

# Unit 10 : Testing materials

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## Introduction

We cannot be sure that a course we develop can be used to teach effectively. It is good practice to test materials. Testing is especially desirable when an institution is new, or when the group of students aimed at is different from usual, or when the kind of course is different. We can either test selected units or sections, or we can run the whole course on a trial basis, usually with a restricted group of students. This second alternative is usually called a pilot.

At the end of the unit you will be able to:

- \* state some reasons why testing is useful;
- \* use different methods of testing;
- \* decide whether to test materials, what to test, and how;
- \* analyse the results of a test.

If you test something, you must be prepared to change it. If no change is possible, then testing is a waste of time. This unit focusses on useful and usable methods of testing. The key to effective testing is to know why you are doing it. If you know this, then it is relatively easy to decide what to test and how. If, for example, you feel that a lesson is too difficult, you will want to find out whether students understand it.

Writers usually take part in testing, while the editor advises, organises the production of the materials and provides administrative support. Testing should not take place until some editing has been done.

You do not need any specialist knowledge about research methods to do this unit. It will take about 2 hours, and the assignment will take one or two hours.

## 1. Why test?

In a test, you try out materials before printing by getting students to use them. For testing, they must be typed and duplicated, the test must be administered and the results collected and used. Testing therefore inevitably delays the process of production, as well as adding extra cost. In distance teaching time and money are precious. If we decide to test, we must have a good reason.

There are three main reasons for testing materials.

- a. To get guidance on the level or presentation of the text. You may test to find out if the language is at the right level. To do this, you could use the Cloze test, as described in Unit 8. You may also test to find out if the approach to the subject is attractive to the students, if the level of treatment is suitable, if the instructions are understood or if the unit is of manageable length. In short, you may test to find out one or more of a variety of specific things. You will aim to find out about the texts and not the students, although in the process you will probably also learn more about the students.
- b. To convince writers about what is wanted. Often an experienced editor is quite good at predicting what kind of text will suit the students. A person writing for the first time may not find the editor's advice convincing. In these circumstances it is useful to test some sample material with students. When the writer sees the students' reaction, then she is usually convinced.
- c. To train writers. A test of a sample lesson can be run as part of a writer's training. Through the test, the writer quickly learns about the good and bad points of the material she has written. Testing can thus enrich and shorten a writer's training.

### EXERCISE 1

A course writer is writing a course of 20 units, and she is planning to draft one unit a month. She wants you to arrange a test of each unit as it is written. You disagree, and think it will be enough to test two or three sample units only.

Perhaps the course writer is wrong. Can you think of why she may be wrong? Jot down some reasons.

Perhaps the course writer is right. Can you think of some reasons for testing every unit? Jot them down.

(7 minutes)

### Comment

Sometimes testing is used as a delaying tactic. A writer or an editor can be worried about moving from ideas into print, and can use testing as a means of putting off the day of final commitment. Such a person may even have a false idea that through repeated testing and rewriting, you can produce perfect course materials. She may have the idea that you can identify every fault by trying out the materials. In fact, you can only check on a limited number of specific features of a text in a test. You must decide in advance what you are looking for. Sometimes you will notice additional points by chance, but you cannot rely on this.

If the editor in the exercise agrees to the writer's plan, what will happen? The writer drafts the first unit, it is tested, and the writer uses the results for rewriting. She will also use the ideas she gets in writing the next unit. By the time three units are tested, she will have a whole collection of ideas and reactions to use in drafting the remaining units. When she gets to Unit 20, will she still be collecting new ideas? Will there be enough ideas to merit the delay and effort involved in testing every lesson? I do not think so. Generally, most points will emerge from testing a few units only. The test of remaining units may only bring out a handful of additional points.

But the writer could be right. If your institution is very new to distance teaching, it could be wise to test the first courses thoroughly. The same applies if the subject is particularly challenging to teach at a distance. Another reason would be if the students are very different from those that you normally teach. In particular, if you are teaching at a distance at a very basic level - teaching newly literate adults, for example - you may need to test everything. Materials for people who find reading difficult must be extremely carefully designed.

Instead of a unit-by-unit test, you can arrange a pilot. To do that, you print a limited number of copies of your text for the first intake. You restrict the intake to a small number of students. You monitor their reactions as they go through the course, and then revise the whole course. If possible, you do not enrol any more students until the course is revised and reprinted, even if there has to be a delay.

### 2. Who does the test?

You can only test materials if you have some students. In distance education it can be difficult to find students who are comparable to those

who will do the course when it is finished. Twenty or thirty students is usually enough for a test. You can try any of the following.

- a. Recruit volunteer correspondence students. Send a letter to students already studying a similar course to ask if they will help with the test.
- b. Use a class. Find people studying the same subject, face-to-face. Arrange for them to work through your sample units, either in class but without the teacher's intervention, or as homework.
- c. Convene a special group. You may have to form a group from volunteers. You could get a suitable organisation to help you recruit people, or you could look for volunteers in a suitable place. You might go to a clinic for health education or a library for an academic course.

### 3. Methods of testing

Once you have found your students, you can use any of the following methods of testing.

- a. Ask people to work through and write answers on a specially prepared text. The draft unit is typed up ready for duplication, with some additional features. Space should be allowed for all answers to exercises to be written on the text, so you can see what students have done. If you are interested in the time students take to complete, you can leave space for them to write down the time regularly. If you are interested in language level, you can ask them to underline words they do not understand, and so on. You will probably also ask them to complete a written questionnaire.
- b. Watching people use materials. People sit together in one room and work through the text. You watch them as they study, occasionally walking round to check what they are doing. You will need an observation checklist (see Example 29). You can note the time people take to complete work and observe when they look puzzled or get stuck. This method is suitable for study groups, where discussion takes place, and can add further insights when students also give individual written responses.
- c. Showing people material and asking their opinion. This is a good method if you want to test something specific, particularly visual material. You may want to discover if people understand and like a set of illustrations. You may want to find out which they prefer of two different formats. The best way to find out is to ask them.
- d. Discussing the material with students after they have used it. A follow-up discussion can often help clarify points. For example, all students may have written incorrect answers for one exercise. You can find out why by asking them. You may also get deeper insight into their reactions. Students may write comments on questionnaires, saying they find the text 'useful'. Sometimes they are simply being polite, and when you talk to them, you discover that only some bits of it are useful, or even that it was not useful at all. People sometimes express opinions more confidently in a group discussion.
- e. Run the whole course as a pilot version. This requires a different arrangement of the text from (a) above. For a pilot, you will

generally have a few hundred students, while for a test you have 20 or 30. In the pilot scheme, you also test a complete course, which may have many units. There is no need to prepare the text with special places for comments and the like. If you did, you would not be able to handle all the data you gathered. Moreover, the students would probably get annoyed and distracted by all the detailed information they had to provide. Instead, you should ask the students to fill in questionnaires regularly, and use these to analyse the material.

- f. Getting feedback from tutors. When students complete written assignments as part of the test, you can get reactions from the tutors who mark the assignments, to add to the opinions of the students. You could call a tutors' meeting and discuss the assignment questions one by one, or you could use a written questionnaire.

You may want to use several of these methods of testing together.

#### 4. When, what and how to test

There are two approaches to testing.

- a. Routine testing. An institution regularly tests one or two sample units for every new course. Alternatively, each new course is run first on a pilot basis, and the entire course monitored.
- b. Occasional testing. Testing takes place only in special circumstances. The institution realises the value of testing, but does not have the need or resources to test regularly.

You would choose to test only if all the following conditions are true:

- \* You have a good reason
- \* You have enough time
- \* You can set up the test with suitable students
- \* You can act on the results

Testing should be quick and efficient. You should therefore use for your test only as much material as you need to get satisfactory answers to your questions. For example, if you check reading levels with a Cloze test, you need test only 3 passages. You do not test the whole course.

Test only what you need to find out about. If your students are expected to study at their own pace and can take as long as they like, there is no need to ask them detailed questions about timing.

If you do not give your testing a sharp focus, you will collect information which is too vague and general to be useful. At the same time, you will be exploiting the students. It is not right to burden them with extra questions and activities that are of no use to you, especially when many students doing the tests will be volunteers.

How should you prepare for testing? We can summarise the process in a number of steps:

- a. Define the purpose of the test
- b. Identify the students who will do the test
- c. Decide which method or methods of testing to use

- d. Prepare the materials. Adapt the draft and prepare questionnaires or checklists as required for the test.

Example 29 shows part of an observation checklist. It was used for a pilot project at a very basic level, teaching English by radio to children in the three lowest grades in primary school in Kenya. Both class teachers, who knew very little English, and children would follow the instructions given on the radio. At this very basic level, detailed feedback on everything was wanted. A team of observers watched classes and filled in checklists for each one of the programmes over 3 years.

This checklist and the other examples in this unit will give you some ideas about developing your own questionnaires. If you want to investigate this topic in more detail, you need to refer to Practical Research in Distance Teaching by Roger Mitton, a manual published by IEC.

#### EXERCISE 2

Look carefully at the checklist and work out what useful information it might give when completed.

(5 minutes)

#### Comment

The observer's comments will show both what went well and what went badly. Comments are required on both teachers and children. Where several children make the same mistake, the point probably needs more thorough treatment. When several observers make similar comments, we have useful feedback on the programmes. If only one observer makes a particular comment, we have information only about a particular class.

#### 5. Conducting the test

Usually the writer will conduct the test, but you will generally help with guidance. You could adapt the hints below to pass on.

- a. Welcome the students.
- b. Introduce yourself and any other observers in the room.
- c. Brief the students. Explain to them the purpose of the test, making it very clear that you are testing the materials and not them. Explain to them exactly what they must do. Try to help them to feel relaxed, by treating them as colleagues rather than pupils.

(If you are testing by correspondence, a welcoming letter should cover the three points above.)

28/AB/1 and 31/AB/1-2 Lesson 184 Block B Segment 2 + 4 Description "If" Clauses emotions, calm, excited, afraid	Common mistakes	Comments
<p>1. Teacher preparation: ( ) Not applicable ( )</p> <p>( ) <u>very good</u> adequate poor</p> <p>2. Teacher involvement: ( ) Not applicable ( )</p> <p>( ) <u>very effective</u> adequate not effective</p> <p>3. Pause length: ( ) Not applicable ( )</p> <p>( ) <u>too long</u> just right too short</p> <p>4. % of pupils participating ( ) Not applicable ( )</p> <p>( ) <u>100%</u> 75% 50% 25% 0%</p> <p>5. Pupils' enthusiasm/interest: ( ) Not applicable ( )</p> <p>( ) <u>high</u> medium low</p> <p>6. % of participating pupils responding correctly by end of segment ( ) Not applicable ( )</p> <p>( ) <u>100%</u> 75% 50% 25% 0%</p>		

EXAMPLE 29: Page of Observation Checklist devised by Kenya Language Arts Project, Kenya Institute of Education, Nairobi, Kenya

E. Towards a solution



Now read the second part of the story. One acts as a doctor, and the other one reads what Mukwanangombe says.

Namene goes to the clinic

Doctor: Good morning mother. What is wrong with your child?

Mukwanangombe: Good morning doctor. Oh! Doctor, my daughter is sick.

\* Mukwanangombe started crying.  
She couldn't produce words any more.

Doctor: Please mother don't cry, tell me, what is wrong with your child so that I can try to help you and how long has she been ill?

Mukwanangombe: Oh! Doctor my daughter is sick. But I don't know what is wrong with her. She started about two weeks ago. What I observed is that she started to look very tired, weak, thin, with a swollen stomach and had no appetite for anything.

Doctor: Do you have any medical card or any monthly weight check-up card of her?

Mukwanangombe: No doctor. She does not have any.

Doctor: What is her name?

Mukwanangombe: Her name is Namene Amakali.

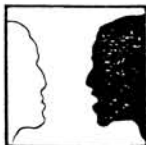
\* The doctor examined the child and found that she was wrongly fed and she was not given enough food.

The child was admitted to the clinic and treated with "high protein energy".

"High Protein Energy" is a mixture of different kinds of food. We call it "hepe" in our settlements.

EXAMPLE 30: From unpublished draft of 'Primary Health Care', Namibian Extension Unit, Lusaka, Zambia

F. What do you think?



Discuss these questions in your group with your group leader.

Answer the questions:

1. Did the doctor give an injection or tablets?
2. What did the doctor give Namene?

Look at Namene's treatment card. This was written by the specialist doctor in child care.

Name: Namene Amakali

Age: 4 years

Sex: Female

6 am	9-10 am	12 am	3-4 pm	6 pm
Food and Drink	Drinks	Food and Drink	Drinks	Food and Drink
Thin porridge with milk, sugar, cooking oil plus <u>drink</u> Milk, tea or oshikundu	Milk or oshikundu one banana	Rice with meat, cooking oil <u>drink</u> Milk or tea	Juice Tea One apple	Potato porridge with milk, sugar, carrots, scrambled eggs <u>drink</u> Milk or oshikundu

3. How many times a day does Namene take food and drink?
4. What food and drink does Namene get at 6 am?
5. What time does she drink again?
6. How many hours are there between meals?
7. Why didn't the doctor give medicine?
8. What is 'high protein energy'?

After a short period in bed the child recovered and was later discharged. After that, Mukwanangombe always gave her daughter some other food with porridge. Namene remained healthy.

- d. Administer the test, using the methods you have chosen.
- e. Thank the students, and if possible let them know the results. Usually students want to see the marks they received for the work, even if these marks are meaningless. Offer the students comments rather than marks, if some of them got bad marks. A bad mark could mean a bad text and not a bad student. But a student might not understand that and could be unnecessarily discouraged.

Example 30 is from a lesson used in a test. The Namibian Extension Unit was planning a new course in basic health care for adults, and this lesson was drafted as a sample. The course was to be mainly printed materials for group study. Most of the adult students would have limited reading skills. They would study with the help of a group leader, someone with a complete primary education and a short training in adult education methods.

For the test, the lesson was typed, illustrated and photocopied, so that everyone could have a copy. The whole lesson was eight pages long, with two pages of notes for group leaders as well.

Two groups were convened to work through the materials. They contained about 15 people with an appropriate educational background. Two of the course writers acted as group leaders. The groups were about half the size of those expected for the course itself, but we thought it was better to have two small groups than one only. The leader took the groups through the lesson, which included one or two simple written exercises which were marked afterwards. Two people sat as observers in each group, noting down the time each section took, and points of difficulty. The observers had agreed beforehand what they were looking out for. After the lesson was over, the exercises were checked quickly, and the observers compared notes. Then we had an informal meeting with the students to discuss the test.

### EXERCISE 3

Before you read the results of the test, look carefully at Example 30 and make your own suggestions for change. Write them below.

(10 minutes)

Comment

Several points were made and as a result the lesson was completely rewritten. Here are the main ones:

- The lesson was too long. A meeting was supposed to last an hour, but it took longer.
- The students disliked the mother's name, Mukwanangombe. It was too difficult to read and pronounce.
- The lesson was at the right level. Some writers had thought it was too easy, but it was not.
- The treatment card (page 1.7) was badly designed. The format was too complicated.
- The discussion questions worked well. The group found them interesting. Some writers had thought they were not very stimulating.
- The language level was about right.
- The writers had avoided the term 'malnutrition' as being too difficult. But all the students knew it already.
- Some of the pictures were criticised. People observed that one woman did not look quite like someone from their country. In another picture, a well-fed baby was not fat enough. Clearly, pictures would have to be very accurate to be acceptable.

This test provided the writers with enough guidance to plan and write the rest of the course.

6. Analysing results

Your analysis of results need not be sophisticated but it should be systematic. First, go back to the original objectives of the test. Remind yourself what it was that you wanted to find out. Take each of these objectives and consider the results for each. Let us imagine that 20 students have just completed a sample unit, which was meant to take 3 hours. One purpose of the test was to find out if the unit was the right length.

You will probably follow a series of steps in your analysis:

- a. Count. How long did they take? You will fill in a table, something like this:

	<u>Time taken</u>					
	1 hr	2 hr	3hr	4 hr	5 hr or more	no answer
Number of students:						

(Was the average time taken over 3 hrs?)

- b. Note opinions. Did they think the unit was too long? You look at your notes on the discussion. You might find that most people agreed the unit was 'interesting' and 'a good length'.
- c. Draw conclusions. The unit was longer than intended, but the students liked it. What do you conclude? My own conclusion would be to shorten the unit. The students who have done the test are volunteers and probably keen to please. The average student could be more easily discouraged, and would find it difficult to make extra time for study.
- d. Discuss. Two heads are better than one. Discuss your conclusions with the course writers and anyone else who could make a contribution. A course writer might, for example, disagree with the conclusion I drew above. She might point out that the topic covered in the sample unit was exceptionally difficult, and the study time is necessary. She might suggest making two units out of the original one. On the other hand, she may agree with my conclusion, and we can move ahead with confidence.
- e. Act. Whatever your conclusions, you should now act on them. The test is wasted if you merely file the results.

#### EXERCISE 4

Here is part of the analysis of a questionnaire recording and counting students' responses. Twelve students took part in the test. Look at these responses, note down any important criticisms the students make, and suggest some changes you would make to the material.

1. Name of unit: *Hygiene*

2. Time taken (tick the appropriate box):

less than 2 hours	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2 - 3 hours	<input checked="" type="checkbox"/>	<input type="checkbox"/>
over 3 hours	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3. Tick to indicate how you felt about the unit:

Useful	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Useless
Interesting	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Boring
Easy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Difficult
Too short	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Too long

4. Which parts of the unit did you like best?... *All (1 person)*.....  
 ..... *The diagrams (1 person)* .....  
 ..... *Section 3 (1 person)* .....

5. Which parts of the unit should be changed? Exercise 3 (4 people)

..... Picture on p.9 (2 people)

..... 'Too hard' (1 person)

6. Is there anything else we should include? .....

..... More about germs. (2 people)

(When I count the answers, I take a blank questionnaire, and draw a vertical line for each response, like this, | , until I have five responses. I draw the fifth line diagonally, |||| , to make a bundle of five. The final addition is then very easy.)

(10 minutes)

Comment

The overall response is quite clear. The unit is useful and interesting, but difficult and long. Questions 2 and 3 give you this information. Not many people have answered questions 4, 5 and 6, but the points made for questions 5 and 6 give firm ideas on what changes are needed. Exercise 3, mentioned by four people, stands out as needing change.

7. Making revisions

After a test, discuss the results with the writers. Persuade the writer to revise the material while the results are still fresh in her mind. Discuss more general conclusions resulting from the test, such as points about the level of language or length of units.

After reading this unit, you have probably concluded that it is wise to test materials at an early stage in course writing, when only a few lessons at most have been drafted.

Summary

We run tests in order to improve materials we are developing or to help

train writers. We need to find a small number of people similar to the students expected on the final course. We can:

- . give them the material to work through on their own
- . watch them use it
- . show them the material and ask their opinions
- . discuss the material after they have used it
- . run the whole course in a pilot version
- . get feedback from tutors

To conduct a test we must prepare the materials and brief the students carefully. When we have analysed results and drawn conclusions, we should persuade writers to revise the materials straight away.

#### ASSIGNMENT I

For this assignment, you are asked to prepare a questionnaire to use for a test of a unit. Choose a sample unit from your own institution. Read through the material critically and decide what purpose testing might have. What do you think are the weaknesses of the text? What are the strengths? Then write a short questionnaire. It should have between 5 and 10 questions. Imagine that people will be asked to complete the questionnaire after studying the unit.

When you have drafted the questionnaire, you must check that it is clear and unambiguous. You must test the questionnaire itself. Ask 2 or 3 people to fill it in. Rephrase any questions that are misunderstood.

Now, if you wish, you can try to set up a real test of the material, along the lines suggested in the unit. Alternatively, you can discuss your questionnaire with fellow editors or writers.