Designing a Placement Test for Use in Student English Access Rooms (SEARs)

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Abstract
One project in Thailand in which self-access has been implemented recently is Student English Access Rooms (SEARs), which is funded by the World Bank. The aim is to promote English development and improvement through self-access learning. To serve the aim, a placement test is needed as supportive guidance on where to start using the materials. This paper investigates whether a computer-based placement test, which was specially designed for use in SEARs, is an appropriate test and whether the levels of the materials suggested are appropriate for students' language levels.

Background to Student English Access Rooms (SEARs)

Similar to Self-Access Centres (SACs), Student English Access Rooms (SEARs) aim to promote independent learning in education. In other words, SEARs are self-access centres which encourage students to move from teacher dependence towards autonomy. Self-access centres allow students to "direct their learning in two essential ways. They choose and use the self-access materials on their own and they are able to correct the material and/or assess their own performance" (Sheerin, 1989: 3).

As has been noted by Watson Todd (2005: 5), the project to set up SEARs is one of the largest recent innovations in Thai education. The World Bank funded the Secondary Education Quality Improvement Project (SEQI-2), which was implemented by the Office of the Basic Education Commission (OBEC) with the aim of improving teaching methodologies and upgrading laboratories and equipment for science, mathematics and English.

For English teaching, the SEQI-2 project aimed to develop effective SEARs in 80 schools throughout Thailand as a model for implementing self-access learning in secondary English education (Watson Todd, 2004a). With support from the World Bank, materials were supplied to the schools where SEARs are located. These materials were specially designed to meet the learning needs of Thai students (OBEC, 2004).

Overview of the placement test

Due to the large quantities of materials available in the SEARs, a placement test is one of the materials that should be provided to help students know where to start when using self-access materials in the SEARs. The test, therefore, was produced not only to match this need, but also aimed to fulfill the following purposes:

- to overcome the limitations of the paper-and-pencil-based placement test provided in the manual for SEARs by designing a computer-based test;

- to meet the need for a more efficient placement test to identify students' language levels. Based on an analysis of areas requiring further support in SEARs, placement testing was rated 4th out of 10 potential areas needing more support (Watson Todd, 2004b);
- to serve the objectives of the new curriculum requirements, emphasizing the need to introduce technology into education (Office of the National Education Commission, 1999: Section 66);
- to serve the objective of engendering independent learning by designing the test based on King Mongkut's University of Technology Thonburi (KMUTT) self-access materials (package 5). These were designed specifically under contract to the OBEC and were based on the Basic Education Curriculum B.E. 2544.

The key features of the test design are as follows:

- The test is a computer-based placement test. *Macromedia Authorware* version 6.5 program was selected as an appropriate program for designing the placement test because it allows interactivity and a scoring system.
- Based on KMUTT self-access materials (package 5), the test covers five areas: listening, reading, writing (all focused on strategies), vocabulary, and grammar. Each of these parts consists of 12 items (60 items altogether). In each part, three levels are addressed, elementary, pre-intermediate and intermediate. Each part of the placement test provides a score for the students. At the end of the test, the test results are provided to identify the students' language levels and suggestions are given for the levels of the materials that are appropriate for each student.
- Three different closed-ended item test types, namely, multiple-choice, matching, and fill in the blank, were used to facilitate computer marking. Most questions are multiple-choice because students are familiar with this item type and the appearance is very similar to the appearance of the paper-and-pencil-based tests.
- The timing of each item is fixed. Students have one minute to work on each question. A time clock icon is provided to show the students the time remaining. The next question will appear automatically after the fixed time has expired.

In short, this placement test is a computer-based test that covers five aspects: listening, vocabulary, grammar, reading and writing skills. The test results provide immediate feedback to determine the students' language levels and also suggestions for appropriate levels of the materials for students.

Figures 1-4 below show screenshot examples of some aspects of the test and the test results:

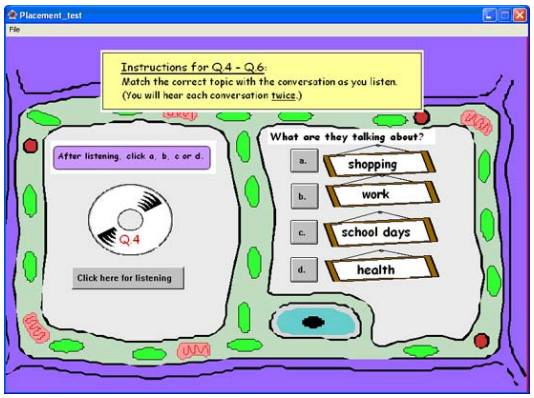

Figure 1: A screenshot of one of the items for listening

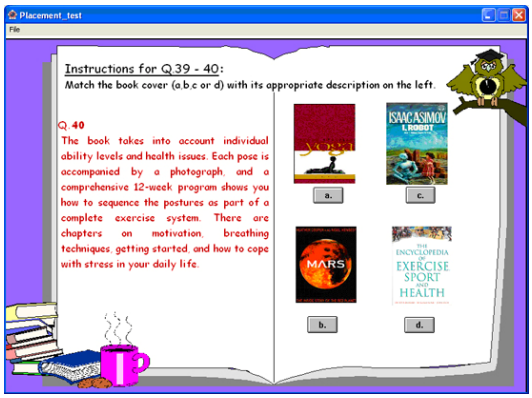

Figure 2: A screenshot of one of the items for reading

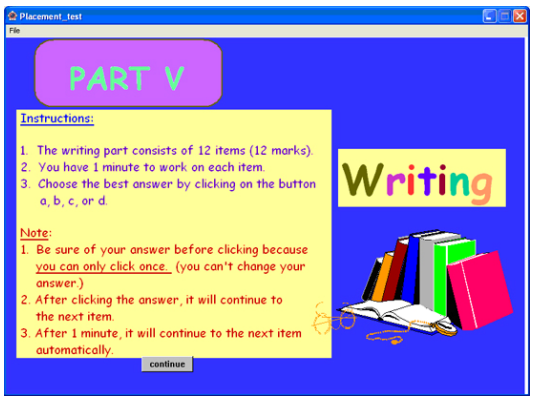

Figure 3: A screenshot of the instructions of the writing section

Figure 4: A screenshot of test results

Having designed the computer-based placement test, we needed to investigate whether the test is an appropriate test for the target students and whether the levels of the materials suggested by the test are appropriate for the students. Thus, this study attempts to answer the following research questions:

1. Is the placement test an appropriate test for the students?
2. Are the levels of the materials suggested from the results of the placement test appropriate for the students?

Research methodology

This section provides an overview of how the research was conducted by describing the subjects, instruments and process of test design.

Subjects

In this study, the subjects consisted of six students who volunteered to take the placement test. There were four students from Mathayom 4 and two students from Mathayom 5 at Pichai Rattanakhan School, where the SEAR Ranong is located. These subjects provided useful information both for comments and feedback for final test

development and for the appropriateness of the test. Their experience and feedback enabled the researcher to determine whether the levels of the materials suggested from the results of the placement test were appropriate for students.

Instruments

There are three main types of instruments in this study: two questionnaires, the record of test response sheet, and two interviews.

Questionnaires

There were two sets of questionnaires: questionnaires 1 and 2. Both of them were presented both in Thai and English. Thai was used in these instruments because it could help clarify the students' understanding. The information in these two questionnaires was differentiated according to their purposes as follows:

Questionnaire 1 was designed to determine the students' reactions to the test. The aim was to find out if the placement test was an appropriate test for the students (research question 1). It consists of three parts: personal data, students' opinions towards the test, and students' suggestions for changing the test and a comparison of the computer-based test with the paper-and-pencil-based test, which students had previously experienced.

Questionnaire 2 was used in the follow-up stage (after the students used the materials from the levels suggested by the test results) to find out if the levels of the materials suggested from the results of the placement test were appropriate for the students (research question 2). It consists of two parts: personal data, which is the same as in questionnaire 1, and students' opinions towards the levels of the materials and the level of difficulty of the suggested materials.

The record of test response sheet

A record of test response sheet was designed to obtain data on the students' responses during the test. The data obtained allowed item analysis and an evaluation of the time limits of the test to be conducted.

Interviews

The students were interviewed after completing each of the questionnaires to elicit more detailed information.

Process of test design

To have an effective placement test, we needed to consider comments and feedback from various sources to improve various drafts of the test and produce the final draft.

For this study, the process of test design can be broken down into a series of stages. The diagram in Figure 5 below illustrates how the process was done.

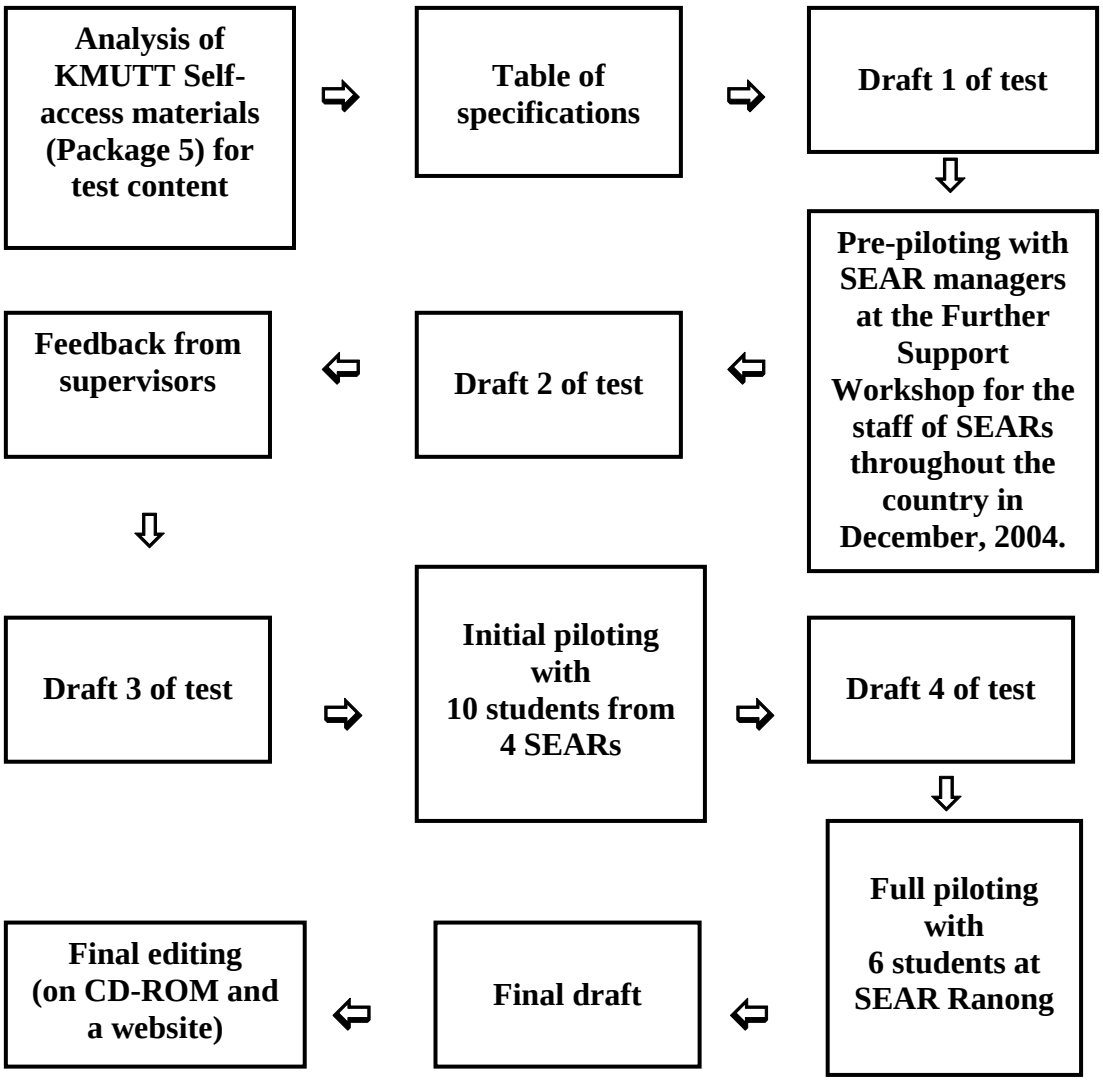

Figure 5: Diagram of process of test design

After draft 4 of the test was produced based on the feedback from 10 students from four different SEARs, producing the final draft, which is the focus of this study, involved two phases; test development and test validation. The details of these two research phases are illustrated as follows:

Phase 1: Test development
Stage 1: Questionnaires 1 and 2 and the record of test response sheet were designed.
Stage 2: Questionnaires 1 and 2 were modified and corrected.
Stage 3: Six subjects volunteered to take the placement test.
Stage 4: The six subjects took the placement test.
Stage 5: The test responses were recorded while the subjects were taking the test.
Stage 6: The subjects completed questionnaire 1 to see if the test was appropriate for the students.
Stage 7: The subjects were interviewed.

Based on questionnaire 1 and interview 1, the six subjects provided useful comments and feedback in finding out if the placement test was an appropriate test for the students and for final test development. The record of test response sheet provided useful information about the level of difficulty for each test item and helped determine the appropriate time limits of the test for the students.

Phase 2: Test validation

Stage 1: The subjects were instructed to use materials from the levels suggested by the test results.
Stage 2: The subjects used the materials from the levels suggested by the test results in SEAR Ranong.
Stage 3: The subjects completed questionnaire 2 to find out if the levels of the materials suggested from the results of the placement test were appropriate for students.
Stage 4: The subjects were interviewed (interview 2) to fill in any missing information from the questionnaire.
Stage 5: The subjects' feedback and comments were considered for test development.
Stage 6: The test was edited and developed.
Stage 7: The test was put on a website for free downloading.

In this phase, a follow-up was performed with the six subjects. The test validation procedures provided useful information which determined whether the levels of the materials suggested from the test results of the placement test were appropriate for the students. After final editing, the complete draft was put on CD-ROM and a website for free downloading for use in SEARs. However, since there were only six subjects, there was no intention to conduct a full assessment of the validity or the reliability of the test. Based on the subjects' feedback, the study intended to gain only an approximate idea of the appropriateness of the levels of the materials suggested.

Data presentation and interpretation

All data obtained from each research instrument were analyzed and interpreted to answer the research question. The findings are presented as follows.

A variety of levels of difficulty in the test increases discrimination, a quality that is useful in placement testing. Based on the record of test response sheet, the data obtained were used for item analysis. With 60 items, Table 1 illustrates how the data were interpreted:

Table 1: Summary of levels of difficulty of each item

• 13 items are very easy	21.67%
• 13 items are easy	21.67%
• 23 items are average	38.33%
• 5 items are difficult	8.33%
• 6 items are very difficult	10.00%

From the summary above, we can see that there is a wide range in the levels of difficulty of the items. The test provides an appropriate identification of the language levels of students. It gives students a clear understanding of the test instructions, which

increases construct validity. It measures English ability, rather than measuring other constructs. Based on questionnaire 1 (part 2.1), data were obtained regarding the students' reactions to the level of difficulty of the instructions. With six subjects, Table 2 illustrates how the data obtained were interpreted.

Table 2: Levels of difficulty of the instructions

Part	Mean ($\overline{X}$)	Interpretation
1.1. Listening	3.83	Easy to understand
1.2 Vocabulary	3.83	Easy to understand
1.3 Grammar	3.83	Easy to understand
1.4 Reading	3.50	Easy to understand
1.5 Writing	3.83	Easy to understand

From Table 2, we can see that the subjects did not have any difficulties in understanding the test instructions. When students are clear about the instructions, the degree to which a test measures what it claims, or purports, to be measuring is increased (Brown, 1996). That is, with clear instructions, this placement test does not measure the understanding of the instructions; instead, it measures English ability.

Apart from the reading part, the time provided for each part of the test was appropriate. The time limit for the reading part may need to be reconsidered. From questionnaire 1 (part 2.2), the data obtained were used to determine whether the time provided for each part of the test was appropriate for the subjects. With six subjects, Table 3 illustrates how the data obtained were interpreted:

Table 3: Appropriateness of the time provided for each part of the test

Part	Mean ($\overline{X}$)	Interpretation
1.1. Listening	3.33	Very appropriate
1.2 Vocabulary	3.66	Very appropriate
1.3 Grammar	3.50	Very appropriate
1.4 Reading	3.16	Appropriate
1.5 Writing	3.33	Very appropriate

From Table 3, the data show that the time provided for most parts of the test was very appropriate, but the time provided for the reading part was only rated as appropriate. Since the time provided for a few items of the reading part was insufficient, the subjects needed more time to work on this part. Therefore, the time provided in the reading part is a factor in need of further consideration.

According to Gronlund (1981: 22), there are two types of tests, speed tests and power tests. A speed test is designed to measure the number of items an individual can complete in a given time whereas a power test is designed to measure the level of performance under ample time conditions. Since the placement test was designed for the purpose of enabling students to know their language levels after completing the test, it should be a power test. Therefore, to prevent the reading part from becoming a speed test, more time may need to be allocated for this section.

In comparing the computer-based test with the paper-and-pencil-based tests, all the subjects had a positive attitude towards the computer-based test, preferring the computer-based test to the paper-and-pencil-based ones. For example, in questionnaire 1 (part 3.1), one subject stated,

> "The computer-based test is more convenient in giving responses. The test is more interesting and attractive and it also encourages me to finish the test. The computer-based test has more potential in providing me with immediate and effective test results and identifies my language level."

However, all the subjects agreed that the paper-and-pencil-based test has a good point in the way that it allows them to revise their answers to previous items. They experienced less pressure with regard to the time limit in comparison with the computer-based test. All the subjects were satisfied with the levels of materials suggested for use from the test results. They intended to use the higher levels of the materials after they completed their suggested material levels.

Therefore, it can be generally concluded that all findings show that the placement test is an appropriate test for the subjects, and the levels of the materials suggested are also appropriate for their language levels.

However, there are three points which need further consideration: improving the sound quality for some parts of the test instructions of the listening part, increasing the time provided in the reading part, and allowing students to revise answers. Based on these findings, the test was revised so that the sound quality became clearer. However, because of the need for students to complete the test within one hour and due to limitations of the program used to design the test, no revisions were made to the amount of time for the test or the ability to revise answers.

Discussion and implications

To have an effective placement test, the test designer needs to have a good understanding of the process of test design. The test designer (the first author) has learned and experienced the steps of test design, but the test design was not always consistent with the theory.

Table 4 shows the comparison between the reading test design based on Lloyd & Davidson (2005: 54-62) and the placement test, which is the focus of this study.

Table 4: Comparison of test design processes

	Stage	Lloyd & Davidson (2005)	Stage	The Placement Test
Comparable	1	Write test specifications	1	Write table of specifications of 5 parts: listening, vocabulary, grammar, reading and writing based on package 5
	2	Select an appropriate reading text	2	Produce draft 1 of test: - select appropriate test contents based on package 5
	3	Modify the reading text		- modify test contents
	4	Write test questions		- write test questions
	5	Decide on the weighting of each question		- weigh the difficulty levels of contents for each part; 4 items for elementary level, 4 items for pre-intermediate level and 4 items for intermediate level
	6	Validate and re-validate	3	Feedback from supervision
			4	Produce draft 2 of the test - edit and develop draft 1 of the test based on feedback from supervision
			5	Pre-piloting with SEAR managers
			6	Produce draft 3 of the test - edit and develop the test based on comments from pre-piloting
			7	Initial piloting with 10 students from 4 different SEARs
			8	Produce draft 4 of test - edit and develop the test based on comments from initial piloting
			9	Full piloting - ensure that the test is an appropriate test for students - ensure that the levels of the materials suggested are appropriate for students - ensure test validation
			10	Final draft - edit and develop the test based on comments from full piloting
			11	Draft editing - edit and develop the final draft and put the placement test on CD-ROM and a website for free downloading
Incomparable	7	Ensure standardized test administration		
	8	Ensure reliable rating		
	9	Rescale the score if necessary		
	10	Provide students with diagnostic feedback		
	11	Evaluate your test		
	12	Recycle your test		

From Table 4, we can see that, on the one hand, most steps of the placement test design are comparable to the steps of the reading test. On the other hand, there are some differences between these two test designs, particularly in the last four steps of the reading test development process. The reading test provides statistical analysis to determine the overall difficulty of the test. The test results are to identify what the student can and cannot do, and the test is recycled for use once every two years. In comparison, the test results of the placement test provide immediate language level identification and suggestions for the proper levels of materials to match their language levels. The test is not designed to be recycled but could be adapted or changed to serve different aims. The following sections discuss the similarities and differences between test design theory and the actual test design for this study.

Similarities between theory and actual test design

In considering the overall process of test design, this placement test was designed to be an effective test; for example, the table of specifications helped set the constructs that the test designer intended to measure. The selection and modification of the test contents were useful in matching the students' language levels. Weighing the difficulty levels of contents (elementary, pre-intermediate and intermediate) for each part established discrimination; furthermore, ensuring the validation from piloting made the test more effective; moreover, both the reading test and the placement test applied the test validation step. However, the difference between the two tests in this step is that the reading test validated and re-validated the test twice (two drafts), but the placement test conducted these steps with more sets of drafts (five drafts); that is, the placement test was continuously revised, which, we hope, made the placement test a more effective test.

Differences between theory and actual test design

Based on the test design experience for this study, there were three main conflicts between the theory and actual test design. First, the test designer could not follow the whole test process step-by-step. The steps needed to be shuffled in some cases. For example, after piloting, the next step in theory would have been editing or improving the test based on comments and feedback. In the actual design, the test designer shuffled the steps by going back to the first step and fixing the table of specifications, which were not suitable for the test contents. Second, there was a conflict concerning time constraints. For this study, it took the test designer over ten months to finish the test design. In general, the test designer will have time constraints in following the suggested process of test design. Third, the test designer ran into difficulties in the test design due to the use of *Macromedia Authorware* version 6.5 program. That is, the use of this software is complex and requires a long time for fixing problems that may arise. Therefore, the complex program lengthened the time needed for the test development. If the test is going to be designed again or if other people would like to design a similar test, a more appropriate program should be used, such as *Macromedia Flash*, which would overcome the problems encountered in this study.

However, the researchers have learned new things and gained valuable experience from the underlying conflicts. The conflicts raise awareness of how to solve problems and how to avoid future conflicts when designing tests on computer. For example, it is very important at the beginning to plan well by exploring and selecting appropriate software. The test designer must know if the software serves the test designer's requirements or if

its limitations will affect the aim of the test. Without this understanding, the test designing process is a much more time-consuming process because one must rely on a programmer in producing the test.

To conclude, the process of test design in the literature provides useful guidance in the form of steps, which make the placement test more effective. However, it is not always appropriate to follow the test design process for every step. The steps can be adapted to match the actual test design and to resolve any problems which may arise during test development. Moreover, raising awareness of the potential problems in test design at the beginning will help solve problems that may occur during test design.

Conclusion

In this study, the researchers aimed to develop a placement test for use in SEARs. The test results from the placement test helped identify the subjects' English language levels. As mentioned previously, the findings show that the placement test was an appropriate test and the levels of the materials suggested were also appropriate for the subjects. Furthermore, the subjects were satisfied and had good attitudes towards this placement test.

Upon editing and developing the final draft, the test was put on CD-ROM with an auto-run program. It has also been made available for free downloading at the following website: http://arts.kmutt.ac.th/SEARS/placement_test.htm. By putting the placement test up for free downloading, not only have SEARs throughout the country downloaded the test, but it is also being used by different institutes, such as KMUTT Self-access Learning Centre (Bangkok), Burapa University (Chonburi), Southern Technology College (Nakhon Si Thammarat), and Agriculture and Technology College (Tak). From this, therefore, we can see that this research has actually had an effect on the real world outside the university. The researchers hope that this placement test will be used as a supportive learning resource that is beneficial for students' language development not only in SEARs, but also in any English language learning institute. Furthermore, it is hoped that, after completing the placement test, the process of learning English through these self-access materials will encourage students to become independent learners.

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