from weeks 5-14 they were empowered and obtained freedom to learn by taking charge of their own learning through the EDO, which was considered as a self-access language learning assignment compulsorily required by the course. They set objectives for their learning and stated them in the learner contract in order to improve their English reading skill, selected contents from the web at least 10 reading units and studied at least one unit a week, monitored and evaluated a selection of learning strategies and learning outcomes as well as learning progress by completing the learning record sheet. However, each group was required to submit their work, i.e. learner contracts, learning record sheet, and reading strategy checklist at a different interval according to the degree of support for independence that they were assigned. Moreover, the teacher's help and support in terms of feedback and counselling with different degrees for each group was the crucial factor that required different levels of learners' control of their own learning. The least support for learner independence group having the most freedom or independence needed to exercise their decision making whether and when they should seek help from the teacher.

### 3.3.7 The Pedagogical Tools

There were three pedagogical tools used for the learner training. They all were used to support the independent learning through the web-based instruction or the EDO.

#### 3.3.7.1 Strategy Definition Sheet (Appendix D)

Strategy Definition Sheet which included all major learning and reading strategies was provided to each learner during the training to facilitate their

learning based on a consideration that there are many important strategies that learners need to know, understand and use effectively. The strategy definition sheet adapted from Chamot et al. (1999) and Anderson (2003) consists of three features, i.e. names of the strategies, definitions, and examples. Learners could consult the strategy definition sheet all the time when necessary. To prevent language constraint and misunderstanding, the strategy definition sheet was translated into Thai.

#### 3.3.7.2 Counselling Form for the Learner (Appendix E)

Each learner was provided a Counselling Form for the Learner, which was used to record information arising from the counselling with the teacher or author, i.e. learning problems, teacher's advice and comments. Each learner kept the counselling form for him or herself in the folder so that learners could refer to it when needed and make use of it for their learning achievement or improvement.

#### 3.3.7.3 Learner Training Effectiveness Checklist (Appendix F)

Learner training effectiveness checklist is the worksheet including only the major aspects of the learner training specifically provided for the learners each time of the training. Each learner was periodically asked to rate the Checklist, which is the five-point Likert scales, after the training. The learner training checklist was constructed by taking the statements from the questionnaire; however, some statements were added in relation to the specific aspects of the training.

The purpose of using the learner training checklist was to obtain information on effectiveness of the learner training scheme in order to see whether learners developed in terms of their positive attitude towards learner independence and capacity to be independent learners by using and being able to use effective learning and reading strategies. Additional training on some particular aspects could be provided if learners rated low on them. Based on the information from the self-evaluation of learners, learners' weaknesses could be improved from the next time training and the learner training effectiveness could be guaranteed.

#### 3.3.7.4 The English Discoveries Online (EDO)

Last but not least, the English Discoveries Online or EDO was used as the pedagogical tool to support the independent learning through the web-based

instruction. This part will provide details about the EDO and the justifications of using it for this study.

The EDO produced by EduSoft Ltd., (2002) which is a commercial computer lessons programme globally used, was determined to be used as web-based instruction for developing English reading skills and promoting independent learning because it is designed with a variety of learning scenarios in mind: individual home use, individual or group classroom use, and self-access. However, it was used as an online reading activity complementary to the course for this study, i.e. to be used outside the class time.

The design of the EDO is theoretically based on the constructivist learning theory, which holds that learning is a process by which individuals construct their own knowledge through meaningful interactions with new input and with other learners. Teachers should provide the opportunity for learners to become active participants in the learning process by giving them with a range of tasks to choose from. Based on this theory, computer-assisted language learning (CALL) is particularly suited to this learning approach. The latest development of CALL is the WBI, which connects learners to the Internet enabling them to communicate with other people anytime, anyplace, anywhere.

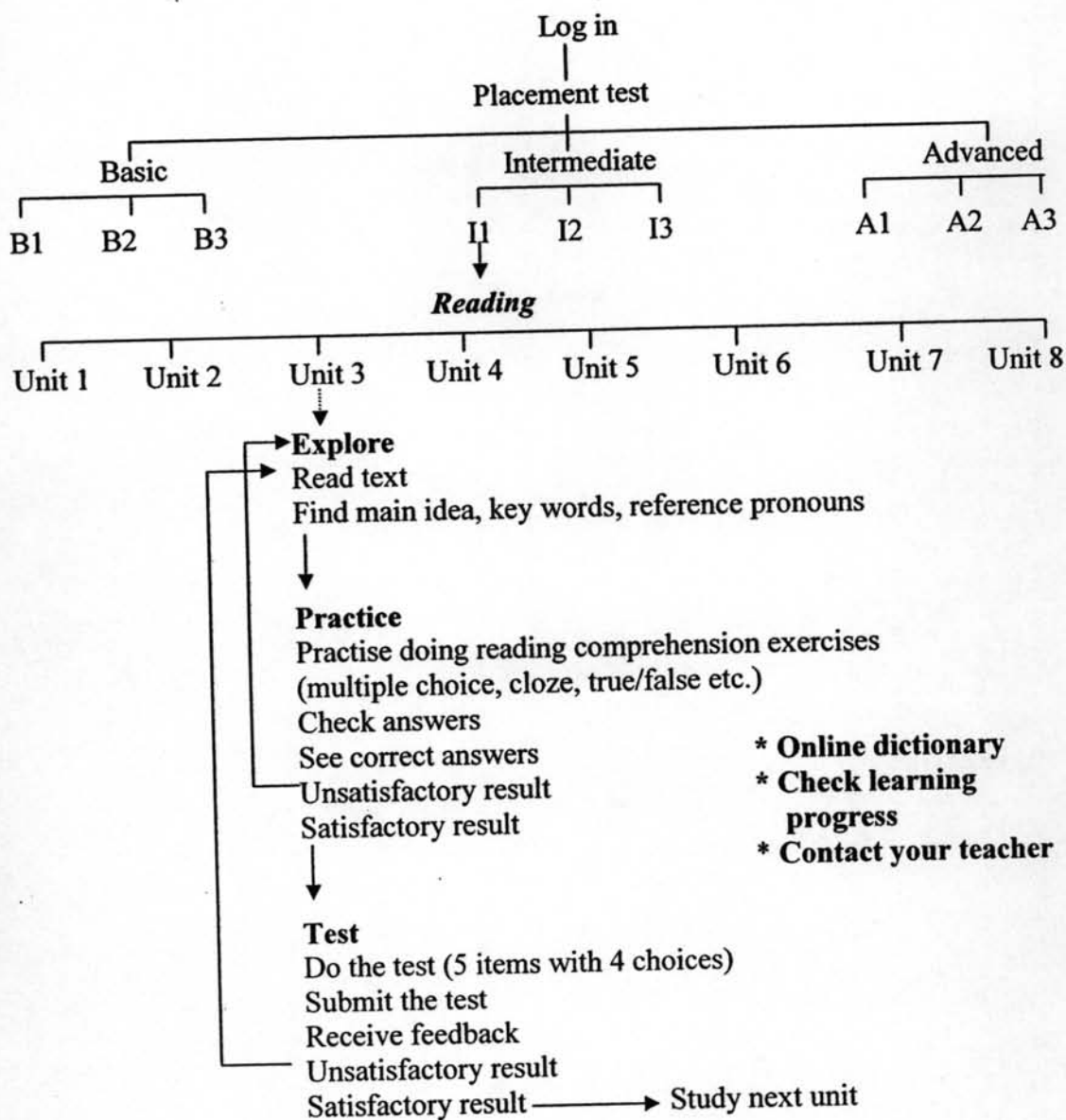
The EDO has therefore been developed in line with the above theories. It consists of interactive multimedia courses, a community site and a teacher management system. The courses provide a wide range of real-life texts and interactive activities, as well as various student support tools and the option for students to check their work, clarify their mistakes and get instant feedback. The courses are divided into topic-based units to make the material more relevant and meaningful (EduSoft, 2002).

Since the EDO consists of several language skills, only the reading skill part was used for the study. Students had access only to the reading part and dictionary. They could not have access to other language skills. This was to prevent them from going to other skills irrelevant to the aim of this study. The students were required to study at least ten reading lessons, one lesson a week, according to their proficiency level. However, they could study more than ten lessons if they wished, and they were always encouraged to study as much as they could and to spend increased more time on their independent learning.



It should be worthwhile exploring more details of how to learn with the EDO programme. First, students after the login did the placement test in order to evaluate their proficiency level. However, their score on the reading part was used to judge their proficiency level. There are three levels, i.e. Basic, Intermediate, and Advanced. Each level will consist of three sub-levels, i.e. Basic 1, 2, and 3; Intermediate 1, 2, and 3; Advanced 1, 2, and 3. Then, students clicked on the Reading part, which is the topic-based approach consisting of 8 reading units for each sub-levels. They could choose topics of interest for their study.

Each reading unit contains three main components, i.e. *Explore*, *Practice*, and *Test*. Under *Explore*, students read a passage and learned to find the main idea, key words, and reference pronouns. Next, under the *Practice* part, students practised doing reading comprehension exercises, which are in various forms such as multiple choice, cloze, and true/false, etc. They could check answers and were given correct answers. After that, students did the test, which consisted of 5 items with 4 options. They obtained the feedback immediately after their test submission. In case of an unsatisfactory test result, students would be advised to practise their reading in the *Practice* part, and redo the test. During the learning process, students could see the reading text at all times and could check unknown words from the online dictionary. Students could also view their test scores at all times, and contact their teacher by writing messages by going to *Contact your teacher* mode. Figure 3.4 is the diagram of one level, i.e. Intermediate 1 of the EDO programme.



**Figure 3.4: Diagram of English Discoveries Online: Sample of Intermediate 1 level**

It should be of interest to have the overview of levels of the EDO with particular attention on the reading skills as shown in Table 3.13.

It is worthy of note that students were shown how to use the programme and each student was given a user name and password to log in the web <http://ed201thailand.engdis.com/rosukhon> when they wanted to study the reading modules of English Discoveries. It should take approximately 45 minutes to study each unit.

**Table 3.13: Overview of the Levels of English Discoveries Online (EDO)**

<b>Level</b>	<b>Description</b>	<b>Topics</b>	<b>Objectives</b>
Basic	Learners access written information through the following text types: <ul style="list-style-type: none"> <li>- Postcards (50-100 words)</li> <li>- Advertisements (50-100 words)</li> <li>- Stories (200-250 words)</li> <li>- Articles (200-250 words)</li> </ul>	The texts are simple and are on topics close to the learners' own lives and environment, including family, food, shipping, travel, sports, etc.	Learners understand the main ideas and supporting details in texts, draw inferences from simple information, understand factual information and use the information in the texts to fill in reports, sort items according to categories, order events in the correct sequence, and answer questions.
Intermediate	Learners access written information through the following text types: <ul style="list-style-type: none"> <li>- Directions, instructions and notices (80-150 words)</li> <li>- Stories (250-300 words)</li> <li>- Articles (250-300 words)</li> </ul>	The texts are longer, written in more complex language, using richer vocabulary, and contain inferential information. They deal with less familiar topics such as: education, festivals and holidays, buying and selling, instructions and directions, current trends, etc.	Learners understand main ideas and supporting details in texts, draw inferences, identify points of view, apply knowledge of discourse markers to obtain information and understand logical relationships in texts. They use the information to fill in reports, complete letters, email messages and summaries, follow instructions, and answer questions, etc.
Advanced	Learners access written information through the following text types: <ul style="list-style-type: none"> <li>- Letters (200-300 words)</li> <li>- Stories (300-350 words)</li> <li>- Articles (300-350 words)</li> </ul>	The texts are longer, written in more complex language, using rich vocabulary, and contain more inferential information. They deal with more abstract topics, such as: cultural differences, alternative vs. conventional medicine, letters of request/complaint, etc. bilingualism, working at home, etc.	Learners understand main ideas and supporting details in texts, draw inferences, understand idiomatic expressions, identify points of view and writer's attitude, apply knowledge of discourse markers to obtain information, and understand logical relationships in texts. They use the information in the texts to fill in newspaper reports, notes, complete letters of reply and summaries, and answer questions.

In order to know how students learned through the EDO, the web-based instruction, such as time and duration of learning and scores from the exercises or tests, the teacher/researcher could have access to the programme and obtain the information on each student's learning from the Teacher Management System (TMS) of the programme. This TMS allowed the teacher/research to check the learning activities and progress of each student. The information obtained from the TMS was used to reveal students' learning – whether they learned regularly and their learning progression.

The justifications for using the EDO are based on the specific design features of the materials for autonomous learning pointed out by Dickinson (1987) as follows.

1. Meaningful language input: The programme has several linguistic levels for different learners' levels and supports learners to find meaning such as illustrations and online dictionary.
2. Exercise materials and activities: There are exercises in different formats such as multiple choice, cloze test, and true/false.
3. Learning instructions: Instructions are clear and simple to understand.
4. Feedback and tests: The programme provides feedback in the form of answers to exercises and tests. The tests contain validity; they test what they claim to test.
5. Record keeping: Learners can check their learning progress since there is a record keeping of scores for tests, expressed numerically or in a graph form.
6. Indexing: The reading part has a contents list for learners to select.
7. Motivational factors: The programme is attractive because of the layout, colour work, illustrations and so on. Also, 'accessibility' is another motivational factor. The web has a 'self-contained' feature; the course can be taken completely online. Learners can log in anytime and from any place.

### **3.4 The Instruments**

This study employed six research instruments to collect both quantitative and qualitative data. They were reading comprehension test, questionnaire, learner contract, learning record sheet, counselling form for the teacher, teacher's feedback, and reading strategy checklist. These research instruments will be described in details in relation to the research questions.

For the first, second and third research questions, the reading comprehension proficiency test was used to collect the data. Next section will describe in full details regarding the test.

#### 3.4.1 The General English Reading Comprehension Test

The test utilised in this study is the English reading comprehension test constructed by the researcher/author. The test consists of 40 multiple choice type items with 4 choices. The test was used for two purposes – to be the pre-test and post-test for the students' English reading proficiency. The pre-test was administered in the first session of the second week of the course, while the post-test at the end of the course, i.e. session 2, week 14.

In constructing the test, the researcher went through the following steps:

- 1) Wrote the blueprint and specifications of the test (Appendix G 1)
- 2) Chose reading passages which require a general knowledge background which is in parallel with the nature of the GE course.
- 3) Chose the test type. The type chosen is the multiple-choice test because it has obvious advantages in terms of its objectivity and ease of administration. In addition, the multiple-choice test is particularly suitable at the lower level (Heaton, 1995).
- 4) Constructed the test.

The test constructed for the pilot testing consisted of 45 multiple-choice items with 4 choices based on 6 passages with different lengths and difficulty levels. Each passage is 150-300 words long, taken from some non-curriculum books, magazines, newspapers, or website texts. The test was designed as a lower-intermediate proficiency test, as appropriate to the students' English level.

#### 5) Validation of the Test

The content and construct validity was checked by three English language teachers who were asked to judge the congruence between objectives and items of the test. The obtained comments were used to calculate the Index of Item-Objective Congruence (IOC) of each test item, a type of content validity. Overall, the content validity of the test was 0.97. The value of IOC for each test item was illustrated (Appendix G 2). Improvement of the test was done based on their comments. Then, the correctness of the language was checked by a native English speaker.

#### 6) The Trials of the Test

In order to refine the reading test, the researcher tried out the test as per the following steps:

- 6.1 The test was pilot-tested with six students whose English proficiency was heterogeneous in order to obtain the optimum test time, which was 1.10 hours.
- 6.2 To select the subjects for the first trial, 100 second year students of the first academic semester of 2005 from every faculty of DPU were chosen by the purposive sampling technique. Since students were grouped according to their English proficiency for any general English courses, students from the two high and two low proficiency levels groups were selected to participate in the pilot testing. There were approximately 45-50 students each group. Then, only 50 students from the two high and two low groups were randomly selected. The subjects were therefore divided into two groups, i.e. 50 were students whose English proficiency was high, and another 50 were those whose English proficiency was low. Their English proficiency was based on their English scores of the previous course, i.e. GE 1. None of these students were among the subjects of the main study.
- 6.3 After the administration of the test, all test items were analysed by a computer programme named CTIA/Grading or Classical Test Item Analysis and Grading (Sukamolson, 1995). Item analysis was conducted to find the reliability, difficulty indexes, discrimination indexes and item validity indexes of the test. Item analysis enables the researcher to find out how easy or difficult each test item is (difficulty indexes) and how well it distinguishes the better students from the poorer students (discrimination indexes), and how much it can test what is intended (item validity indexes).
- 6.4 The reliability of the overall multiple-choice test found by using the reliability coefficient (Kuder-Richardson 20 formula or KR20) was 0.68, which was not satisfactory because the internal consistency or reliability of the test was expected to be over 0.70 (Sukamolson, 1995). The researcher then analysed each test item and improved it in terms of the stem and/or the options.

- 6.5 The test was trialled again with 100 second year students of the second academic semester of 2005 by using the same technique to select the subjects as for the first trial of the test. No student who had participated in the first trial participated again in the second trial.
- 6.6 The item analysis was conducted again, and it was found that, on average, the reliability of the test (KR20) was 0.77, the difficulty index was 0.39, the discrimination index was 0.33, and the Point Biserial coefficient was 0.29.
- 6.7 Analysis of each test item was conducted, and the items of which difficulty indices ranged between 0.20 and 0.80, and discrimination indices were equal to or higher than 0.25 were chosen for the main study. This resulted in a rejection of five items, i.e. items 3, 12, 14, 17, and 24. Consequently, there were only 40 test items for the main study. Domains of the reading comprehension test and the test number of each domain were therefore as follows (Table 3.14):

**Table 3.14: Domain of Reading Comprehension Test and Its Test Number**

Category in the Cognitive Domain	Domains of Reading Comprehension	Original No. of Items	No. of Items
Knowledge Comprehension	Know specific facts ( <i>scanning to identify specific information</i> ) ( <i>identifying pronoun and noun phrase</i> )	13 (7)-1: item 3 (6)-2: item 17,24	10 (6) (4)
	Guess meaning from the context	6	6
	Skim to understand general meaning	8-1: item 12	7
	Give examples	3	3
	Conclude ideas	3	3
Analysis Synthesis	Identify sequence of events/stages of argument	3	3
	Make inferences	9-1: item 14	8
	<b>Total</b>	<b>45</b>	<b>40</b>

The item analysis was conducted again to obtain the reliability (KR20), difficulty index, and discrimination index of the 40 items test, which were 0.77, 0.40, and 0.36 respectively. The Point Biserial coefficient was 0.31. The reliability value of 0.77 is acceptable according to Fraenkel and Wallen (2000). (see Appendix G 3 for the test).

To collect the data for research questions 4 and 5, the questionnaire was the main research tool used to answer the research questions. However, other research tools were also used, i.e. learner contract, learning record sheet, teacher's counselling form, teacher's feedback, and reading strategy checklist. It should be noted that they were used as the pedagogical tools as well, besides as the research instruments. These research tools were used as the supplementary tools for the data collection. The data obtained were used for the discussions.

### 3.4.2 The Questionnaire

The processes of the questionnaire development and validation are described here below.

#### 3.4.2.1 The Development of the Questionnaire

In order to answer the research questions 4 and 5, the questionnaire was developed to investigate learners' attitude towards learner independence and other factors relevant to learner independence through web-based instruction, which at the same time was used to reflect subjects' ability to be independent learners. As a result, the questionnaire was another vital research tool for data collection in this study.

The justifications to employ the questionnaire for data collection were that it was considered easy, convenient, and practical to gain information from a large number of subjects, and that personal or private information could be obtained. The type of the questionnaire is the Likert Scale, which is one type of attitude scale, with a number of five points. The Likert Scale was used to collect the data on attitude since it is an information form which measures the attitude or belief of an individual through using questions or getting people's reaction to statements.

The questionnaire was developed based on the review of literature regarding the components of autonomy (Figure 2.2), of which each aspect and its operational definition for this present study was taken into consideration for the learner training to enable the learners to become independent learners. The 53 statements in the questionnaire were therefore written in English and later on translated into Thai, in relation to the aspects of the learner training. In other words, they reflected what the learners were trained in. Therefore, the questionnaire



comprised two main parts, i.e. attitude towards learner independence and capacity to learn independently.

The first part of the questionnaire was about the attitude of learners towards learner independence which included willingness, self-confidence to learn independently, and motivation to learn English. This part was in relation to the psychological preparation, which aimed at investigating students' attitudes towards learner independence both after the intensive learner training and at the end of the course. Moreover, a comparison of their attitudes would be made to see whether and how their attitudes changed after the intensive training until the end of the course. A comparative study of students' attitudes enabled the researcher/author to know their psychological development towards learner independence.

Students were asked to rate either 'strongly agree', 'agree', 'uncertain', 'disagree', or 'strongly disagree' on each statement. The positive statement was given weight of 5, 4, 3, 2, and 1 respectively for scoring purposes, while the negative statement 1, 2, 3, 4, and 5.

The second part of the questionnaire asked about the capacity to learn independently and use of both cognitive and metacognitive strategies, which corresponded to the methodological preparation. This part therefore aimed at obtaining information on learners' behaviours about their independent learning ability in relation to the use of learning strategies in general and reading strategies both after the intensive learner training and at the end of the course. Moreover, like the first part of the questionnaire, the comparative information from the second part enabled the researcher/author to see the methodological development of the students at the end of the course in terms of their strategy use.

Students were asked to rate either 'always or almost always true of me (almost 100%)', 'usually true of me (over than 50%)', 'somewhat true of me (about 50%)', 'usually not true of me (less than 50%)', and 'never or almost never true of me (0-10%)'. Likewise, the positive statement was given weight of 5, 4, 3, 2, and 1 respectively for scoring purposes, while the negative statement 1, 2, 3, 4, and 5. The questionnaire also provided spaces for additional opinions about each sub part so that students could give more information on each part if they wanted to.

It should be noted that most statements regarding independent learning and autonomy were adapted from Guglielmino (1977), while some statements were

written by the researcher/author. Those regarding the learning strategies were taken from Chamot et al. (1999).

Interpretation of 'attitudinal value' or 'weight' was as follows:

- |   |   |
|---|---|
| 5 | means positive attitude towards learner independence was 'very high'. |
| 4 | means positive attitude towards learner independence was 'high'.      |
| 3 | means positive attitude towards learner independence was 'moderate'.  |
| 2 | means positive attitude towards learner independence was 'low'.       |
| 1 | means positive attitude towards learner independence was 'very low'.  |

The evaluation criteria of the questionnaire were as follows:

- |             |   |
|-------------|---|
| 0.00 – 1.50 | means positive attitude towards learner independence was 'very low'.  |
| 1.51 – 2.50 | means positive attitude towards learner independence was 'low'.       |
| 2.51 – 3.50 | means positive attitude towards learner independence was 'moderate'.  |
| 3.51 – 4.50 | means positive attitude towards learner independence was 'high'.      |
| 4.51 – 5.00 | means positive attitude towards learner independence was 'very high'. |

In regard to the validation, the questionnaire was validated to find its content validity by having three English language teaching experts who had expertise in the field of autonomous learning mode judge the congruence between the objectives and questionnaire statements. The obtained data was used to calculate the Index of Item-Objective Congruence (IOC) of each questionnaire statement. Overall, the content validity of the questionnaire was 0.80 (see Appendix H 1). There were nine (9) statements of which the IOC values were unacceptable; however, not all of them were eliminated. Some statements were eliminated, while the rest were revised, and moved to be under other headings as per the comments of the experts. Some statements particularly regarding the metacognitive statements were added. The questionnaire finally consisted of 53 statements in 7 domains as follows:

Attitudes towards learner independence	8	statements
Willingness to learn independently	6	statements
Self-confidence to learn independently	5	statements
Motivation to learn	6	statements
Capacity to learn independently	7	statements
Cognitive strategy	10	statements
Metacognitive strategy	11	statements

Among these 53 statements, there were 15 statements that conveyed the meanings in contrast to the concepts of the learner autonomy theory, which can be identified as follows:

Attitudes towards learner independence	5 statements: 2, 4, 5, 6, 8
Willingness to learn independently	2 statements: 9, 13
Self-confidence to learn independently	2 statements: 15, 16
Motivation to learn	1 statement: 20
Capacity to learn independently	1 statement: 31
Cognitive strategy	3 statements: 34, 41, 42
Metacognitive strategy	1 statement: 45

Then, both the English and Thai versions of the questionnaire were checked by the research supervisor for overall completeness. Next, the questionnaire was pre-piloted with five students in order to investigate whether the Thai wordings, statements or instructions were clear to them. Some minor changes in terms of wordings were done according to their comments. The questionnaire was then piloted.

#### 3.4.2.2 The Pilot Study of the Questionnaire

In order to find the reliability of the questionnaire, the questionnaires were administered to 60 heterogeneous students--20 each from the high, middle, and low proficiency levels groups--on the 3<sup>rd</sup> February 2006 in class. The data from the questionnaires were analysed by using SPSS version 11.5 to compute the Cronbach's alpha coefficient to find the reliability of the questionnaire. It was found that the reliability of the questionnaire was 0.84, which could be appropriately used for the main study (see Appendix H 2 for the questionnaire).

#### 3.4.3 Learner Contract (Appendix I)

The researcher/author employed the learner contract to facilitate independent learning since students had to set their own learning objectives and criteria for their learning achievement. In addition, the learner contract was used as the agreement to independent learning of the students with a hope to encourage them to commit to the contract and develop their responsibilities to execute their independent learning regularly to achieve their learning objectives set in the contract. At the early stage of the training students were guided to complete the contract, which would enable them

to become confident in planning their learning during their independent learning through the web.

To implement the learner contract, at the early stage students were advised to set only one or two learning objectives for a short period of the contract time like one week. Later on, they could maintain the same contract for a longer period of time since learning strategies can be effectively used based on frequent and regular practice. The keeping of the same contract may be because they monitored their learning and may not be satisfied with their learning results, or they did not achieve the learning objectives they set; they therefore would like to continue practising on the same learning objectives until they felt they achieved them. On the other hand, they could change the learner contract; for example, when they monitored their learning and found out that they should change the learning objectives from understanding the general meaning of the reading text to studying grammar first.

Besides being used as the pedagogical tool to support the independent learning, the learner contract was used as the research instrument to disclose the development of students' learning independence, i.e. they had to set their own learning objectives, suggest an amount of time to be spent for the independent learning through the EDO, and state the criteria used to evaluate their learning achievement. This was considered as the planning of their learning and at the same time they used metacognitive strategies to plan their learning.

The learner contracts were kept by students themselves in their own student' self-access language learning folder provided by the Language Institute every semester so that they could have access to the contracts whenever they wanted to. The learner contract was translated into Thai for the purpose of full understanding of the learners.

The Learner Contract was designed on a basis of the review of literature on autonomous learning; and it was adapted from the suggestions made by Dickinson (1987), Gardner and Miller (1999), and Lee (1998). However, the emphasis was made on the provided list of reading skills that the students may like to improve. This was based on the considerations that the English proficiency of most students was the lower-intermediate level, and some students especially the low achievers were lower than the lower-intermediate level. Therefore, the list of reading skills was considered useful to facilitate their determination of the reading objectives. This could be legitimately considered as the 'direction' from the teacher in helping enhance

learners' capacity to execute their learning planning. Students however could also write their own learning objectives.

It should be noted that the learner contract for the total learner independence group did not contain number 5 which was about the fixed time for counselling since this group was not required to have counselling.

#### 3.4.4 Learning Record Sheet (Appendix J)

Learning Record Sheet was used in training students to be responsible for their independent learning during the period of learning, simultaneously with the learner contract, as the pedagogical tool to help learners develop their use of metacognitive strategies. That is to say students were trained to monitor and evaluate their independent learning by recording important information about their own learning in the record sheet, which was considered as the learning 'reflection'. Students were instructed how to write reflections which encouraged them to be aware of their learning process, learning problems, solutions, progress, and even their positive or negative feelings about their independent learning. It was necessary for the teacher to teach them what and how to write in a reflective manner since research shows that without teaching learners do not know how to reflect their learning.

The learning record sheet was designed based on the suggestions of Carver and Dickinson (1981 cited in Dickinson, 1987) and Lor (1998 cited in Benson, 2001: 206). Therefore, the five 'objects of reflection' adapted from Lor, i.e. learning strategy use, the learner's feeling about learning and events, learning gains, difficulties encountered in the process of learning, and decisions and plans, were used for this study as the framework for writing reflections. These five objects of reflections were reduced to three domains, i.e. affect, cognition, and intention. However, learners' reflections were not limited to these five objects. They could write about other issues if they saw a point in doing so.

As the research instrument, the learning record sheet was used as evidence to prove whether students took responsibility for their own learning, which could reflect whether they were able to assume responsibility for their own learning or become independent learners. The information obtained from the learning record sheets was also used to reconcile with the information obtained from the questionnaires to investigate the development of learning independence of students in terms of both psychological and methodological aspects.

To avoid any language constraints, the learning record sheet was in Thai; and students were allowed to use Thai to complete the learning record sheet every time they exercised their independent learning through the web. Also, students kept the learning record sheets in the folder for the same purpose as for the learner contract.

#### 3.4.5 Counselling Form for the Teacher (Appendix K)

The counselling form used by the teacher had two purposes for the study. First, it was a pedagogical tool. In the mode of independent learning, learners do not learn in isolation; therefore, counselling is an important feature of this mode of learning. Counsellors need to be prepared to give advice, offer suggestions, or answer questions from learners as well as assist learners to develop values, ideas, and techniques adequate for their language learning (Gremmo and Riley, 1995). The teacher/researcher acted as the counsellor providing face-to-face counselling to each learner according to the stipulated frequency requirements which were different among each group.

Second, the counselling forms were used as the research instrument. The teacher/researcher constructed the Counselling Form to record details such as date, learning problems, teacher's advice or comments, and learning progress in terms of the psychological and methodological development of each learner. Useful information gained from the counselling forms was used to reflect whether and how learners developed themselves as independent learners based on advice and suggestions regarding their language learning obtained from the teacher. Information from the learner contracts and learning record sheets was also used for the counselling.

In providing counselling, the teacher applied the 'nondirective and therapeutic learning' suggested by Carl Rogers (1951 cited in Ornstein and Hunkins, 2004: 126). This counselling technique was based on humanistic psychology with a concept that therapy is very important as a method of learning. Positive human relationships enable people to grow. The teacher's role is to guide, help students for human growth and development, explore new ideas about their lives, their school work, their relations with others, and their interaction with society. To guide and help, the teacher uses 'referential' type questions -- the questions to which the counsellor does not know the answers-- to elicit information from learners (Gardner and Miller, 1999). Besides that, a range of macro and micro skills for language counselling suggested by

Kelly (1996) were taken into account in providing counselling to the students. Furthermore, conversation during the counselling was based on the information from the 'learning record sheet'. The teacher could also have the learner better understand learning experience, namely purpose of the task, performance evaluation etc. Moreover, there was a communication about their responsibility by using questions like 'What time do you usually learn on the web?' or 'Have you enjoyed your lessons?' This led to a conversation on their progress, problem and problem solving. The counselling form was used to record questions from the learners and advice or guidance from the teacher.

It should be noted that the face-to-face counselling was provided to learners according to the degrees of learner independence they had; however, they were welcomed to have additional counselling if they wished by making appointments in advance. The additional counselling requested by each learner was recorded for necessary data analysis and discussion as well.

#### 3.4.6 Teacher's Feedback

The teacher's feedback had two purposes for the study. First, it was the pedagogical tool; the teacher/researcher checked the MS and SS's work, i.e. learner contract and learning record sheet and provided appropriate written feedback to any points or problems raised by students. Second, it was the research tool; students' responses to the usefulness of the teacher's feedback and reasons were employed for data discussion to triangulate with or support the quantitative data findings from the test and questionnaire.

#### 3.4.7 Reading Strategy Checklist (Appendix L)

As the research instrument for the quantitative data analysis and pedagogical tool to facilitate students' reading process, the reading strategy checklist included all major useful reading strategies of both cognitive and metacognitive strategies, which were categorised for the three reading stages, i.e. the pre, while, and post-reading stages. Students checked the strategies they used for their reading tasks every time that they learned independently on the EDO. The checklist was designed based on the framework for strategy instruction (Figure 3.2), and adopted the reading strategies from Chamot et al. (1999). However, students were given the checklist in Thai with the translation of English in order to prevent any language barrier. The checklist was

kept in each student's folder so that they could review the strategies they used and compare with the learning outcome to see whether the strategies used were effective.

All the research instruments used for the data collection to answer the each research questions described above were summarised in Table 3.15.

**Table 3.15: The Research Instruments Employed for this Study**

Research Instruments	For Research Questions
1. The Reading Comprehension Test	1, 2, 3
2. The Questionnaire	4, 5
3. The Learner Contract	4, 5
4. The Learning Record Sheet	4, 5
5. The Counselling Form for the Teacher	4, 5
6. Teacher's feedback	4, 5
7. The Reading Strategy Checklist	4, 5

### 3.5 Data Collection Procedure

The data collection procedure of this study consisted will be described in relation to each research question.

#### 3.5.1 Data Collection for Research Questions 1, 2, and 3

The research instrument employed to collect the data was the general English reading comprehension test.

##### *The General English Reading Comprehension Test*

The pre-test was administered by the researcher or author during the first session of the GE 2 course to all subjects in each research group in class. The test time was 1.10 hours. The reading post-test which was the same form of the pre-test was administered to all students nearly at the end of the course in week 14 and the test time was 1.10 hours like the pre-test. The time interval between the reading pre-test and the post-test was approximately four months.



### 3.5.2 Data Collection for Research Questions 4 and 5

#### 3.5.2.1 The Questionnaire

In order to collect the data from the questionnaires, the researcher went through these steps:

1. The pre-questionnaires were given to the students of the three groups during the second session of week 4 after the intensive learner training by the teacher/researcher in their class. The pre-questionnaires were administered after the intensive learner training based on the justification that all students were already *deconditioned* of their English language learning experiences (Holec, 1981) by the three-week intensive learner training. They were already psychologically prepared to have the positive attitudes towards independent learning and methodologically prepared for the learning and reading strategies.
2. The post-questionnaires were given to the students of the three groups during the second session of week 14, which was the same time as the post-test administration. Students rated the questionnaire after finishing the post-test in order to investigate whether their attitudes towards learner independence and other relevant factors were increased or not after they took charge of their own learning through the EDO.
3. The teacher/researcher spared approximately 20 minutes for the students to answer the self-administered questionnaire and encouraged the students to appreciate the significance of the study and attentively rate the questionnaire, which could lead to improvements in teaching English at DPU.
4. The teacher/researcher collected the questionnaires.

#### 3.5.2.2 Other Research Tools

Other research tools were learner contract, learning record sheet, counselling form for the teacher, teacher's feedback, and reading strategy checklist. Since the main study is the true experimental research design with the three treatments that are 'most support' (MS), 'semi-support' (SS), and 'least support' (LS), details of how to collect data from these three treatments will be discussed as follows. However, it should be noted that the different aspects of these three groups were based on the classifications of the degrees of support for learner independence;

therefore, more details can be obtained from Table 2.6 in the Literature Review chapter.

1. For the first treatment which was the MS, the subjects took charge of their own learning, i.e. study at least 10 EDO reading modules and at least one unit once a week by themselves outside a regular class. They had to use the learner contract, learning record sheet, and reading strategy checklist to complement the study of the EDO. They were requested to submit their work, i.e. the Learning Record Sheet every week. This means that they received written feedback from the teacher on a weekly basis, i.e. 10 weeks. Feedback for this study took the form of written messages conveyed by the teacher to learners regarding their language learning monitoring, assessment of their learning efforts, and appreciation of their ability and responsibility for their independent learning. Furthermore, feedback was considered as a dialogue between the teacher and learner -- the teacher would respond to points or problems mentioned in the reflection part. Feedback was used as a means to encourage learners to monitor their own learning and progress as well as exploit the feedback from the teacher for their learning improvement. Both cognitive and affective domains were considered for provision of feedback. In addition, students were required to receive counselling every two weeks meaning 5 times in total.

2. For the second treatment which was the SS, everything was the same as for the first treatment group except that the learners in this group received written feedback every two weeks (5 times) and were asked to submit their work, i.e. Learning Record Sheet every two weeks meaning 5 times in total. Also, they would receive counselling once a month (3 times in total).

3. For the third treatment which was LS, everything was still the same except that the learners were asked to submit their work only at the end of the course, i.e. week 14. They would not receive any written feedback of the teacher and were not required to have counselling. They were expected to use the internal feedback for their learning improvement. However, they would make the decision by themselves whether they wanted to have counselling. If this was the case, they could come to see the teacher/researcher for the counselling. This group was totally free from the teacher's intervention in terms of checking their learning progress.

These qualitative data collection procedures started from weeks 5 to 14. Therefore, the collection period was 10 weeks in total based on the learner contracts,

learning record sheets, reading strategy checklists, teacher's feedback and counselling forms for the teacher.

It is noted that the subjects were not informed that they were participating in the experimental research in order to conduct the research in the natural setting. Therefore, they did not have to sign a consent form for human subject experiments since the independent learning was considered as part of their self-access language learning, which was a compulsory requirement of the GE 2 course. Furthermore, the ethical issue was not ignored since the three groups received the same psychological and methodological training for the independent learning on the web, which was theoretically considered as the significant foundation every student needed to have or be trained for. It can be said that there was no treatment bias for any experimental groups in this present study.

### **3.6 Data Analysis**

Since this study was designed based on the quantitative and qualitative techniques or mixed research methods (Creswell, 2003), this part will discuss the data analysis for both research techniques as per the research questions. Values and limitations of using the mixed research methods will also be discussed.

#### **3.6.1 Data Analysis for Research Questions 1, 2, and 3**

In order to answer the research questions 1-3, the statistical test to be used for the data analysis is a two-way Analysis of Variance or Two-Way ANOVA because there are two independent variables of interest. The key statistic in ANOVA is the F-test of difference of group means. To measure the magnitude of a treatment effect, the Eta squared effect size was calculated by using the formula:  $\text{Eta squared} = \frac{\text{SS}_{\text{effect}}}{\text{SS}_{\text{total}}}$ . In addition, the observed power was calculated. It should be noted that for the data analysis, the Statistical Package for the Social Sciences on Personal Computer (SPSS/PC), Version 11.5 was utilised.

### 3.6.2 Data Analysis for Research Questions 4 and 5

#### 3.6.2.1 The questionnaire

The questionnaire was the main research tool to answer these research questions.

For the research question 4.1: 'On average, are learners' attitudes towards learner independence significantly increased after the treatment?' aiming to test whether attitudes of the subjects in each group towards learner independence before and after the treatment are significantly increased, scores of 5-point Likert Scale questionnaires before and after the treatment were computed to find mean scores and standard deviation (SD) of each domain of each group. Then, mean scores and SD of every domain of each group were computed to compare whether they were significantly increased. The *Dependent-Samples t-test* was used to test the one-tailed hypothesis due to one group with two mean scores.

To answer the research question 4.2: 'Are learners' attitude towards learner independence after the treatment at the level of greater than 3.50 (out of 5.00)?', aiming at investigating whether the students' attitudes towards learner independence was at the high level, the *One-Sample t-test* was utilised to test the one-tailed hypothesis for the data analysis. In addition, each domain was statistically tested and its mean scores and SD were presented to see which domains were greater than 3.50.

#### 3.6.2.2 Other Research Instruments

They were learner contract, learning record sheet, counselling form for the teacher, teacher's feedback, which were also used for the qualitative approach, and reading strategy checklist.

The qualitative dimensions of the study aimed at providing further evidence regarding the ability to be independent learners based on the learner training and the enhancement through the web-based instruction. In addition, the information from the qualitative analysis was employed to support the quantitative findings from the five research questions. It was however only 50% of the subjects whose

qualitative data were employed for the analysis. Therefore, 9 subjects from each cell were randomly selected, which resulted in 54 subjects in total: 27 high and 27 low proficiency students.

'Content analysis' was used to analyse the data obtained from these instruments. The students' answers were read and the key concepts were found out. Then, the answers were categorised under each particular key concept, and quantified for the data analysis to support and provide insights for the quantitative findings and data discussions.

#### Learner Contract and Learning Record Sheets

- The information was categorised and the percentages were computed to obtain the frequency of each item.
- The information was analysed in order to see students' learning strategies, and the way they monitored and evaluated their learning progress, which reflected their independent learning characteristics and capacity.
- The information was used to support the data obtained from the post-test and the questionnaire for the data interpretation and finding discussion.

#### Counselling Form for the Teacher

- Only MS and SS students' answers on the question asking whether they enjoyed studying independently through the web and reasons were analysed for data discussion. The other information on students' learning problems or teacher's advice was not analysed based on the justification that the counselling was based on students' reflections in the learning record sheets which received necessary feedback from the teacher/researcher. As pointed out, the independent learning ability of the students could be investigated from the learner contract and learning record sheets.

#### Teacher's Feedback

- The teacher's feedback given in response to the learner contracts and learning record sheets was not categorised. However, the MS and SS students' responses in the post-questionnaire on the usefulness of the feedback given to them were calculated and the reasons were categorised.

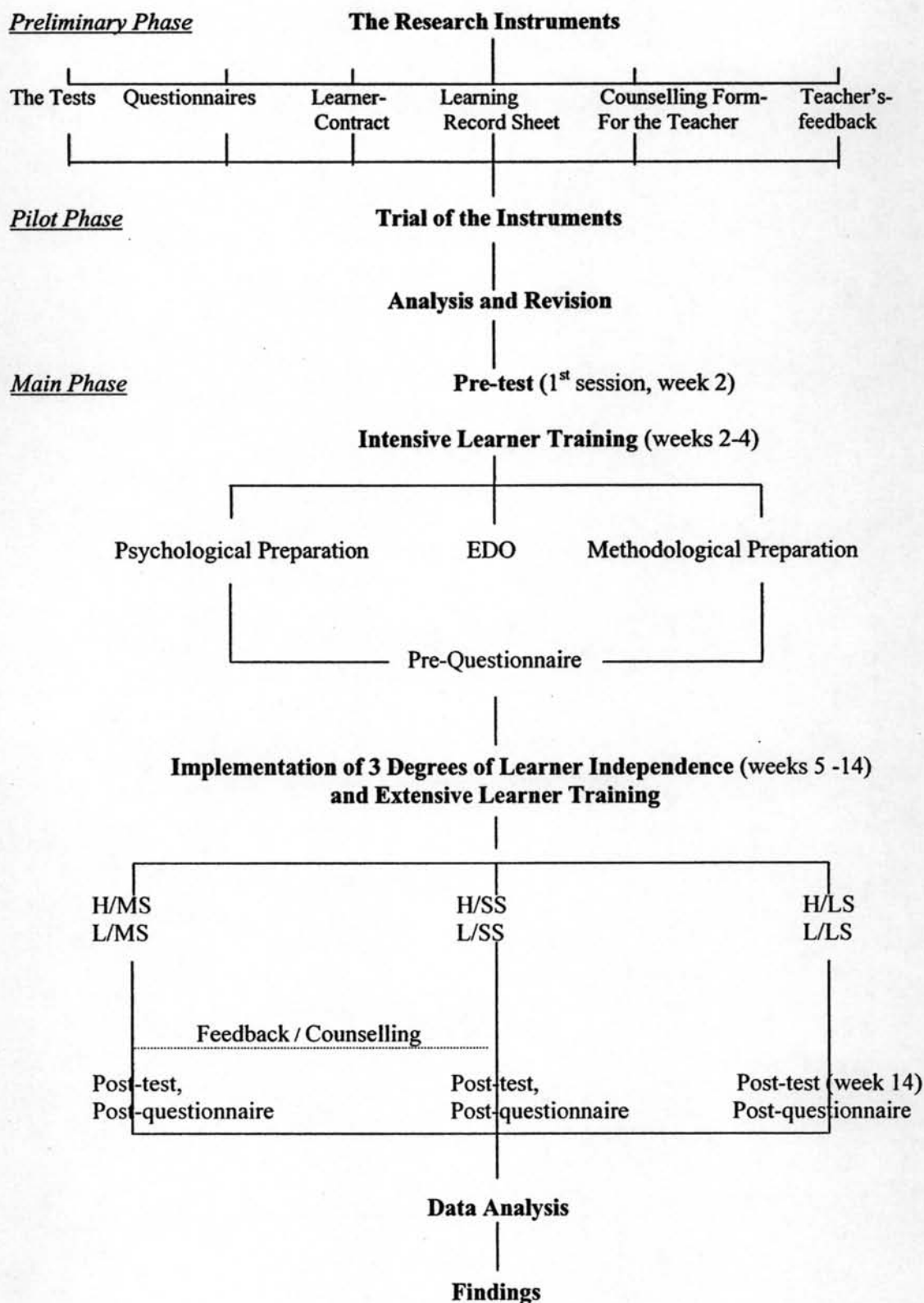
- The information was used for the data interpretation and discussion.

#### Reading Strategy Checklist

- Each strategy item was counted and converted into percentages to see the use of reading strategies in two phases like the learner contract and learning record sheet.
- The information was analysed to investigate a use of reading strategies of students in each group.

In conclusion, the research design and procedure can be summarised in Figure

3.5.



**Figure 3.5: The Research Design and Procedure**

### 3.7 Value of the Mixed Research Methods

Although this study takes the form of the experimental research design in order to fulfil the four research objectives, the qualitative research approach was also utilised to collect and analyse the data. Therefore, this study employed the mixed research methods to collect and analyse both quantitative and qualitative data in a single study. It is worthwhile highlighting the reasons why the mixed research methods were applied.

Based on Creswell's (2003) models of the mixed research methods, this study employed the *concurrent triangulation approach*. This approach enables the researcher to use two different methods to confirm, cross-validate, or corroborate findings within a single study. This model usually use separate quantitative and qualitative methods as a means to offset the weaknesses of one method with the strengths of the other method. This was applied to the present study by employing the open-ended qualitative data (learner contract, learning record sheet, counselling, and feedback) to best understand the closed-ended quantitative data (the test and questionnaire). Moreover, this model usually integrates the findings of the two methods during the interpretation phase. In this present study, the quantitative approach using the pre and post-tests showed the relationships among variables from a comparison of the main effects and interaction effects of the independent variables on the dependent variable. However, the qualitative data from the learner contract, learning record sheet, counselling data, and feedback were used to help explain the factors that underline the broad relationships. Likewise, the questionnaire data were provided with insights by the qualitative data. In other words, the findings of the qualitative investigation were checked against the quantitative study in order to triangulate the data (Punch, 1998). According to Richards (2003), the triangulation of quantitative and qualitative data is important to establish different perspectives for the data interpretation and to avoid a one-sided view. After all, Brannen (1992), Punch (1998) and Creswell (2003) assert that the logic of triangulation is generally to enhance the internal validity of findings.

Besides the advantage of well-validated findings, this model enables the researcher to use a shorter data collection time period when compared to the sequential approaches which take two separate phases—one phase for quantitative data collection, another phase for the qualitative one (Creswell, 2003). The



quantitative and qualitative data in this present study were collected concurrently in one phase.

### **3.8 Limitations of the Mixed Research Methods**

According to Creswell (2003), the concurrent triangulation approach has some limitations. First, great effort and expertise are required to sufficiently study a phenomenon with two separate methods. The researcher of this study needed to be familiar with both quantitative and qualitative forms of research. In addition, for the qualitative investigation, the researcher was the teacher who taught the GE 2 course as per the course syllabus which included other English skills besides reading. Meanwhile, she had to collect the quantitative and qualitative data throughout the four-month semester. Counselling and giving written feedback were time consuming especially when the teacher/researcher had to deal with almost 40 students in each group. This was time-consuming and required great effort from the teacher/researcher.

Second, there is the challenge for analysing both numeric and text data which required intensive time. Besides, it can be problematic to compare the results of two analyses using data of different forms. The researcher may not be clear how to resolve discrepancies that arise in the results. To remedy this difficulty in this study, the attempt was made to analyse the qualitative data in terms of category and its frequency. The statement responses were focused to find the key concept and generate the category, and then they were counted and presented in percentages in order to make the qualitative findings concrete for the interpretation and discussions.

### **3.9 Chapter Summary**

This study takes the form of the experimental research with a 3x2 factorial design. The first independent variable is the degree of support for learner independence with three levels, i.e. MS, SS, and LS and the second independent variable is the level of English proficiency with two levels, i.e. high and low. The dependent variable is the English reading comprehension ability. The total of 108 subjects was randomly selected from the 841 population by employing the two-stage random sampling with a combination of cluster sampling and individual random sampling. Then, the subjects were randomly assigned to each of the three treatment groups, consisting of 36 subjects with 18 high and 18 low proficiency students. Compatibility of the subjects was statistically ascertained.

Several research instruments were employed to collect both the quantitative and qualitative data. The general English reading comprehension test, the questionnaire, and the reading strategy checklist were for the quantitative data collection. Learner contract, learning record sheet, counselling form for the teacher, and the teacher's feedback were used for the qualitative data collection. In addition, several pedagogical tools were used, i.e. the English Discoveries Online (EDO) was utilised as the WBI to enhance student's learning independence capacity, the strategy definition sheet, the counselling form for the learner, and the learner training effectiveness checklist.

In regard to the data collection procedure and analysis, the pre- test was administered during the first week of the semester and the post-test at the end of the course. The time interval was 14 weeks. The 2-Way ANOVA was used to analyse the data. The pre-questionnaire was administered after the intensive learner training, i.e. in week 4 and the post-questionnaire in week 14 together with the test. The *Dependent-Samples t-test* and *One-Sample t-test* were employed for the data analysis.

In terms of the qualitative data collection, after the intensive learner training for 3 weeks students in each treatment groups started to perform their independent learning through the EDO during weeks 5 to 14 according to the degree of support for learner independence they were exposed to. It was 50% of the subjects whose qualitative data were used for the analysis. Therefore, 9 subjects from each cell were randomly selected, resulting in 54 subjects in total: 27 high and 27 low proficiency students. Content analysis was used to analyse the data. The qualitative data were then categorised and quantified to support and provide insights for the quantitative findings and data discussions. The Chapter ended with the evaluations of both values and limitations of the mixed research methods approaches.