CHAPTER IV

RESEARCH FINDINGS

4.1. Introduction

The objectives of this study are to investigate the needs of English listening skills of the student nurses, to develop self-instructional materials to enhance listening skills for them, to examine the effectiveness of the developed self-instructional materials, and to study the attitude of the student nurses towards the developed self-instructional materials, the findings of the study according to research questions, therefore, should be presented in this chapter as follows:

Part I, the data from the questionnaire were calculated statistically and interpreted to indicate the needs of student nurses in order to scope the specification of the self-instructional materials (SIMS) in terms of academic aspects and physical aspects. Therefore, this part will respond to research question 1. What are the needs of English listening skills for student nurses?

Part II, the process of translating the data from the needs analysis to materials development and the validation of materials through experts and pilot test were presented. This part will respond to research question 2. How can self-instructional materials to enhance English listening skills for student nurses be developed?

Part III, the data which were calculated and statistically interpreted based on the scores judged by the experts, the scores of unit's self-test, scores of pretest and posttest were presented. In addition, they were tallied and evaluated against the standard criteria E_1/E_2 = 80:80. All of the findings respond to research question

3.How effective are the developed self-instructional materials to enhance English listening skills for student nurses?

Part IV, mean scores and standard deviation of the materials evaluation were presented to indicate the attitude of a study group of thirty student nurses towards the developed self-instructional materials. This part will respond to research question 4. What is the attitude of student nurses towards the developed self-instructional materials?

4.2. Part I: Conducting a Needs Analysis to find out the needed English listening skills of the student nurses.

As presented in Table 3.2, steps for conducting the needs analysis of this study are as follows:

1. Identify population and samples
2. Review related literature
3. Gather information about needs/skills of English listening required for student nurses by using a documentary research.
4. Design the research instruments
5. Validate the research instruments
6. Collect data by questionnaire survey of students' needs
7. Analyze the data

Steps 1-5 have already been covered in Chapter II and III. This part then focuses on the data collection of the questionnaire survey with 300 participating student nurses and the analysis of the obtained results in depth.

A questionnaire survey to find out the student nurses' needs

After the validation process, the researcher conducted a questionnaire survey with 300 voluntary student nurses studying during the first year to the fourth year in the School of Nursing, Faculty of Medicine, Ramathibodi Hospital, Bangkok. The survey aimed to explore the students' needs and necessities of English listening skills, problems in English listening, as well as wants and expectations of the elements to be included in the self-instructional materials. The results from the survey helped make decision in choosing the needed English listening skills and both academic and physical elements to be applied in the materials. Three hundred copies of the questionnaire were distributed and were collected as the full number of three hundred copies. The information collected from the questionnaire was then coded and analyzed via SPSS program for data processing and presentation. The results are presented as follows:

Table 4.1 and Table 4.2 show general information of the 300 participating student nurses of School of Nursing, Faculty of Medicine, Ramathibodi Hospital, Bangkok in terms of their demographic data e.g. gender, length of studying English, and types of materials used to practice listening in English.

Table 4.1: Demographic data of the 300 participating student nurses of the School of Nursing, Faculty of Medicine, Ramathibodi Hospital, Bangkok

Gender	Samples	Percent
Female	300	100%
Male	0	0%
Total	300	100%
Length of studying English		
8-11 years	42	14%
12-15 years	132	44%
16-19 years	126	42%
Total	300	100%

Table 4.1 reveals that the respondents are all female (100%). Regarding the length of their education of English, majority of them has studied English between 12 and 15 years (44%).

Table 4.2: Types of materials used to practice listening in English

What type of listening materials used most to practice English listening?	Samples	Percent
• Radio programs	9	3%
• T.V. programs	39	13%
• Movies	72	24%
• Self-study Books + CDs	147	49%
• Conversations with native English speakers or experts in English	33	11%
Total	300	100%
What is your means of practicing English listening?		
• Self-practicing	243	81%
• Taking extra courses in the language institute	57	19%
Total	300	100%

In terms of types of materials used to practice English listening as presented in Table 4.2, most of the student nurses use self-study books with CDs as a means to practice their listening in English (49%), followed by movies (24%), T.V. programs (13%), conversations with native English speakers or experts in English (11%), and the last means chosen is radio programs (3%).

Part 3 of the questionnaire asks the opinion of the student nurses about the necessity of English listening skills. To get such points of view, the student nurses were asked to rate the level of necessity of English listening skills on a five-rating scale from 5 to 1.The item rated 4.51 – 5.00 is interpreted as the highest (the most necessary); 3.51 – 4.50 is the next highest (very necessary); 2.51 – 3.50 is moderate (necessary); 1.51 – 2.50 is low (somewhat necessary); and 0.00 – 1.00 is the lowest (not necessary). The findings are presented in Table 4.3.

Table 4.3: The student nurses' views on the necessity of English listening skills

	Views on the necessity of English listening skills	$\bar{x}$	S.D.	Interpretation
1.	Recognize vocabularies related to the health science.	4.56	0.61	the most necessary
2.	Detect key words such as those identifying topics and main ideas.	4.49	0.77	very necessary
3.	Understand inferred information e.g. speaker's attitude or intention.	4.48	0.72	very necessary
4.	Guess meaning from context.	4.47	0.81	very necessary
5.	Retain chunks of language in short-term memory	4.44	0.68	very necessary
6.	Recognize basic syntactic patterns.	4.33	0.76	very necessary
7.	Detect sentence constituents such as subject, verb, object, and prepositions.	4.30	0.79	very necessary
8.	Recognize reduced forms of words e.g. I'll, I'm gonna	4.27	0.83	very necessary
9.	Recognize typical word-order patterns e.g...., aren't I?, ..., isn't it?	4.26	0.83	very necessary
10.	Recognize stress and rhythm patterns, tone patterns, or intonation contours.	4.26	0.85	very necessary

Table 4.3 reveals that the student nurses found almost every English listening skill very necessary (all of the skills were rated $\bar{x}$>3.51). However, there is only one English listening skill rated the most necessary among all that is to recognize vocabularies related to the health science ($\bar{x}$= 4.56). The second needed skill is to detect key words such as those identifying topics and main ideas ($\bar{x}$= 4.49). The third is to understand inferred information ($\bar{x}$= 4.48). The fourth needed skill is to guess meaning from context ($\bar{x}$= 4.47). The fifth needed skill is to retain chunks of language in short-term memory ($\bar{x}$= 4.44). The seventh needed skill is to detect sentence constituents such as subject, verb, object, and prepositions ($\bar{x}$= 4.30). The eighth needed skill is to recognize reduced forms of words e.g. I'll, I'm gonna ($\bar{x}$=4.27). The ninth needed skill is to recognize typical word-order pattern e.g...., aren't I?, ..., isn't it? ($\bar{x}$=4.26). Finally, the tenth needed skill which was rated equally to the ninth one is to recognize stress and rhythm patterns, tone patterns, or intonation contours ($\bar{x}$=4.26).

Part 4 of the questionnaire asks the student nurses to rate causes of problems when listening in English. Such causes of problems were derived from two aspects i.e. the student nurses themselves and the learning materials. To get such points of view, the student nurses were asked to rate each item of questions on a five-rating scale from 5 (the most problematic) to 1 (the least problematic). The item receiving scores 4.51 – 5.00 is interpreted as the most problematic; 3.51 – 4.50 is very problematic; 2.51 – 3.50 is moderately problematic, 1.51 – 2.50 is low problematic, and 0.00 – 1.00 is the lowest problematic. The results are presented in Table 4.4.

Table 4.4: Causes of problems when listening in English

	Causes of problems	$\bar{x}$	S.D.	Interpretation
1.	Guessing unknown phrases	3.95	1.00	very problematic
2.	Unfamiliar English accents	3.80	1.05	very problematic
3.	Being lack of listening strategies	3.76	1.08	very problematic
4.	Unfamiliar grammatical English sentences	3.74	0.86	very problematic
5.	Unfamiliar words and expressions	3.72	0.98	very problematic
6.	Having hesitation while listening	3.59	1.10	very problematic
7.	Speed of the speech	3.59	1.00	very problematic
8.	Making prediction what the speakers are talking about	3.58	0.89	very problematic
9.	Summarizing information based on intuition	3.48	0.90	moderately problematic
10.	Unfamiliar topics and contents	3.44	0.95	moderately problematic
11.	Being unfamiliar with hi-technology listening materials e.g. iPod	3.44	1.16	moderately problematic

Table 4.4 reveals that the student nurses found almost every cause of problems very problematic ($\bar{x}$ = 3.51 – 4.50) and guessing unknown phrases was rated the highest among all ($\bar{x}$ = 3.95). Other causes of problems with lower rating are being unfamiliar with English accents ($\bar{x}$= 3.80) and being lack of listening strategies ($\bar{x}$= 3.76). On the other hand, there are three causes of problems found moderately problematic ($\bar{x}$ = 2.51 – 3.50) including summarizing information based on intuition

($\bar{x}$ = 3.48), being unfamiliar with the topics and contents ($\bar{x}$ = 3.44), and being unfamiliar with hi-technology listening materials ($\bar{x}$ = 3.44).

Part 5 of the questionnaire asks the student nurses to rate both academic aspects and physical aspects to be applied in the self-instructional materials on a five-rating scale starting from the highest 5 (the most needed/the most important) to the lowest 1 (the least needed/the least important). The item rated 4.51 – 5.00 is interpreted as the most needed; 3.51 – 4.50 is much needed; 2.51 – 3.50 is needed; 1.51 – 2.50 is less needed; and 0.00 – 1.00 is the least needed. The results are presented in Table 4.5.

Table 4.5: Needs of academic and physical aspects of the self-instructional materials

	Needs of Academic Aspects	$\bar{x}$	S.D.	Interpretation
1.	**The language use**	**4.54**	**0.58**	**The most needed**
	1.1 The language use is simple, precise, correct, unambiguous and comprehensible	4.58	0.59	The most needed
	1.2 The language and vocabulary use are medical and nursing oriented	4.56	0.67	The most needed
	1.3 The language and vocabulary use appropriate keeping in view of students' background knowledge and experiences	4.51	0.69	The most needed
	1.4 The language use is appropriate for each unit	4.50	0.63	Much needed
2.	**Contents**	**4.45**	**0.53**	**Much needed**
	2.1 The selected content is up to date	4.52	0.67	The most needed
	2.2 The selected contents are in accordance with backgrounds and experiences of student nurses	4.51	0.72	The most needed
	2.3 The selected contents are not too easy nor too hard compared to backgrounds and experiences of student nurses	4.48	0.59	Much needed
	2.4 Authentic	4.47	0.67	Much needed
	2.5 Visual aids are provided to represent important themes	4.45	0.68	Much needed
	2.6 The selected content is based on the prescribed syllabus	4.41	0.70	Much needed
	2.7 Each unit contains important elements of self-study materials e.g. unit's objectives, introduction, study guide, contents, activities and exercises, pre-and posttest, unit's summary, and unit's solution	4.33	0.71	Much needed
3.	**The presentation of contents**	**4.43**	**0.59**	**Much needed**
	3.1 Illustrations included in the text help creating interests, stimulus, imagination, and increasing comprehension and retention of information/knowledge	4.47	0.70	Much needed
	3.2 The presentation of content is in accordance with the objectives	4.43	0.64	Much needed
	3.3 The important points of content are highlighted for easy reference	4.42	0.68	Much needed
	3.4 Illustrations have a caption/title and a number for easy reference	4.38	0.66	Much needed
4.	**The exercises and activities applied**	**4.43**	**0.55**	**Much needed**
	4.1 The applied exercises and activities are in accordance with unit's contents	4.52	0.61	The most needed
	4.2 The applied exercises and activities are in accordance with unit's objectives and listening skills	4.47	0.61	Much needed

	4.3 The applied exercises and activities can motivate learning habits and activate thinking process while listening	4.45	0.64	Much needed
	4.4 The applied exercises and activities can motivate learning habits and activate thinking process after listening	4.44	0.64	Much needed
	4.5 Model answers are provided at the end of each unit	4.39	0.73	Much needed
	4.6 The applied exercises and activities encourage creative thinking while listening	4.38	0.66	Much needed
	4.7 Score table is provided to make a comparison of the score gained	4.32	0.75	Much needed
5.	**The organization of contents**	**4.36**	**0.56**	**Much needed**
	5.1 Clear and easy to read	4.52	0.63	The most needed
	5.2 In each unit, there is a linkage between the sections and paragraphs	4.45	0.65	Much needed
	5.3 The content is divided into sections and sub-sections and easy to hard	4.38	0.69	Much needed
	5.4 A self-use orientation is provided in the beginning of each unit	4.34	0.71	Much needed
	5.5 The length of each unit is appropriate keeping in view of the theme and title	4.34	0.70	Much needed
	5.6 Each unit, sections, and sub-sections have a clear title and a clear number	4.29	0.78	Much needed
	5.7 Enough space to write comments and answers	4.22	0.78	Much needed
	Needs of Physical Aspects	$\bar{x}$	**S.D.**	**Interpretation**
6.	**Quality of sounds recording**	**4.49**	**0.63**	**Much needed**
	6.1 Audio scripts are put in accordance with contents inside the materials	4.53	0.64	The most needed
	6.2 Audio scripts are clear and easy to read	4.47	0.66	Much needed
	6.3 Appropriate volume and music	4.47	0.69	Much needed
7.	**Size of the materials**	**4.38**	**0.75**	**Much needed**
	Materials are easy to carry	4.38	0.75	Much needed
8.	**Durability of the materials**	**4.21**	**0.72**	**Much needed**
	8.1 The paper used to produce the materials is durable	4.24	0.74	Much needed
	8.2 The cover page is durable	4.22	0.76	Much needed
	8.3 The binding of the book is durable	4.20	0.79	Much needed
	8.4 The CD is durable	4.16	0.80	Much needed
9.	**Printing and lay-out**	**4.13**	**0.69**	**Much needed**
	9.1 Printing is clear and easy to read	4.24	0.76	Much needed
	9.2 Words and line are aligned properly	4.23	0.76	Much needed
	9.3 The lay-out is effective and eye-catching	4.15	0.78	Much needed
	9.4 Spacing between the lines is proper	4.14	0.78	Much needed
	9.5 The type size for the main text, chapter headings, sub-headings, captions, and exercises are appropriate	4.10	0.77	Much needed
	9.6 The number of pages included in the handbook is clear and easy to be noticed	4.06	0.79	Much needed
	9.7 The design of the cover page is attractive and appealing	3.99	0.83	Much needed

Table 4.5 reveals that the student nurses needed almost every academic aspect and physical aspect to be applied in the self-instructional materials at the level of much needed/very important ($\bar{x}$ = 3.51 – 4.50). Concerning needs of academic aspects to be applied in the self-instructional materials, the language use, which was rated as

the most needed level ($\bar{x}$ = 4.51 – 5.00), was the highest in the category ($\bar{x}$= 4.54) while the organization of contents was the lowest ($\bar{x}$= 4.36). In terms of needs of physical aspects, quality of sounds recording was rated the highest ($\bar{x}$= 4.49) while printing and lay-out was the aspect rated the lowest of the category ($\bar{x}$= 4.13).

Suggestions

This is an open-ended question. It asks the student nurses to share their ideas of how to develop the self-instructional materials effectively to enhance their English listening skills. As this is open-ended question, the student nurses may or may not provide any answer. Some student nurses may provide more than one suggestion. From those who provided answers to this question, the researcher groups the suggestions using content analysis. The results are demonstrated in Table 4.6.

Table 4.6: Suggestions from the student nurses for the development of the self-instructional materials

Suggestions	Freq	Percent
The university should provide additional English listening courses or extend English class hours	23	7.67%
It is a good idea to have English listening courses specifically for student nurses	11	3.67%
Grammar should be focused in English listening courses	9	3%
Vocabulary should be focused	18	6%
Total	**61**	**20.33%**

***Notes: This part is open-ended question and 239 out of 300 respondents did not answer or provide any suggestions. The percentages used in the discussion were calculated from the total number of the respondents (300).**

From Table 4.6, the most suggested aspects for developing the self-instructional materials are providing more English listening courses (7.67%), vocabulary (6.00%), specific English listening courses for student nurses (3.67%), and focusing on grammar in the listening course (3.00%).

To conclude, the information obtained from the questionnaire indicates that student nurses need self-instructional learning materials to practice their English listening skills. Recognizing vocabularies related to the health science is the most needed skill of all. The major problem affecting listening in English is guessing unknown words or phrases. The result of the needed academic and physical aspects shows that all the needed aspects are in demand. This clearly signifies the needs for self-instructional materials to serve their needs and to enhance their English listening skills at the end. Such instructional materials should also focus on vocabulary and grammar as well.

4.3. Part II: Translating Needs Analysis to Materials Development

This part cover steps of translating needs analysis to materials development including

1. Explore theoretical frameworks for materials development
2. Specifying important findings from needs analysis
3. Developing self-instructional materials
4. Designing listening comprehension test and materials evaluation form
5. Validate and evaluate the proposed self-instructional materials and assessment materials by the experts
6. Adjust the materials accordingly
7. Pilot study
8. Readjust the materials

Each step is described as follows:

4.3.1. Explore theoretical frameworks for materials development

Several theoretical frameworks have been explored in order to develop specific frameworks to be used for the materials. Stages in ESP process reality proposed by Dudley-Evans and St. John (2002) and the principles of content-based instruction are chosen to be a basis framework for the development of the materials. Findings from document analysis especially those from English Language Development Center (ELDC) and Canadian English Language Benchmarks Assessment for Nurses (CELBAN) provided points to consider when conducting need analysis. The process of designing instructional modules proposed especially by Promwong (2520) is chosen to be a groundwork for materials design while the Six T's Approach of Stoller&Grabe (1997) are chosen to design a content framework for the materials. In terms of assessment and evaluation, standard criteria of efficiency at E_1/E_2 = 80:80 proposed by Promwong (2520) is used to find the effectiveness of the produced materials.

All information discussed above is put in the theoretical framework as illustrated in Figure 4.1.

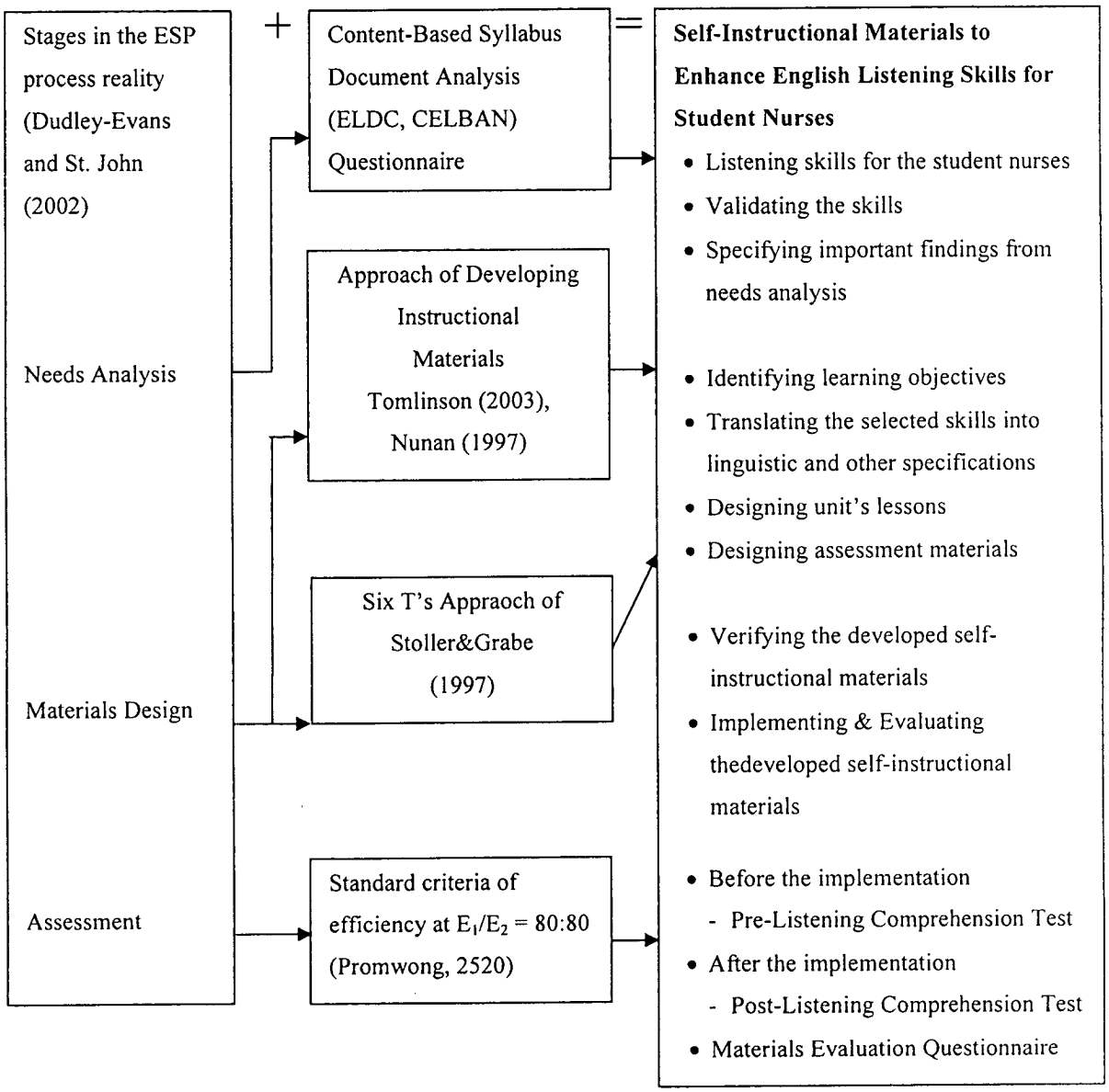

Figure 4.1: Theoretical framework of the study

The Proposed Framework for Materials Development

Self-instructional materials to enhance English listening skills for student nurses were designed based on the framework and theories of ESP and content-based syllabus. The framework of writing the materials was adapted from the process of designing instructional modules by Promwong (2520). Figure 4.2 illustrates the framework for developing the self-instructional materials.

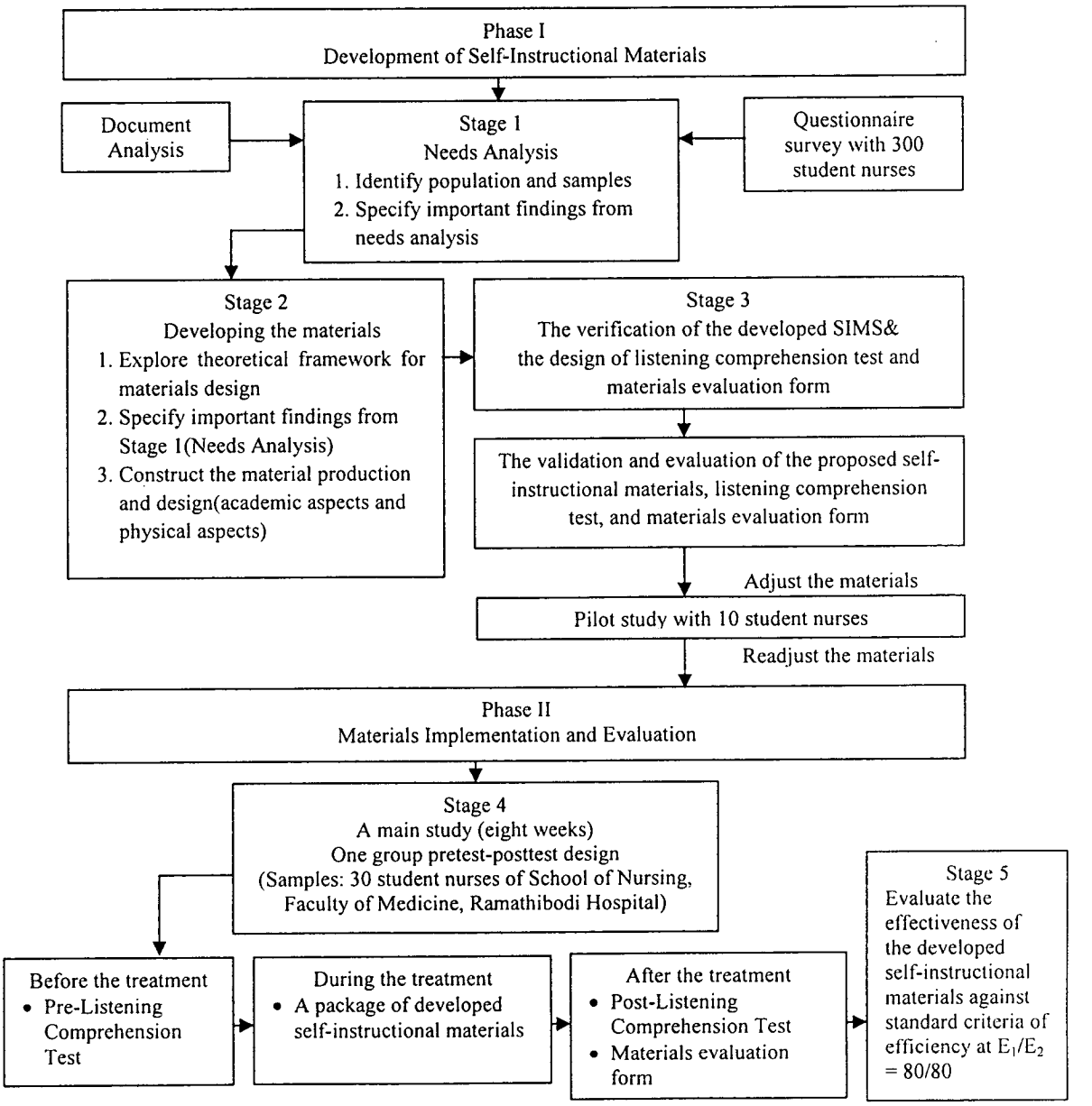

Figure 4.2: Framework for developing the self-instructional materials

Information for developing instructional materials was mainly derived and translated from the needs analysis. Once a package of self-instructional materials has been designed it was verified by experts and used in the pilot study prior to the real implementation. After the implementation/evaluation process was completed, the developed self-instructional materials was examined their effectiveness based on

standard criteria of efficiency at E_1/E_2 = 80/80 and the t-test. Besides, the attitude towards the developed self-instructional materials of the study group of student nurses was revealed in terms of mean scores from a materials evaluation form.

4.3.2. Specify Important Findings from Needs Analysis

Main findings are listed as follows:

1. It is obvious that the student nurses apply self-study to be an additional approach for practicing listening English skills besides attending special classes where extra courses of English are provided. In addition, they tend to use self-study book with CD to practice their English listening skills more than other channels or materials since it is easily portable and can be studied anytime and anywhere.

2. For the degree of necessity of English listening skills, 'recognize vocabularies related to the health science' was on the top of the list. However, other listening skills are also considered high/very necessary (all of the skills were rated $\bar{x}$>4.00). It is, therefore, necessary to give the student nurses a lot of opportunity to practice these listening skills in order to fulfill their needs.

3. As for the degree of causes of problems when listening to English, 'guessing unknown words or phrases' was on the top of the list while 'unfamiliar English accents' and 'being lack of listening strategies' were placed the second ($\bar{x}$= 3.80) and the third ($\bar{x}$= 3.76) respectively.

4. Concerning needs of academic aspects to be applied in the self-instructional materials, all aspects were rated high (all aspects were rated $\bar{x}$>4.00); the language use was rated the highest ($\bar{x}$= 4.54) while the organization of contents was the lowest ($\bar{x}$= 4.36). In terms of needs of physical aspects, quality of sounds recording was rated the highest ($\bar{x}$= 4.49) while printing and lay-out was the aspect

rated the lowest of the category ($\bar{x}$= 4.13). Moreover, there were four comments in the open-ended part suggesting that self-instructional materials should focus on grammar and vocabulary. Therefore, besides emphasizing on enhancing English listening skills for the student nurses, the self-instructional materials were also put English grammar and vocabulary to help them learn English and practice listening in English efficiently.

4.3.3. Developing self-instructional materials

The content of self-instructional materials were developed and adapted from several international and Thai sources. The key criteria used to select sources for the materials are relevance and appropriateness. For example,

- Sources are relevant to the unit's objectives.
- Sources are appropriate to the student nurses in terms of age and language difficulties.
- Sources are up-to-date.

Some of the sources needed to be adapted in order to meet the criteria. The researcher also tried to include authentic materials such as real clinic charts and sounds clips from the Internet in the unit. Some materials were tailor-made. The sample unit's contents and materials were verified and evaluated by three experts including two ESP teaching experts and one nursing content specialist.

The framework for designing a lesson unit

Each unit is constructed carefully in the way that self-study plans or guidelines are at first presented in each unit. Goals and objectives, a list of activities, and self-assessment procedures should be clearly stated inside the study plan as well. Later, end-of-unit exercises and answers are presented for self-study. Lockwood (1998)

suggests sequences of a unit inside the self-instructional materials as illustrated in Figure 4.3.

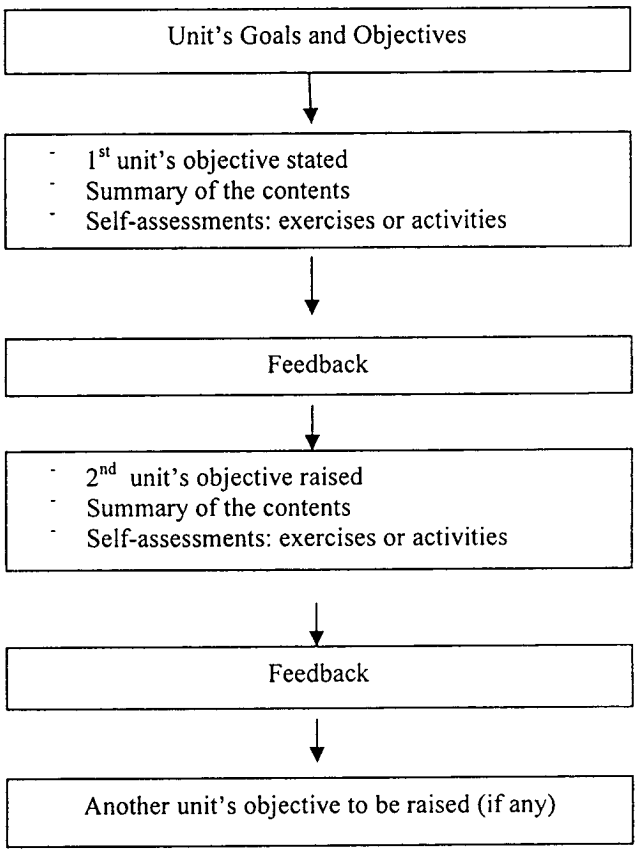

Figure 4.3: The sequences of a unit inside the self-instructional materials (Lockwood, 1998)

Based on the above sequences, each student nurse is directed to move up step by step with support of instructions through learning activities and be able to reach their potential level. The fact that the student nurses were provided with ample opportunities to practice their listening skills at their own paces was the key for success in achieving a particular listening skill. The sequences were adapted in the unit's elements as illustrated in Figure 4.4.

<table>
<tr><td colspan="2">Unit 1: What happened to you?
Concepts:
1. To understand and recognize the importance of getting patients into the hospital, nursing staffs need to ask, screen patients, and follow the instructions of the physician to provide the most successful treatment.
2. To record the symptoms of the patients in medical forms can help the physician and other nursing staffs know the progression of the symptoms and be able to give an appropriate treatment for the patients.</td></tr>
<tr><td>Objectives
1. Record general information.
2. Acknowledge general examination and record vital sign.
3. Use The Past Simple and The Past Continuous to describe past events.</td><td>Listening Skills
• Recognize vocabularies related to the health science
• Retain chunks of language in short-term memory
• Recognize typical word-order patterns e.g. so long!, or I couldn't agree more
• Detect key words, such as those identifying topics and main ideas
• Recognize basic syntactic patterns.</td></tr>
<tr><td>Tasks/ Activities
1. Do the pretest to assess your prior listening skills before starting the unit.
2. Self-study the unit's materials.
3. Listen to the CD.
4. Do the unit's exercises and check the answers.
5. Do the posttest to assess your listening skills.
6. Self-assess unit's objectives in the checklist provided.</td><td>Evaluation
1. Assess from the scores made in the pretest and the posttest.
2. Assess from the answers made in unit's activities.
3. Assess from the listening comprehension test.</td></tr>
</table>

Figure 4.4: Adaptation of Lockwood's sequences of a unit in the developed self-instructional materials

4.3.4. Designing the listening comprehension test and a materials evaluation form

(The process of designing the listening comprehension test and a materials evaluation form was already mentioned in Chapter III)

4.3.5. The validation and evaluation of the proposed lesson unit and assessment materials by the experts

After the lesson unit, the listening comprehension test, and materials evaluation form were designed, nine experts in the field were invited to validate and evaluate the proposed materials.

To validate and evaluate the self-instructional materials, three experts were asked to use the IOC questionnaire called 'The checklist for the experts to validate the sample lesson unit of self-instructional materials adapted from 'Evaluation Criteria for Preparation and Evaluation of Self-Instructional Materials' (Kumar, n.d.)(see Appendix G).

Overall, all of the listed criteria were rated with the mean score greater than 0.5 which was set as the cut-off score to pass the evaluation. The lowest mean is 0.33 was given to criterion no. 5.5 Activities and exercises support the development of English listening skills for students after listening and criterion no. 9.1 The spoken voice and tape scripts are clear (see Appendix H).

The researcher, then, adjusted the activities and exercises of the developed materials accordingly by putting more attractive pictures and modifying the exercises to be more challenging. For the unclear spoken voices of the CD, the researcher solved this acoustic problem by rerecording the CD with another sound recorder.

Additional comments and suggestions from the experts

According to the results of the evaluation, it can be said that the proposed self-instructional materials were approved by the three experts (E). However, some comments and suggestions are also provided as listed as follows:

E2: The spoken voice is not clear enough as some outside noise still disturb.

E3: Activities and exercises support the development of English listening skills for students after listening should be more challenging in order to maximize individual learning outcome.

To validate and evaluate the listening comprehension test, the other three experts were asked to use the IOC questionnaire called 'The checklist for the experts to validate the listening comprehension test' (see Appendix I). The item of questions which receives ≥ 0.5 was accepted while the item which receives < 0.5 was rejected or revised according to the suggestion made by the experts (see Appendix J).

From this validation process, there were 40 items of questions which received ≥ 0.5 which was set as the cut-off score to pass the evaluation including 1, 2, 3, 4, 5, 6.1, 6.2, 6.3, 6.4, 6.6, 6.7, 7.1, 7.2, 7.3, 8, 9, 10, 11.1, 11.2, 11.3, 11.4, 12.1, 12.3, 12.4, and 12.5. Meanwhile, there were 15 items of questions which received < 0.5 including 6.5, 6.8, 6.9, 6.10,12.2,13.1, 13.2, 13.3, 13.4, 13.5, 13.6, 13.7, 13.8, 13.9, and 13.10.The researcher has rewritten and adjusted these fifteen questions as well as their alternatives according to the experts' suggestions before the trial with the student nurses.

Additional comments and suggestions from the experts

According to the results of the evaluation, it can be said that the proposed listening comprehension test was approved by the three experts (E). One of the experts gave an additional comment –"The items of question are well-constructed." However, a few suggestions are provided as follows:

E4: "The writing of example answers should be added"

E5: "Some items should be rewritten to be more challenging"

To validate and evaluate materials evaluation form, the other three experts were asked to use the IOC questionnaire called 'The checklist for the experts to validate a materials evaluation form' (see Appendix K) adapted from 'Evaluation Criteria for Preparation and Evaluation of Self-Instructional Materials' (Kumar, n.d.).

Overall, all of the listed criteria were rated with the mean score greater than 0.5 which was set as the cut-off score to pass the evaluation (see Appendix L). Therefore, a materials evaluation form is appropriate to use.

4.3.6. Adjusting all proposed materials

Some adjustment was done based on the experts' comments and suggestions such as designing more challenging activities for the student nurses to practice more listening skills and rerecording the narrative voice for better understanding and hearing. As for the listening comprehension test, example answers were provided and some questions were made for more challenging.

4.3.7. The pilot study

The pilot study is aimed to ascertain that the proposed self-instructional materials can be effectively used for the purpose of this study. Listening comprehension test and a sample lesson unit (Unit 1) on the topic of hospital admission was piloted with ten voluntary student nurses at the School of Nursing, Faculty of Medicine, Ramathibodi Hospital for four weeks during April, 2012. They shared similar characteristics to the study group of 30 student nurses during the implementation/evaluation phase.

On April 30, 2012, the researcher distributed a materials evaluation form to these ten student nurses to rate their level of satisfaction and to gain some

suggestions from them via Likert's scale of 5 to 1 adapted from Sunsom (2001: 76). The item rated4.51 – 5.00 is interpreted as strongly agree; 3.51 – 4.50 is agree; 2.51 – 3.50 is somewhat agree; 1.51 – 2.50 is disagree; and 1.00 – 1.50 is strongly disagree. Mean scores and standard deviations of this questionnaire are presented in Table 4.7.

Table 4.7: The student nurses' evaluation of the piloted lesson unit

Criteria for evaluating the sample lesson unit	N	Min	Max	$\bar{x}$	S.D.	Interpretation
1. Content						
1.2 Content is aligned to learning aims and/or learning objectives.	10	5.00	5.00	5.00	0.00%	strongly agree
1.3 Each unit has goals and objectives, introduction, self-study guide, contents, self-assessment, summary, model answers for activities and exercises.	10	3.00	5.00	4.00	0.81%	agree
1.4 Content is in accordance with backgrounds and experiences of the students e.g. medical and nursing.	10	3.00	5.00	4.00	0.81%	agree
1.5 Content is appropriate keeping in view of students' background knowledge and experiences.	10	3.00	5.00	4.00	0.81%	agree
1.6 Content is culled from authentic sources.	10	4.00	5.00	4.30	0.48%	agree
1.7 The selected content is up-to-date.	10	3.00	5.00	4.00	0.81%	agree
1.8 Visual aids are provided to represent important themes of each unit.	10	4.00	5.00	4.30	0.48%	agree
2. The organization of content						
2.1 Precise and easy to understand.	10	3.00	5.00	3.80	0.92%	agree
2.2 The content is divided into sections and sub-sections.	10	3.00	5.00	4.00	0.82%	agree
2.3 Clear numbering.	10	5.00	5.00	5.00	0.00%	strongly agree
2.4 There is a link between sections and units in each unit.	10	5.00	5.00	5.00	0.00%	strongly agree
2.5 The length of each unit is appropriate keeping in view of the theme and title.	10	2.00	5.00	3.60	0.97%	agree
2.6 A self-use orientation is provided in the beginning of each unit.	10	3.00	5.00	4.00	0.82%	agree
2.7 Enough space is provided for writing useful information or the answers to self-assessment questions.	10	3.00	5.00	4.00	0.82%	agree
3. The presentation of content						
3.1 The presentation of content is in accordance with learning objectives.	10	2.00	5.00	4.30	1.06%	agree
3.2 The important points of content are highlighted for easy references.	10	2.00	5.00	3.70	0.95%	agree
3.3 Illustrations included in the text are clear and help create interests and also increase comprehension and retention of information / knowledge.	10	3.00	5.00	3.90	0.74%	agree
3.4 References are given wherever appropriate to the use of supporting media.	10	3.00	5.00	4.00	0.82%	agree

4. The language use						
4.1 The language use is simple, precise, correct, unambiguous, and comprehensible.	10	4.00	5.00	4.40	0.52%	agree
4.2 The language use is appropriate to activities and units.	10	2.00	5.00	3.90	1.10%	agree
4.3 The vocabulary and expression use is relevant to students' background knowledge and experiences.	10	4.00	5.00	4.20	0.42%	agree
4.4 The vocabulary and expression in the texts is commonly used in the field of medical and nursing.	10	3.00	5.00	4.10	0.74%	agree
5. The self assessments and activities applied						
5.1 Self assessments and activities are appropriate to unit objectives and listening skills.	10	4.00	5.00	4.20	0.42%	agree
5.2 Texts in self assessment and activities are appropriate to unit contents.	10	4.00	5.00	4.40	0.52%	agree
5.3 Activities are included in the text to promote interests, comprehension, and retention of information/knowledge.	10	3.00	5.00	4.10	0.74%	agree
5.4 Activities and self assessments engage students in critical and creative thinking while listening.	10	3.00	5.00	4.10	0.74%	agree
5.5 Activities and exercises support the development of English listening skills for students after listening.	10	3.00	5.00	4.10	0.74%	agree
5.6 Model answers are provided at the end of each unit.	10	4.00	5.00	4.50	0.53%	agree
5.7 Scoring rubrics are provided for students.	10	4.00	5.00	4.50	0.53%	agree
6. The printing and layout						
6.1 The design of the cover page is attractive and appealing.	10	3.00	5.00	3.80	0.92%	agree
6.2 The font size of the main text, chapter headings, sub-headings, captions, exercises, etc., is appropriate.	10	3.00	5.00	4.00	0.82%	agree
6.3 The layout is appropriate for reading.	10	5.00	5.00	5.00	0.00%	strongly agree
6.4 The number of pages included in the handbook is clear and easy to be noticed.	10	3.00	5.00	4.00	0.82%	agree
6.5 Spacing between the lines is proper.	10	2.00	5.00	3.60	0.97%	agree
6.6 Words and lines are aligned properly.	10	3.00	5.00	4.00	0.82%	agree
6.7 Printing is clear and easy to read.	10	3.00	5.00	4.00	0.82%	agree
7. Durability						
7.1 The binding of the book is durable.	10	3.00	5.00	4.20	0.63%	agree
7.2 The cover page is durable.	10	3.00	5.00	4.20	0.63%	agree
7.3 The paper used to produce the materials is durable.	10	3.00	5.00	3.80	0.92%	agree
7.4 The cassette tape or CD is durable.	10	3.00	5.00	3.80	0.92%	agree
8. Size of the materials						
The size of the materials is appropriate and user friendly.	10	4.00	5.00	4.40	0.52%	agree
9. The quality of sounds recording						
9.1 The spoken voice and tape scripts are clear.	10	2.00	5.00	3.70	0.95%	agree
9.2 The spoken voice and tape scripts are accurately put according to unit contents and activities.	10	5.00	5.00	5.00	0.00%	strongly agree
9.3 Background music is clear with appropriate volume.	10	3.00	5.00	4.20	0.63%	agree

Table 4.7shows that overall the student nurses were satisfied with the pilot lesson unit as every criterion was rated above 3.50. In addition, they strongly agreed that contents were aligned to learning aims and/or learning objectives, the numbering was clear, there was a link between sections and units in each unit, the layout was appropriate for reading, and the spoken voice and tape scripts were accurately put according to unit contents and activities ($\bar{x}$= 5.00). In the open-ended part which asks the student nurses to write additional comments and suggestions, seven of them mentioned that the sample lesson unit was useful, practical, and necessary for their future career.

Later, the researcher tried out the listening comprehension test with this group of the student nurses. There was no 'rubrics' for grading in this test so the student received one mark for the correct answer and zero for the wrong answer. The researcher had their scores analyzed to find the reliability of the test by using KR-20 of Kuder-Richardson, degree of difficulty (p) and power of discrimination (r). The question items that have reliability ≥ 0.6, degree of difficulty between 0.2 and 0.8, and power of discrimination $\geq$ 0.2 is considered effective to be used during the implementation/evaluation phase as suggested by Lawthong (2548). The items of questions which had degree of difficulty and power of discrimination as required above were 1, 2, 3, 4, 5, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 7.1, 7.2, 7.3, 8, 9, 10, 11.1, 11.2, 11.3, 11.4, 12.1, 12.2, 12,3, 12.4 and 12.5. On the other hand, the item of questions which had degree of difficulty and power of discrimination lower or higher than above requirement were 13.1 – 13.10. The researcher had these ten items of questions omitted as their questions and alternatives were not justified. The item analysis revealed that the test had reliability 0.660, degree of difficulty (p) 0.577, and

power of discrimination (r) 0.282. Therefore, the questions and the answers of the listening comprehension test were appropriate to use (see Appendix E).

4.3.8. Readjust the listening test and the self-instructional materials

Based on the findings gathered from the pilot study, the self-instructional materials and the listening comprehension test were readjusted accordingly. For instance, the researcher rerecorded the narrative voice of the CD for better understanding and also rearranged the spacing between the lines of the piloted unit and the rest for easy reading. Finally, the self-instructional materials came out as a package of self-study book with a CD whose five units has had contents, activities, and self-tests that could reflect the real use of language in the field of nursing. The learner's contract was also applied inside the developed self-instructional materials. This contract was aimed at activating and regulating the participating student nurses' self-learning behavior both before and during the course.

And for the listening comprehension test, the researcher needed to cut down some items of questions since they appear to be too difficult for the student nurses. In addition, the researcher simplified the question and provided sample answers. Finally, the listening comprehension test contained 30items of questions in three parts (50 marks); part A, B, and C and took approximately 26 minutes to complete. It was composed of short conversations, long conversations, and monologues in multinational accents that the test takers were instructed to select the best answer from multiple-choice questions.

4.4. Part III: Materials Implementation and Evaluation

4.4.1. Materials Implementation

All trial materials including the listening comprehension test and the self-instructional materials were offered to one, ten, and the study group of thirty student nurses of the School of Nursing, Faculty of Medicine, Ramathibodi Hospital, Bangkok for conducting the main study during June – August, 2012.

The researcher administered the listening comprehension test and distributed the developed self-instructional materials to the study group of thirty student nurses. All participants during this phase were given an orientation of how to use the developed self-instructional materials for their self-study and were also suggested the on-line social medium 'Facebook' to share their opinions during these eight weeks to others so that the real reflection of using the developed self-instructional materials could exist.

Meanwhile, the researcher has also participated in their learning by giving some pieces of advices and answering questions from the participants in Facebook during 19.00 p.m. to 24.00 p.m. In addition, the study group of thirty student nurses was also asked to rate their opinions after using the developed self-instructional materials to find the level of their satisfaction.

4.4.2. Materials Evaluation

Hypothesis 1: The developed self-instructional materials are at standard criteria of efficiency at E_1/E_2 = 80:80 (Promwong, 2520).

An analysis of effectiveness of the developed self-instructional materials using standard criteria of efficiency at E_1/E_2 = 80:80 with one student nurse

(one-on-one evaluation), ten student nurses (small group evaluation), and thirty student nurses (large group evaluation) is presented in Table 4.8 – 4.10 as follows:

Table 4.8: Scores of end-of-unit test made by one student nurse (one-on-one evaluation)

No. of student	Score of end-of-unit test					Total score	Posttest score *(Listening Comprehension)*
	1	2	3	4	5		
	(15)	(15)	(10)	(10)	(10)	(60)	(50)
1.	12	13	9	8	9	51	45
					(%)	85.00	90.00

Table 4.8 shows that the student nurse made 51 marks (85.00%) out of the total score of end-of-unit test (60 marks) and also 45 marks (90.00%) out of 50 marks of listening comprehension test. These numbers indicate that the effectiveness of the developed self-instructional materials based on one-on-one evaluation is 85.00/90.00 and is higher than the set criteria of efficiency at E_1/E_2 = 80:80.

Table 4.9: Scores of end-of-unit test made by ten student nurses (small group evaluation)

No. of student	Score of end-of-unit test					Total score	Posttest score *(Listening Comprehension)*
	1	2	3	4	5		
	(15)	(15)	(10)	(10)	(10)	(60)	(50)
1.	12	13	8	8	9	50	45
2.	11	13	8	8	8	48	47
3.	12	12	8	9	8	49	49
4.	13	12	8	7	8	48	49
5.	12	13	7	8	7	47	46
6.	14	13	9	8	8	52	48
7.	12	12	8	7	8	47	44
8.	13	13	9	8	8	51	48
9.	13	12	7	8	9	49	47
10.	11	13	8	8	8	48	47
				Total score		489	470
				%		81.50	94.00

Table 4.9 shows that ten student nurses have made 489 marks (81.50%) out of the total score of end-of-unit test (600 marks) and also 470 marks

(94.00%) out of 500 marks of listening comprehension test. These numbers indicate that the effectiveness of the developed self-instructional materials based on small group evaluation is 81.50/94.00 and is higher than the set criteria of efficiency at $E_1/E_2 = 80:80$.

Table 4.10: Scores of end of unit's test made by thirty student nurses (large group evaluation)

No. of student	Score of end-of-unit test					Total score (60)	Posttest score *(Listening Comprehension)* (50)
	1 (15)	2 (15)	3 (10)	4 (10)	5 (10)		
1.	13	13	9	8	9	52	44
2.	12	13	8	8	8	49	46
3.	13	13	8	9	8	51	42
4.	13	13	8	9	9	52	44
5.	12	13	8	7	9	49	45
6.	13	14	8	8	8	51	42
7.	12	13	8	9	8	50	45
8.	14	13	8	8	8	51	44
9.	13	12	8	8	8	49	46
10.	13	12	8	8	8	49	42
11.	12	13	8	8	9	50	44
12.	13	12	8	9	9	51	45
13.	13	13	9	8	8	51	42
14.	12	13	8	8	9	50	43
15.	12	13	8	9	9	51	44
16.	13	13	8	8	8	50	44
17.	13	13	9	8	9	52	46
18.	13	13	8	8	8	50	44
19.	14	13	9	9	8	53	46
20.	13	13	8	9	8	51	49
21.	13	13	9	8	9	52	41
22.	12	12	9	8	9	50	46
23.	12	13	9	8	8	50	45
24.	13	12	9	8	8	50	45
25.	12	14	9	8	8	51	43
26.	13	13	8	9	8	51	43
27.	13	13	8	9	8	51	45
28.	14	12	8	8	8	50	42
29.	13	13	8	9	8	51	42
30.	14	14	9	9	9	55	47
				Total score		1,523	1,326
				%		84.61	88.40

Table 4.10 shows that the study group of student nurses made 1,523 marks (84.61%) out of the total score of end-of-unit test (1,800 marks) and also 1,326

marks (88.40%) out of 1,500 marks of listening comprehension test. These numbers indicate that the effectiveness of the developed self-instructional materials based on small group evaluation is 84.61/88.40 and is higher than the set criteria of efficiency at E_1/E_2= 80:80.

Effectiveness of the developed self-instructional materials among each group of participating student nurses during this implementation/evaluation phase is presented in Table 4.11.

Table 4.11: Effectiveness of the developed self-instructional materials among each group of participating student nurses during the implementation/evaluation phase

No. of student		Score of end-of-unit test (E_1)	Posttest score *(Listening Comprehension)* (E_2)	Effectiveness of the developed SIMS (E_1/E_2)
1	Total score Accumulative score	Σx = 60 51 (85.00%)	50 x 1 = 50 45 (90.00%)	85.00/90.00
10	Total score Accumulative score	Σx = 600 489 (81.50%)	470 47 (94.00%)	81.50/94.00
30	Total score Accumulative score	Σx = 1800 1,523 (84.61%)	1326 44.2 (88.40%)	84.61/88.40

From Table 4.14, the result of effectiveness by one-on-one evaluation (85.00/90.00), small group evaluation (81.50/94.00), and large group evaluation (84.61/88.40) shows that the developed self-instructional materials had an effectiveness score higher than the criteria of efficiency E_1/E_2 = 80:80and they could enhance English listening skills of the student nurses. Therefore, the hypothesis 1 'The developed self-instructional materials are at a standard criteria of efficiency at E_1/E_2 = 80:80' was accepted.

Hypothesis 2: The English posttest scores are significantly higher than the pretest scores ($p \leq 0.05$).

Thirty student nurses (large group evaluation) were pre-and post-tested their English listening skills to indicate their learning progression after using the developed self-instructional materials. Their scores of the listening comprehension test were presented in Table 4.12.

Table 4.12: Difference of the listening comprehension test scores

No. of student	Score of the test		Difference (D)	No. of student	Score of the test		Difference (D)
	Pretest (50)	Posttest (50)			Before (50)	After (50)	
1.	46	44	-2	16.	39	44	5
2.	41	46	5	17.	40	46	6
3.	43	42	-1	18.	42	44	2
4.	37	44	7	19.	37	46	9
5.	38	45	7	20.	41	49	8
6.	44	42	-2	21.	38	41	3
7.	42	45	3	22.	44	46	2
8.	45	44	-1	23.	44	45	1
9.	39	46	7	24.	43	45	2
10.	38	42	4	25.	42	43	1
11.	36	44	8	26.	43	43	0
12.	41	45	4	27.	44	45	1
13.	38	42	4	28.	42	42	0
14.	40	43	3	29.	43	42	-1
15.	41	44	3	30.	45	47	2

For statistical measurements, paired sample t-test was employed to compare the student's test scores before and after using the developed self-instructional materials and to see whether there is a significant difference between them (Taweerat, 2543). The results from t-test are presented in Table 4.13.

Table 4.13: Paired samples t-test scores

Pretest		Posttest		$\bar{D}$	S.D. ($\bar{D}$)	t_{cal}	Sig
$\bar{x}$	S.D.	$\bar{x}$	S.D.				
41.20	2.72	44.20	1.80	3.00	3.14	5.23*	.00

*$p \leq 0.05$

As mentioned earlier that the majority of the participants during this implementation/evaluation phase were fourth year student nurses whom were recruited based on the voluntary basis, they, therefore, seemed to be interested in learning English and carried some positive attitudes for participating in the study. Therefore, their English education background together with their willingness to participate in the study could definitely result in having high scores.

Table 4.13 reveals that there was an improvement in the student nurses' posttest scores ($\bar{x}$= 44.20) compared with those of the pretest ($\bar{x}$ = 41.20). Though mean scores of both pretest and posttest are relatively high, the standard deviation has measured how spread out of the score is among this study group of student nurses. Standard deviation of the pretest scores (S.D. =2.72) which is higher than that of the posttest (S.D. = 1.80) signifies that the student nurses, in general, made high scores in the pretest. So, the variability or the spread of the student nurses with high pretest scores was wider than those with the posttest scores. They, therefore, did not possess English listening skill at about the same level.

However, after the developed self-instructional material was implemented with this study group, their mean scores of the posttest were higher ($\bar{x}$ = 44.20) but the variability or the spread of the posttest scores became narrower (S.D. = 1.80). This situation clearly shows that after using the developed self-instructional materials, the student nurses, in general, made higher scores in the posttest as well as improved their English listening skills at about the same level.

Moreover, the results from t-test indicate that the study group of student nurses had higher scores of listening comprehension test after using the developed self-instructional materials at significance level 0.00. Therefore, hypothesis

2 'The English posttest scores are significantly higher than the pretest score ($p \leq 0.05$)' was accepted.

4.5. Part IV: Attitudes towards the developed self-instructional materials

Another affective aspect to evaluate the effectiveness of the developed self-instructional materials is to study the student nurses' opinions towards the developed self-instructional materials in terms of their satisfaction, its usefulness, and its practicality through the use of materials evaluation questionnaire. Thirty student nurses joined this study during June – August, 2012 and were distributed a materials evaluation form to assess their level of satisfaction and to gain some suggestions from them. This materials evaluation form was adapted from 'Evaluation Criteria for Preparation and Evaluation of Self-Instructional Materials' (Kumar, n.d.) and Likert's scale of 1 to 5 adapted from Sunsom (2001: 76) is used as follows:

4.51 – 5.00 = strongly agree

3.51 – 4.50 = agree

2.51 – 3.50 = neutral

1.51 – 2.50 = do not agree

1.00 – 1.50 = do not agree at all

Hypothesis 3: The student nurses have a positive attitude towards the developed self-instructional materials when the criterion to assess receives $\bar{x}>3.50$. Information of materials evaluation survey is presented in Table 4.14.

Table 4.14: The results of the materials evaluation survey

Criteria for evaluating the developed self-instructional materials	N	Min	Max	$\bar{x}$	S.D.	Interpretation
1. Content						
1.1 Content is aligned to learning aims and/or learning objectives.	30	5.00	5.00	5.00	0.00%	strongly agree
1.2 Each unit has goals and objectives, introduction, self-study guide, contents, self-assessment, summary, model answers for activities and exercises.	30	5.00	5.00	5.00	0.00%	strongly agree
1.3 Content is in accordance with backgrounds and experiences of the students e.g. medical and nursing.	30	5.00	5.00	5.00	0.00%	strongly agree
1.4 Content is appropriate keeping in view of students' background knowledge and experiences.	30	5.00	5.00	5.00	0.00%	strongly agree
1.5 Content is culled from authentic sources.	30	5.00	5.00	5.00	0.00%	strongly agree
1.6 The selected content is up-to-date.	30	5.00	5.00	5.00	0.00%	strongly agree
1.7 Visual aids are provided to represent important themes of each unit.	30	5.00	5.00	5.00	0.00%	strongly agree
2. The organization of content						
2.1 Precise and easy to understand.	30	5.00	5.00	5.00	0.00%	strongly agree
2.2 The content is divided into sections and sub-sections.	30	5.00	5.00	5.00	0.00%	strongly agree
2.3 Clear numbering.	30	4.00	5.00	4.53	0.51%	strongly agree
2.4 There is a link between sections and units in each unit.	30	3.00	5.00	3.83	0.83%	agree
2.5 The length of each unit is appropriate keeping in view of the theme and title.	30	3.00	5.00	3.87	0.82%	agree
2.6 A self-use orientation is provided in the beginning of each unit.	30	4.00	4.00	4.00	0.00%	agree
2.7 Enough space is provided for writing useful information or the answers to self-assessment questions.	30	3.00	5.00	4.13	0.68%	agree
3. The presentation of content						
3.1 The presentation of content is in accordance with learning objectives.	30	3.00	4.00	3.73	0.45%	agree
3.2 The important points of content are highlighted for easy references.	30	4.00	5.00	4.53	0.51%	strongly agree
3.3 Illustrations included in the text are clear and help create interests and also increase comprehension and retention of information / knowledge.	30	3.00	5.00	3.83	0.83%	agree
3.4 References are given wherever appropriate to the use of supporting media.	30	4.00	5.00	4.53	0.51%	strongly agree
4. The language use						
4.1 The language use is simple, precise, correct, unambiguous, and comprehensible.	30	5.00	5.00	5.00	0.00%	strongly agree
4.2 The language use is appropriate to activities and units.	30	3.00	5.00	3.57	0.68%	agree
4.3 The vocabulary and expression use is relevant to students' background knowledge and experiences.	30	5.00	5.00	5.00	0.00%	strongly agree

4.4 The vocabulary and expression in the texts is commonly used in the field of medical and nursing.	30	4.00	5.00	4.53	0.51%	strongly agree
5. The self assessments and activities applied						
5.1 Self assessments and activities are appropriate to unit objectives and listening skills.	30	4.00	5.00	4.53	0.51%	strongly agree
5.2 Texts in self assessment and activities are appropriate to unit contents.	30	4.00	5.00	4.60	0.49%	strongly agree
5.3 Activities are included in the text to promote interests, comprehension, and retention of information/knowledge.	30	3.00	5.00	4.37	0.67%	agree
5.4 Activities and self assessments engage students in critical and creative thinking while listening.	30	5.00	5.00	5.00	0.00%	strongly agree
5.5 Activities and exercises support the development of English listening skills for students after listening.	30	5.00	5.00	5.00	0.00%	strongly agree
5.6 Model answers are provided at the end of each unit.	30	5.00	5.00	5.00	0.00%	strongly agree
5.7 Scoring rubrics are provided for students.	30	3.00	5.00	4.37	0.67%	agree
6. The printing and layout						
6.1 The design of the cover page is attractive and appealing.	30	5.00	5.00	5.00	0.00%	strongly agree
6.2 The font size of the main text, chapter headings, sub-headings, captions, exercises, etc., is appropriate.	30	5.00	5.00	5.00	0.00%	strongly agree
6.3 The layout is appropriate for reading.	30	5.00	5.00	5.00	0.00%	strongly agree
6.4 The number of pages included in the handbook is clear and easy to be noticed.	30	3.00	4.00	3.73	0.45%	agree
6.5 Spacing between the lines is proper.	30	4.00	5.00	4.53	0.51%	strongly agree
6.6 Words and lines are aligned properly.	30	3.00	5.00	3.83	0.83%	agree
6.7 Printing is clear and easy to read.	30	4.00	5.00	4.53	0.51%	strongly agree
7. Durability						
7.1 The binding of the book is durable.	30	5.00	5.00	5.00	0.00%	strongly agree
7.2 The cover page is durable.	30	5.00	5.00	5.00	0.00%	strongly agree
7.3 The paper used to produce the materials is durable.	30	5.00	5.00	5.00	0.00%	strongly agree
7.4 The cassette tape or CD is durable.	30	4.00	5.00	4.33	0.48%	agree
8. Size of the materials						
The size of the materials is appropriate and user friendly.	30	4.00	5.00	4.33	0.48%	agree
9. The quality of sounds recording						
9.1 The spoken voice and tape scripts are clear.	30	5.00	5.00	5.00	0.00%	strongly agree
9.2 The spoken voice and tape scripts are accurately put according to unit contents and activities.	30	5.00	5.00	5.00	0.00%	strongly agree
9.3 Background music is clear with appropriate volume.	30	5.00	5.00	5.00	0.00%	strongly agree

Table 4.14 shows positive results of the materials evaluation questionnaire survey as every criterion was rated above 3.50. However, the lowest mean goes to 'The language use is appropriate to activities and units' ($\bar{x}$ = 3.57).

As every criterion of the questionnaire was rated above 3.50, it can be concluded that the student nurses were satisfied with the developed self-instructional materials and hypothesis 3 'The student nurses have a positive attitude towards the developed self-instructional materials when the criterion to assess receives $\bar{x}$>3.50' was accepted.

The last part of the questionnaire was the open-ended question; the student nurses may or may not provide any answer. Some student nurses may provide more than one suggestion. There were eight participants providing their comments/suggestions and twenty three participants who did not provide any comment. From those who provided answers to this question, the researcher has grouped the comments and the suggestions using content analysis. The results are demonstrated in Table 4.15.

Table 4.15: Comments and suggestions on the last day of the main study period

Comments and suggestions on the last day of the main study period	No. of student (Frequency)
1. Overall, everything is practical and appropriate. I have learned a lot from the materials developed.	3
2. The listening comprehension test was nerve-wrecking and real.	2
3. Interesting practical contents and materials.	1
4. More grammar lessons.	2
Total comments and suggestions	**8**

The most frequent comment is that the self-instructional materials developed were practical and appropriate. Two students thought that the listening comprehension test was nerve-wrecking and real. As for the suggestion, two students suggested that the self-instructional materials should put more grammar contents.

4.6. Summary

This chapter presents the results and findings from each stage of the study in response to the research questions. Information from the needs analysis using the questionnaires survey has been reported. The information points out that the student nurses are in the needs of materials to practice their English listening skills.

To fill the gap, specially produced self-instructional materials in form of a handbook with a CD have been developed. The second section of this chapter then presents the process of developing the self-instructional materials. A framework for developing self-instructional materials based on six T's approach is proposed. Then, comments from the experts regarding the instructional materials along with the results from the pilot study are reported. The self-instructional materials are then adjusted based on the experts' comments and information obtained from the pilot study for actual materials implementation. The main study was conducted and evaluation of the materials was made.

With regard to the criteria of efficiency to assess the effectiveness of the developed self-instructional materials at E_1/E_2 = 80:80, the result of 84.61/88.40shows that a package of the developed self-instructional materials could enhance the listening skills of the participating student nurses. Also, the results from a materials evaluation questionnaire survey yields a positive attitude among the participating student nurses towards the developed self-instructional materials.

The last chapter will cover a summary, a discussion of the findings, implications, and recommendations for further study.