

# Test Construction Techniques and Principles.

**Study guide**

## EXECUTIVE SUMMARY

The following study guide consists of ten (10) Modules under the following headlines/topics:

1. **Getting started in the virtual classroom (Classfronter)**
2. **Basic terms on educational evaluation and measurement**
3. **Types of test and classification**
4. **Characteristics of test**
5. **Preparation of achievement test**
6. **Methodology of Test Construction**
- 7 **Test Planning stages**
8. **Test Item Development**
9. **Test Item Analysis**
10. **Development of Marking Scheme.**

Each module is presented in two (2) formats: An **overview** table, and a *minilecture*. The overview table consists of four (4) titles in columns arranged in rows in this order: Tasks, Activities, Resources, and Estimated ECTS hours'. The first three (3) subtitles outlined course activities while the last shows the estimated notional' ECTS hours' required to carry out each task and the corresponding activities. The minilecture on the other hand is a condensed introduction to the concepts that learner needs to learn. It is to trigger off deep thoughts that will provoke inquisitiveness on the part of the learner in order to explore the resources provided and even go beyond them as an individual or as a group with other course participants in order to grasp the full meaning of the subject matter. It is not an Instructivist approach and hence the minilecture will not be a full lecture and as such it is to make learner learn and not be taught.

Immediately below the overview table is full description of the contents of the table. These are more suggestions on how to carry out each task and additional web links that will be of help to the learner.

Other sections include appendix I-IV. Appendix I form part of the study guide when it is presented to the students while appendixes II-IV are presented separately usual in separate folders in the virtual classroom. Details of ECTS hours and credits are provided in this 'URL' links for further study.

### **Keywords**

Study guide, e-learning, Pedagogy, Socio-constructivism, Test, Evaluation, LMS, Virtual Classroom, Asynchronous, Instructivism, Construction technique.

## PREFACE

In the days schools and Universities are referred to, as ivory tower is gone and reference to them as citadel of learning is far becoming obsolete. Knowledge is no longer residing in a University campus where the University is regarded as the best in an area of study nor is it an exclusive preserve of the so-called elite or the rich but today it is the 'property' of any one who cares to take it regardless of age, time and location on the globe.

In those days when the only recognized mode of learning was through face-to-face-on-campus study where one university prides itself as the master of a field, unwilling to collaborate with other universities where such effort could have merged specialist resources in order to even bring out the very best of human potentials is fast fading in practice.

Unwilling universities or schools in such collaborative trend will soon find themselves obsolete and out-of-date in the trend of knowledge.

It is a practice for corporate organizations today to have knowledge officer who manages the company's knowledge base and help design staff development programmes and update them on current trend of events in their area of services.

Technology is the thing that is making knowledge sharing, collaborative efforts and accessibility of one to another possible with ease.

Since man has been successful in creating the 'information super highway' virtually no area of human endeavour has not been affected.

The sharing of knowledge and expertise has become easier and cheaper leading to astonishing growth in knowledge distribution and accessibility.

Today we have online Universities spread across the nations of the world offering courses in different fields adopting various modes of learning e.g. Constructivist, Socio-Constructivist, Instructivist pedagogy; another one is blended mode of learning.

Without any intention to go into the details of the above pedagogical approaches I will like my readers to see the references section on how to find details of these terms. This course guide was based on Socio-Constructivist pedagogy, which was placed well in [www.wikipedia.org](http://www.wikipedia.org) (an online dictionary) thus:

*"Social constructivist scholars view learning as an active process where learners should learn to discover principles, concepts and facts for themselves, hence the importance of encouraging guesswork and **intuitive thinking** in learners (Brown et al.1989; Ackerman 1996; Gredler 1997). In fact, for the social constructivist, reality is not something that we can discover because it does not pre-exist prior to our social invention of it. Kukla (2000) argues that reality is constructed by our own activities and that people, together as members of a society, invent the properties of the world".*

This course was completely designed to run on Learning Management System (LMS) that provides opportunities for learners to meet in a virtual classroom in order to carry out courses activities in realization of set objectives.

The first module was therefore devoted to the understanding of the LMS ([www.fronter.com](http://www.fronter.com)) The target groups are education consultants, trainers in any area of study, master's degree holders in education etc. The skill of test construction is very important in learner assessment and evaluation regardless of the area of study. It is therefore recommended for teachers of dental technology and other dental specialties.

On the details of European Credit Transfer System (ECTS) that was used in time estimate of activities on this course and credit obtainable on completion I have placed in the reference section 'URL' links for full details.

Note: I welcome any suggestion or expression of interest to run this course on any LMS. Please direct enquiries to: [ojolubodun@yahoo.com](mailto:ojolubodun@yahoo.com).

## Test Construction Techniques and Principles

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## Study guide

### Course structure

This course is delivered in two parts with each part having five (5) modules. The two parts can be completed separately earning diploma 1 or 2 as applicable.  
There shall be module leader for each module.

### Module 1

#### Getting started in the virtual classroom (Classfronter)

**Objective:** Learner will understand the Learning Management System (LMS) Classfronter. Learn how to navigate the classroom, know the features and other course participants.

**Content:** LMS, Navigation, Classfronter, Virtual classroom, folders, files etc.

#### Overview

Tasks	Activities	Resources	Estimated ECTS hours
<b>Task 1</b> Learn about Classfronter (LMS)	<b>Activity 1:</b> Read <i>minilecture</i> 1 and discuss. Suggest module leader.	www <i>Minilecture</i> Username Password The 'GVU Fronter Guide'	(8)
	<b>Activity 2:</b> Log in with the username and password provided.		(2)
	<b>Activity 3:</b> Try to understand the entire menu by the left of the home page of the University, navigate and see full details and functions.		(10)
	<b>Activity 4</b> Enter the classroom (TCTP601 &TCTP602) at the dropdown menu at the center of the homepage.		(2)
<b>Task 2</b> Play around in your virtual office	<b>Activity 1:</b> Understand your office and other rooms and try the features in the virtual classroom.		(10)
	<b>Activity 2:</b> Create folders, room, and forum. See Archive, upload files, open discussions.		(8)
	<b>Activity 3:</b> Try to understand features in your office and other rooms. Reflection		(7) (1)
			48

## Detailed description of tasks and activities

### Task 1: Learn about Classfronter (LMS)

**Activity 1:** Read and discuss minilecture 1 and see minilecture 1 in the Module 1 documents' folder in the archive. Try and understand the Classfronter and other LMS. Read the GVV guide and try some of the instructions provided. The course participants will agree among themselves who shall be module leader.

[www.edutools.info/item\\_list.jsp?pj=8](http://www.edutools.info/item_list.jsp?pj=8)

**Activity 2:** You should have been provided username and password in order to access the course at the University homepage and hence your virtual office and other course participants.

**Activity 3:** Try to understand the entire menu by the left of the screen on entering the course. Navigate and see full details and the functions of these menus.

**Activity 4:** At the center of the screen is a drop down. This allows you to access the course with these codes **TCTP601 & TCTP602**. To enroll in the course select the code of your choice. Note that you must have successfully completed **TCTP601** to qualify for **TCTP602**.

Learn how to upload files, create folders and understand the importance of menu by the left of the screen on entering the course you registered for.

### Task 2: Play around in your virtual office.

**Activity 1:** Visit other rooms, know other participants and upload your picture, edit your profile and write a personal introductory doc on yourself. A small picture of yours will be an important inclusion. Try the features at the top right of the screen and use them.

**Activity 2:** Create folders, room, and form. See Archive, upload files, and open discussions with other course participants.

### Reflection

Have a look at the objectives for this module. Did you learn what you were supposed to learn?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

## Module 1

### Minilecture

#### Getting started in the Virtual classroom (Classfronter)

Classfronter is a Learning Management System (LMS) and like many that we have in the ICT software market there are characteristic features (Tools) that enhance learning, which are basic to all. These tools enable learner to perform learning activities in virtual office, interact with peer in discussions, and participate in research etc in a planned virtual environment so that set objectives will be realized.

With the help of hypertext it is possible in Classfronter to organize both threaded and unthreaded asynchronous and synchronous discussions, create folders, forum, etc. The exchanges of information/ knowledge in Classfronter are text based among course participants and it also allows learners to collaborate in learning activities, share ideas, information and knowledge.

On receipt of password and username the student log in into the website address provided. The first page (Home page) on log in is the University home page. There are list of menu on the left of the screen:

**Today**  
**Contacts**  
**My archive**  
**My Portfolio**

These menus are just like those in your mobile phones, each has subtitles, which give further details on what the learners can do with them.

At the center of the home page is a drop down menu, which enable you to choose a course. Select course (TCTP 601 & TCTP602) you be led into the room with the following menus on the left of the screen:

**Room**  
**Participants**  
**Forum**  
**Chat**  
**Archive**  
**Portfolio.**

On the top right of the screen is 'FRONTER 71', navigate and get familiar with tools in Classfronter. Take a guided tour.

The archive menus consist of folders where documents are kept. These documents are either course documents or students'. You are expected to create folders and keep your document in orderly arrangement depicting good organizational abilities. Students or tutor create forum, which are otherwise referred to as rooms for discussions only and are

expected to be well arranged so that learners and their tutor can follow discussions orderly.

In the forum threaded discussions are arranged in manner that details like time of discussion, who made it, reply to it and how many has accessed it are available.

You can also arrange a chat with classmates on any learning issues. It is possible to be online with someone without a schedule but it could be an opportunity to share thoughts. Chatting is live, textual and it is referred to as synchronous discussion between two or more people.

In the participants segments, you will have access to detailed information about other participants like addresses, phone numbers, places of work and country of residences etc, Portfolios section provides details of activities of the individuals on the course.

When you clicked directly on 'Forum' or 'Archive' in the menu section on the left of the screen after you have entered the course it will open and two vertically arranged icons appeared in two boxes arranged side by side on the screen. The contents (the icons) of the first box are yellow in colour and arranged vertically in threaded format while the contents of the second box beside it is also arranged vertically. Each icon within the second box has two square boxes behind it. The first of these squares is empty while the second has an arrow that faces downward within it. The first square could be checked to enable you 'work' on the icon while the second when clicked displays list of its contents: Open, Properties, Copy, and Copy to final assessment. These contents also enable you to open, find out about the properties etc of the icons. Another list of items down within the second box in horizontal row when clicked enables you to 'work' on the icon whose empty square is checked.

Top right within the second large box is listed horizontally the following icons with these titles: **Folder (yellow), Upload file, Create, Link, and Forum.** Click on them and see many learning opportunities they have. It is possible to create folders within folder and open several forum within a folder. For this reason Classfronter provides a large space to work, interact, collaborate and perform lots of activities e.g. Research. You are therefore advised to visit all folders and forum whenever you log in to view new developments.

### **Module Moderator**

A module moderator supports the e-tutor in facilitating discussions. His roles can be likened but not the same in all cases to class 'captain' or 'leader' in the face-to-face learning who among other things ensures lectures are held on schedule in agreement with the lecturers, pass instructions from the lecturers to classmates, etc. He could be likened also to group leader in online environment who sees that a given task on which he 'presides' is successfully carried out.

The following among others could be listed as some of his roles:

- Supports the e-tutor (group leader when necessary) in ensuring tasks and activities are carried out by opening a discussion forum on scheduled activities thereby

- encouraging development of leadership qualities, self-managing competences, and independence of mind.
- ‘Prompt’ discussion- sometimes some course participants may not be available in the classroom for whatever reason. He could send an email or post a comment to encourage participation from the said member(s). This is to ensure a ‘timely’ completion of modules.
  - Suggests roles like weaver or group leader to course participants to assume. Overall, he ensures all schedules are well organised.
  - He could liaise with the tutor by email on any issue concerning the course when necessary.
  - Course participants at the beginning of each module suggest him.

### His don'ts

- He does not assume the roles of the e-tutor or usurp his responsibilities
- He opens a discussion forum only when the tutor did not do that after due date.
- He does not initiate new topics aside from those on the study guide.
- He must avoid being an instructor especially when the study guide is of socio-constructivist pedagogy.
- He does not encroach on the roles of group leader whenever one is in place.

## Study guide

### Module 2

#### Basic terms on educational evaluation and measurement

**Objectives:** Learner will be able to define what is test and be able to associate related terms e.g. evaluation, measurement etc.

Reflect on the qualities of test maker. Learner will understand online assessment.

**Contents:** Learner will know the meaning of evaluation, measurement, test, testee, test construction and other related terms.

#### Overview

Tasks	Activities	Resources	Estimated ECTS hours

<b>Task 1:</b> Learn about basic terms e.g. test testee, etc	<b>Activity 1:</b> <i>Read minilecture 2</i> and discuss. Suggest module leader.	www <i>Minilecture</i>	(8)
		<a href="http://www.learninggroups.com">www.learninggroups.com</a>	(10)
	<b>Activity 2:</b> Search www for terms associated with learner assessment e.g. patchwork assessments.		(8)
	<b>Activity 3:</b> Discuss various terms in learner evaluation and evaluation as learning.	www, Set books	(5)
<b>Task 2:</b> Learn about measurement and evaluation in teaching and learning process.	<b>Activity 1:</b> Find other varying meanings and topics on evaluation and measurement	www	(8)
	<b>Activity 2:</b> Discuss about varying application of measurement in learner assessment online (VLE).	www	(8)
	<b>Activity 3:</b> Summarise discussion and place in individual folder.		(5)
<b>Task 3.</b> Learn about test construction.	<b>Activity 1:</b> Find qualities of good test constructor and place a hand in individual folder.	www	(7)
	Reflection		(1)
			60

### Detailed description of tasks and activities

**Task 1:** Learn about basic terms e.g. test testee, etc

**Activity 1:** *Read minilecture 2* and discuss

Discuss minilecture and search www for further criteria and types and classification of test and other basic terms. See *minilecture 2* in the Module 2 documents' folder in the archive.

**Activity 2:** Search www for terms e.g. patchwork assessments. Discuss types of assessment and other terms and relate them. Your tutor will divide you into pairs (dyad) for discussions on selected methods of assessing groups in e-learning activities.

[www.pareonline.net/genpare.asp?wh=1&abt=test+construction](http://www.pareonline.net/genpare.asp?wh=1&abt=test+construction).

[www.learninggroups.com](http://www.learninggroups.com)

**Activity 3:** Compare terms and place document in group folder. Discuss types of assessment based on period and who is involved e.g. summative and formative; peer, group, self and tutor assessment.

**Activity 4:** Find on the www terms used in learner assessment. Colleges sometimes design their assessment techniques and use some terms. Find some of them and list in a document with the name of the college placed with it.

**Task 2:**

Learn about measurement and evaluation in teaching and learning process.

**Activity 1:** Find the varying meanings and topics on evaluation and measurement. Search the www for their various meanings applications in both face to face and in online environment.

**Activity 2:** Assessment of learner in a virtual learning environment (VLE); find the differences under constructivist, instructivist and blended mode of learning. Your tutor will put you into groups for discussion on the above modes.

[http://www.teaching.iub.edu/finder/wrapper.php?inc\\_id=s1\\_3\\_interp\\_02\\_eval\\_sf.shtml](http://www.teaching.iub.edu/finder/wrapper.php?inc_id=s1_3_interp_02_eval_sf.shtml)

**Activity 3:** Each group provides a summary of their discussions and place in group folder.

**Task 3.**

Learn about test construction.

**Activity 1:** Find about terms related to test construction and the guidelines of a good test constructor. Find other qualities of a test maker different from those listed in minilecture 2.

**Reflection**

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

Place your comments in the Reflection folder, Module 2 in the archive.

## **Module 2**

### **Minilecture**

#### **Basic Terms on Educational Evaluation and Measurement**

The business of assessing the works of a learner remains a great challenge and very important to teachers regardless of whether he is an instructivist or a constructivist. This all-important role is demanding and important to the future career of the learner, course of study and research. The teachers need to have adequate skills to evaluate works done to ensure that standard is maintained and credible details are provided that reflect the correctness/performance of the student on a particular course in which he (student) is examined. The understanding of the basic concepts in education evaluation will provide basis for a more advance activities. It is important to mention that the task of assessment is not the business of the teacher alone but that of group, peer, and self; and tools in an LMS join also in assessing learner activities and participation in a course.

Learner assessment methods that will be required vary according to the pedagogical approaches used and hence confer on everyone that plays one role or the other the opportunity of acquiring the necessary skills in test construction.

In classifying tests the following criteria form important consideration:

- The type of scoring required for instance objective test, essay test, oral test etc.
- What will the tests be used for e.g. diagnostic, summative, formative etc purposes?
- What is the subject matter on which test will be made e.g. Biology test etc
- The time the test will be administered. Is it as a pretest, posttest etc.
- What construct is required to measure. Construct measurement refers to the psychological trait of aptitude test, and mental ability test are useful in determining the construct of a test. It is a measure of attitude of learner to e.g. reading, critical thinking, reasoning capacities, aptitude power etc.

The following list of relevant terms are inexhaustible but are important

1. Test
2. Tester
3. Testee
4. Test Construction
5. Measurement
6. Data
7. Stimuli
8. Evaluation

'Test refers to formal situation(s) deliberately created by a tester (teacher) to make the testee (student) respond to stimulus (stimuli) from which desired information could be elicited' Abodurin, (1999). Test is an experience that the teacher creates to serve as basis for grading a learner in order to group them according to a laid down standard by an institution. The learner is referred to as the testee and the various activities a tester (teacher) will undertake to see that test are made to achieve educational goals are called test construction. Measurement is assigning quantitative value to a characteristic or a phenomenon while evaluation is a judgment exercise on certain observations or data collated by the evaluator.

Assessment involves ordering measurement data into interpretable pattern or forms on a number of variables.

Qualities of a good test constructor are an important consideration and some are listed below:

- Good understanding of the subject matter on which test is to be made.
- Sufficient knowledge of the testee
- Adequate knowledge of the medium of teaching and learning, which will be understood by the tester and testee.
- Adequate knowledge of different test formats that could be used.
- Creative ability that demands variously on the need to make items that will task the cognitive abilities etc of the testee.
- Enduring strength that will be necessary in constructing, editing, discarding etc of items which can really be overwhelming.

## Study guide

### Module 3

#### Types of test and classification

**Objectives:** Learner will understand evaluation instruments and different types of test and their classification. Reflect on online assessment methods.

**Contents:** Types of evaluation instruments and details of classification online group evaluation instruments.

#### Overview

Task	Activities	Resources	Estimated 'ECTS hours'
<b>Task 1</b> Learn about instruments in evaluation of learning activities.	<b>Activity 1:</b> Read <i>minilecture 3</i> and discuss. Suggest module leader.	www Minilecture	(5)
	<b>Activity 2:</b> Search the web for evaluation instruments.		(8)
	<b>Activity 3:</b> Form group and compare instruments		(7)
<b>Task 2:</b> Learn about bases for classes of instrument	<b>Activity 1:</b> Read about reasons for types of instruments and find their classifications.	www	(4)
	<b>Activity 2:</b> Discuss about test instruments and roles in assessment of learning activities.		(5)
<b>Task 3:</b> Learn about type of test	<b>Activity 1:</b> Search the web and read about other types and bases for classification.	www	(6)
	<b>Activity 2:</b> Discuss other types of test instrument you know and place summary in a folder.		(4)
<b>Task 4:</b> Learn about components and details of assessment instruments in Learning Management System (LMS)	<b>Activity 1:</b> Learn about components and details of assessment tools in Classfrontier and one other LMS.	www	(5)
	<b>Activity 2</b> Group compares these tools and produce summary in	www	(5)

	group folder. Reflection		(1)
			50

### Detailed description of tasks and activities

**Task 1:** Learn about instruments in evaluation of learning activities.

**Activity 1:** Read *minilecture 3*. Discuss minilecture and search www for further criteria and types and classification of test. See module 3 documents' folder for minilecture 3.

**Activity 2:** Find types of evaluation instruments. Discuss various meanings and type of evaluation instruments. Read set books.

**Activity 3:** Compare and summarise comparison of evaluation instrument. Form group for discussion and place summary in group folder. Group selects some instruments and compare with those selected by other groups.

[http://712educators.about.com/od/testconstruction/Test\\_and\\_Assessment\\_Construction.htm](http://712educators.about.com/od/testconstruction/Test_and_Assessment_Construction.htm)

**Task 2:** Learn about bases for classes of instrument.

**Activity 1:** Read about reasons for types of instruments and find their classifications. Find test instruments made by colleges for testing and find the guidelines used.

<http://www.docnmail.com/tests/educator.htm>

**Activity 2:** Discuss about test instruments and roles in assessment of learning activities. Instruments used are dictated by the learning activities to be examined. For essay tests the instruments will be different from objective tests.

**Task 3:** Learn about type of test

**Activity 1:** Search the web and read about other types and bases for classification. Find from the www testing organizations and analyse their type of test. Individual work: Produce a critique of test from two of such organizations.

**Activity 2:** Discuss other types of test instrument you know and place summary in a folder.

**Task 4:** Learn about components and details of assessment instruments in Learning Management System (LMS)

**Activity 1:** Learn about components and details of assessment tools in Classfrontier and one other LMS. Examine e-portfolio assessment option in other LMS and further details of methods of e-learning assessment tools. [www.edutools.info/item\\_list.jsp?pj=8](http://www.edutools.info/item_list.jsp?pj=8)

**Activity 2:** Group compares these tools and produce summary in group folder. Form yourselves into groups and produce a group summary, place in group folder.

### Reflection

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?  
Do you have any proposals for improvements of the module?  
Can you think of any way you can improve your own ways of learning?

Place your comments in the Reflection folder, Module 2 in the archive.

## **Module 3**

### **Minilecture**

#### **Types of Test and Classification**

Test classification presents lots of topics for discussion and varies depending on the basis of classification.

Subject on test classification overlap other useful terms like evaluation and instruments and are hence very important in assessing activities performed by students.

The following basis can be listed as presented by Abodunrin (1999). Quote:

1. Classification on the basis of stimulus material used in presenting the problem to the student e.g. verbal and non-verbal tests.
2. Classification on the basis of type of item format used e.g. essay and objective formats.
3. Classification on the basis of the purpose of the test and the use of the test results e.g. criterion-referenced versus norm-referenced. Achievement versus formative and normative versus summative.
4. Classification on the basis of its make e.g. standardized and teacher made tests.

Test is an instrument for gathering information or learning activities performed by a learner as assigned by the teacher in order to elicit responses for various reasons, which set the objectives of the test. Test types can be listed as follow ( Okpala, Onocha and Oyedeji, 1993):

- Oral test- verbal communication between examiner and testee.
- Performance test- measures motor and manual responses. Respondent manipulate some concrete equipment and materials (psychomotor)
- Achievement test- this is ability test, measures extent of an information or planned instruction.
- Behavioural assessment test- measures how learners form behaviours, demonstrate personality characteristics and traits.
- Observational schedules- measures events when observed directly and as they occur. Types- Anecdotal records; systematic observation instrument.
- Interview schedules- Designed to gather evaluation information.
- Questionnaire-This could be structured or unstructured set of questions to elicit responses.
- Sociometric test- to determine and measure internal social structure of a group e.g. on interpersonal relationship e.g. Name three persons in your class you will like to do research with.

- Logs; Diaries; Reports-These are written record of important events, reactions of learners concerning a given situation or activities. Logs and reports concerns report on others while diaries is for self-reporting.
- Rating scales- measures behaviours especially overt behaviours. Rater will observe, record and evaluate by systematic approach and simultaneously. It is comparing some attributes with accompanying scale. Self-rating, others rating includes: numerical, graphical and descriptive rating scales.

See below also evaluation methods/techniques for group in online environment as listed by; David, J and Gilly, S (2007):

- Observation e.g. Fishbowl, snowbowl etc
- Diaries- e.g. Blogs as online diaries.
- Reporting back- e.g. paired appraisal
- Checklist
- Do-it-yourself checklists
- Temperature reading
- Interview
- Pass-round questionnaire
- Self-made evaluation
- Video playback
- Online reflection.

Some relevant questions:

- What is the best time to administer tests
- Can several types of test serve in different situation and why, when.
- When different test are administered for a particular situation is it possible to get the same result? How, why.

## Study guide

### Module 4

#### Characteristics of Test

**Objectives:** Learner will understand different uses of test, the significance of each and their characteristics, make critical analysis of test items if they possess characteristics they ought to possess and will be able to make comparison of test items.

**Content:** Test characteristics, uses and significance, test in measurement.

#### Overview

Task	Activities	Resources	Estimated ECTS hours
<b>Task 1:</b> Read and learn about characteristics of test	<b>Activity 1:</b> Read module 3 <i>minilecture</i> and discuss. Suggest module leader.	www Minilecture	(4)
	<b>Activity 2:</b> Find and discuss characteristics of test. Read set books	www	(5)
	<b>Activity 3:</b> Individual work: Make your ideal characteristics document in personal folder.		(3)
	<b>Activity 4:</b> Group summary on discussion in a folder		(3)
<b>Task 2:</b> Learn about uses of test.	<b>Activity 1:</b> Discuss uses of test Explain each use and place a page summary in individual folder.	www	(8)
<b>Task 3:</b> Learn about characteristics of each test selected.	<b>Activity 1:</b> Read about different test items.	www	(4)
	<b>Activity 2:</b> Compare characteristics of test items and summarise.		(2)
	<b>Activity 3:</b> Group prepares document on characteristics. Reflection		(5)
			(1)
			35

#### Detailed description of tasks and activities

**Task 1:** Read and learn about characteristics of test.

**Activity 1:** Read minilecture 4 and discuss different characteristics of test listed. Find more characteristics of any other types of test in use by colleges etc. See module 4 documents' folder in the archive.

**Activity 2:** Discuss and search for various characteristics on the www.

**Activity 3:** Individual work: Make a document on your ideal characteristics and place in personal folder.

**Activity 4:** Group summary on discussion in a folder. Form yourselves into groups and each group discusses characteristics of choice in-depth and place summary in group folder.

**Task 2:** Learn about uses of test.

**Activity 1:** Discuss uses of test

Explain each use and place a page summary in individual folder.

**Task 3:** Learn about characteristics of each test selected

**Activity 1:** Read about different test items. Discuss five (5) test characteristics and produce individual documents.

**Activity 2:** Compare characteristics of test items and summarise.

**Activity 3:** Group prepares document on characteristics.

### **Reflection**

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

Place your comments in the Reflection folder, Module 2 in the archive.

## Module 4

### Minilecture

#### Test Characteristics

Test, as an instrument possesses some qualities, which are necessary, before it can be eligible as a test and usable. A test should therefore possess the under listed characteristics, which are interdependent and are what makes a test what it should be.

They include:

- **Validity-** when a test fulfils its purpose(s) that is measures what it intended to measure and to the extent desired then it is valid. The characteristics of testee can blur the time validity of a test. That is, it can provide false results that do not represent truly what it intend to measure in a student. If a learner has difficulty in assessing the Internet for course materials and participation it can send wrong impression on the learner commitment to log in and ability in course work.
- **Reliability-** The consistency of test ability to measure accurately what it supposes to measure is its strength in reliability. It is the ‘extent to which a particular measurement is consistent and reproducible’.
- **Objectivity-** The fairness of a test to the testee, bias test does not portray objectivity and hence is not reliable. A test that is objective has high validity and reliability
- **Discrimination-** A good test must be able to make distinction between poor and good learner; it should show the slight differences between learner attainment and achievement that will make it possible to distinguish between poor and good learner. What are the likely criteria in order to satisfy this conditions?
- **Comprehensiveness-** Test items that covers much of the content of the course, that is the subject matter is said to be comprehensive and hence capable of fulfilling purpose.
- **Ease of administration-** a good test should not pose difficulties in administration.
- **Practicality and scoring-** Assigning quantitative value to a test result should not be difficult. Why, what and how.
- **Usability-** a good test should be useable, unambiguous and clearly stated with one meaning only.

## Study guide

### Module 5

#### Preparation of achievement test format

**Objectives:** Learner will understand different test format and be able to explain their details and bases for them.

Learner will be able to prepare achievement test and types.

Learner will understand the types of achievement test namely: objective and essay test.

**Content:** Test format and type. Examination and test format and application of sample format.

#### Overview

Task	Activities	Resources	Estimated 'ECTS hours'
<b>Task 1:</b> Learn about test format.	<b>Activity 1:</b> Read module <i>minilecture 5</i> and discuss. Suggest module leader.	www Minilecture	(8)
	<b>Activity 2:</b> Individual work: Make your characteristics document on a chosen format and place in a personal folder.		(5)
	<b>Activity 3:</b> Group summary on discussion in folder		(5)
<b>Task 2:</b> Learn about uses of achievement test.	<b>Activity 1:</b> Discuss achievement test format and types.	www	(8)
	<b>Activity 2:</b> Search the web on various formats in use.		(8)
	<b>Activity 3:</b> Summarise discuss and place document in personal folder.		(4)
<b>Task 3:</b> Learn about characteristics of achievement format.	<b>Activity 1:</b> Find and read about characteristic of achievement test format.	www	(8)
	<b>Activity 2:</b> Discuss bases for characterisation.		(5)
	<b>Activity 3:</b> Prepare summary of characteristics of format Place summary in personal folder		(5)
<b>Task 4:</b> Select five other test formats	<b>Activity 1:</b> Discuss selected test format for group analysis.		(8)
	<b>Activity 2:</b> Select three formats define each and why. Produce a summary.		(4)
	Reflection		(1)
			69

## Detailed description of tasks and activities

**Task 1:** Learn about test format.

**Activity 1:** Read module *miniecture 5* Discuss and search for various formats on the www. For test there are different types of format. Explore the www for further details and discuss as many as you could find.

<http://www.carla.umn.edu/assessment/VAC/research/construction.html>

**Activity 2:** Individual work: Make your characteristics document on a chosen format and place in a personal folder.

**Activity 3:** Group summary on discussion in folder. Form groups and place summary of characteristics of selected test format in group folder.

**Task 2:** Learn about uses of achievement test.

**Activity 1:** Discuss essay and objective test formats and standardized and teacher made types of essay and objective tests.

**Activity 2:** Search the web on various formats in use. List guidelines for achievement test format.

**Activity 3:** Summarise discuss and place doc in personal folder.

**Task 3:** Learn about characteristics of achievement format.

**Activity 1:** Find and read about characteristic of achievement test format. Form two groups; one group discusses sample test on each format and discuss on probable shortcoming.

**Activity 2:** Discuss bases for characterisation. Individual work: Produce bases for format characterisation.

**Activity 3:** Prepare summary of characteristics of format and place summary in personal folder.

**Task 4:** Select five other test formats.

**Activity 1:** Discuss selected test format for group analysis. Group discusses guidelines for format.

**Activity 2:** Select three other formats define each, their characteristics and why. Produce a summary in folder.

## Reflection

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

Place your comments in the Reflection folder, Module 2 in the archive.

## **Module 5**

### **Minilecture**

#### **Preparation of Achievement Test Format**

Achievement test format varies and the choice made on type is dictated by the purpose of test. Achievement test formats were selected for study among the entire test instrument in use as it is about written textual materials and since all web activities are done in textual form it is an ideal example for this study. Therefore understanding achievement test will guide online tutor on the best understanding required to word and frame questions (test) for the learner assessment in order to elicit the response and hence receive the expected feedback in line with course objectives.

Achievement text comes in two formats namely:-

- i. Essay format
- ii. Objective format

It could be standardized or teacher made tests. According to Okpala, Onocha and Oyedeji (1993) the following are general reasons for achievement tests.

- a. Evaluate students activities and the curriculum
- b. Determine the nature of individual differences in a group
- c. Determine what a testee can do with respect to his mental ability.
- d. Provide a basis for selection, promotion, termination and classification etc.
- e. Group examination and diagnosing learning difficulties and
- f. Evaluate teaching and learning procedures and processes.

Among other things the following consideration are important in making a choice on test format.

1. Why do the tester (teacher) want to test (purpose)
2. Time available for preparing test, of taking test by student, and of time required to send the script out for scoring.
3. The composition of learning group (testee)
4. The facilities available
5. The skill of the testee and the personnel to administer the test.

## Study guide

### Module 6

#### Methodology of Test Construction

**Objectives:** Learner will be able to understand stages of test construction.

List different stages, state criteria for text construction, know when and how to administer test items, prepare test items.

**Content:** Test construction technique, stages in test construction, criteria for construction and sample of test.

#### Overview

Task	Activities	Resources	Estimated 'ECTS hours'
<b>Task 1</b> Learn about test construction.	Activity 1: Read <i>minilecture</i> 6 and discuss. Suggest module leader.  Activity 2: Define test construction and techniques.  Activity 3: Summarise discussion on test construction.	www Minilecture	(8)  (5) (5)
<b>Task 2:</b> Learn about stages in test construction.	Activity 1: Search the webs for stages of test construction.  Activity 2: Discuss objective of test construction  Activity 3: Prepare a document on objectives of testing and place in personal folder.	www	(8)  (8) (5)
<b>Task 3</b> Prepare sample of test of choice.	Activity 1: Learn about preparation of essay and objective questions.  Activity 2: Group discussion on sample of test items made. Reflection	www	(5)  (7) (1)
			52

#### Detailed description of tasks and activities

**Task 1:** Learn about test construction.

**Activity 1:** Read minilecture 6 and discuss. See minilecture 6 in module 6 documents' folder in the archive.

**Activity 2:** Define test construction and techniques. Consider how any of the stages could be improved or the sequence altered against the order in the minilecture.

**Activity 3:** Prepare a document on objectives of testing and place in personal folder. Individual work: Produce a summary of the discussion and place in your personal folder.

**Task 2:** Learn about stages in test construction.

**Activity 1:** Search the webs for stages of test construction. Discuss these stages and summarise discussion and place in personal folder. [www.delweg.com/dpwessay/tests.htm](http://www.delweg.com/dpwessay/tests.htm)

**Activity 2:** Discuss objective of test construction and produce sample test in your subject area.

**Activity 3:** Prepare a document on objectives of testing and place in personal folder.

**Task 3:** Prepare sample of test of choice.

**Activity 1:** Learn about preparation of essay and objective questions. Discuss the sample essay and items in your subject area and analyse.

**Activity 2:** Discuss samples questions. Your tutor will divide you into groups, and group discusses choice sample from either essay or objective test format and place summary group folder.

### **Reflection**

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

Place your comments in the Reflection folder, Module 2 in the archive.

## Module 6

### Minilecture

#### Methodology of Test Construction

This module present stages that will see to the actual construction of test items. Lots of principles and techniques need to be observed by test maker to ensure that quality tests are made and are reproducible, measure what it should measure and address content objectives in clear terms.

In test construction, the following stages are very important:

A. Test planning stages may include the following consideration:

- What are objectives of the test- stated in behavioural terms, using active verbs
- What is the content specification: This may be based on syllabus, journal, notes etc
- Test Blue-print should be prepared- It is a two-dimensional table. One represents subject matter while the other represents behaviour or mental process.
- What type of test items will be required-Essay or objective tests?

B. Test item development stage

The test planner should take note of the following:

- The test Blue-print should be strictly used.
- The test should be constructed ahead of time for review and reframing of items.
- Colleagues or other experts should review items.
- Enough test items more than required should be prepared.

C. Test item analysis

The formats for achievement tests are essay and objective items. Sample format have to be prepared and analysed. Item analysis provides information like; diagnostic details which could be helpful in assessing testee or in teaching and learning process and procedures.

D. Development of marking scheme-These are answer of the test constructed and the responses the teacher will expect from the learner and possible penalties for wrong responses.

Marking scheme is prepared to reflect the learning objectives in that all Bloom's levels of educational objectives are represented. All probable answers to a question, the marks obtainable, the penalty for wrong answers and instructions for award of marks, and specific instructions on the use of illustrations, diagram etc where necessary are the necessary information marking scheme should contain..

## Study guide

### Module 7

#### Test Planning Stage

**Objective:** Learner will understand Bloom's taxonomy of educational objectives and be able to apply planning stages in item construction.

**Content:** Test objectives, content specification, test-blue-print, and type of test.

#### Overview

Task	Activities	Resources	Estimated 'ECTS Hours'
<b>Task 1</b> Learn about stages in test construction	<p><b>Activity 1:</b> Read <i>minilecture</i> 7, and discuss. Suggest module leader.</p> <p><b>Activity 2:</b> Learner will consider the use of active verbs in making questions.</p>	www. <i>Minilecture</i>	(8)  (8)
<b>Task 2</b> Learn about learning objectives/outcomes	<p><b>Activity 1</b> Discuss Bloom's taxonomy of educational objectives</p> <p><b>Activity 2</b> Discuss stages of test planning.</p>	www	(10)  (8)
<b>Task 3</b> Learner will discuss how to prepare test blue-print	<p><b>Activity 1</b> Discuss how to prepare test Blue-print.</p> <p><b>Activity 2:</b> State and discuss learning experiences in relation to objectives of course.</p> <p><b>Activity 3:</b> Summarise discussions on content specifications.</p>		(8)  (8)  (8)
<b>Task 4</b> Learn about table specifying process objectives	<p><b>Activity 1</b> Learn about preparing table specifying process objective in a subject area.</p> <p><b>Activity 2:</b> Learner will discuss general factors to consider in order to producing good test</p>		(7)  (8)

	items. Reflection		(1)
			74

### Detailed description of tasks and activities

**Task 1** Learn about stages in test construction.

**Activity 1** Read *minilecture 7*, discuss it and produce a critique of it. See module 7 documents' folder for minilecture 7.

**Activity 2** Learner will discuss the uses of active verbs like define, analyse etc in stating test objectives. Discuss other criteria and produce individual hand-in.

[http://cte.umdj.edu/student\\_evaluation/evaluation\\_constructing.cfm](http://cte.umdj.edu/student_evaluation/evaluation_constructing.cfm)

**Task 2** Learn about learning objectives/outcomes.

**Activity 1:** Discuss Bloom's taxonomy, and why. Group work: Place hand-in in group folder on group choice on the bloom's level of learning objective.

<http://www.coun.uvic.ca/learn/program/hndouts/bloom.html>

<http://eduscapes.com/tap/topic69.htm>

**Activity 2** Discuss stages of test planning.

**Task 3** Learner will discuss how to prepare test blue-print.

**Activity 1** Synthesis course contents with course objectives. Group will discuss roles of curriculum in content specification and objectives.

<http://www.sfsu.edu/~testing/MCTEST/testconstruction.html>

<http://www.utexas.edu/academic/cte/sourcebook/tests.pdf>

**Activity 2:** State and discuss learning experiences in relation to objectives of course.

**Activity 3:** Place in group folder a hand-in of summary of discussion on curriculum and content specification.

**Task 4** Learn about table specifying process objectives.

**Activity 1** Learn about preparing table specifying process objective in a subject area.

**Activity 2:** Learner will discuss general factors to consider in order to produce good test items.

### Reflection

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

Place your comments in the Reflection folder, Module 2 in the archive.

## **Module 7**

### **Minilecture**

#### **Test Planning Stages**

Planning stages of test item construction require adequate care that demand on planner to adopt strategic approach in which case decisions on the:

1. Test objectives
2. Content specification
3. Test blue-print and
4. The type of test.

Objectives of a test are the purpose it will serve and this follows some criteria, which may be partly dictated by the type (essay or objective) of test.

Content specification is the area covered in the syllabus, it represents subject topics and other expected behaviours or mental process the test intends to measure.

What do table of specification purpose to achieve?

Decisions such as the number of questions that area of subject will cover for example questions like how many objective questions will be drawn and the area in the syllabus are very important question to test planner.

## Study guide

### Module 8

#### Item Development

**Objective:** Learner will know guidelines on item development

**Content:** Item development, criteria.

#### Overview

Task	Activities	Resources	Estimated 'ECTS Hours'
<b>Task 1</b> Learn about steps in test item development.	<b>Activity 1</b> Read <i>miniecture</i> 8 and discuss. Suggest module leader.	www. Miniecture <a href="http://www.uleth.ca/edu/runte/tests">www.uleth.ca/edu/runte/tests</a>	(7)
	<b>Activity 2</b> Discuss objectives and essay item, types and uses.		(10)
<b>Task 2</b> Learner should distinguish between good and bad test items.	<b>Activity 1</b> Find the differences between good and bad test.	www	(10)
	<b>Activity 2</b> Discuss guidelines for tests development.		(6)
	<b>Activity 3</b> Group work: One group produces sample items on objective and the other on essay items.		(8)
<b>Task 3</b> Learn about criteria for achievement test construction.	<b>Activity 1</b> Discuss criteria for making achievement test and produce a hand-in. Reflection	www	(8)
			(1)
			50

#### Detailed description of tasks and activities

**Task 1:** Learn about steps in test item development.

Read *miniecture* 8 and group discusses it. Learners list and discuss general guidelines for item construction. Place summary in group folder.

[www.uleth.ca/edu/runte/tests](http://www.uleth.ca/edu/runte/tests)

**Activity 2: Visit:**

[www.utexas.edu/academic.cte.umdj.edu/students\\_evaluation/evaluation\\_constructing.cfm](http://www.utexas.edu/academic.cte.umdj.edu/students_evaluation/evaluation_constructing.cfm)

**Task 2** Learner should distinguish between good and bad test items.

**Activity 1** Produce sample essay or objective items in your subject area and try to distinguish between good and bad test items.

**Activity 2** Learner list and discuss guidelines for test development. Individual work: Produce a document on guidelines on sources of test could be derived e.g. journal, textbooks etc.

[http://www.time.com/time/covers/1101031027/sosat\\_question.html](http://www.time.com/time/covers/1101031027/sosat_question.html)

**Activity 3** Group work: One group produces sample items on objective and the other on essay items.

<http://www.sfsu.edu/~testing/MCTEST/guidelines.html>

**Task 3** Learn about criteria for achievement test construction.

**Activity 1** Discuss criteria for making achievement test and produce a hand-in.

**Reflection:**

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

Place your comments in the Reflection folder, Module 2 in the archive.

1. Repeat the

## **Module 8**

### **Minilecture**

#### **Test Item Development**

This is a stage where test planner is face-to-face with the skill of producing test items.

Pertinent questions:

What are the necessary steps required?

What are the guidelines?

These are important questions in test construction and clearly they are among other questions, which must be addressed, in the actual wording of test items in order to have all the test items made possess relevant characteristics.

The following criteria are important in item development:

1. Test Blue-print should be kept in focus
2. Items should be drafted far ahead of time as anytime it is done in a haste it is fraught with error.
3. The items should be reconsidered by colleagues and experts to ascertain its qualities
4. Test items should not be in exact number required. Excess items should be available to take care of need.

Item development should be considered keeping in mind the type of instrument in mind and the characteristics of test required.

For instance objective test items vary according to the type of objective test the teacher wants to use e.g. alternate-response or matching item objective test etc).

Further detailed requirements for making items include the following:

- The pedagogical objectives must be strictly adhered to and provide the guides for tests needed and the number for each learning objective.
- Items should be clearly worded, no ambiguous presentation and should only one meaning.
- Test should not contain too many words but rather it should be concise, precise and straight to the point.
- Test items should be constructed on what the testee should know or be able to make meaning of it. It should be within the limit of scheme of work.
- Appropriate stimulus should be chosen. For instance primary school child will understand illustration, diagrams better than verbal materials and choice of whether item will be objective or essay will be an important consideration.
- Test items are better prepared as soon as materials have been taught if the pedagogical approach is instructivist to forestall missing any point.
- Test should not be worded in a manner that the response could easily be deduced from the item itself. It should rather be intellectually challenging to the testee.

## Study guide

### Module 9

#### Test item analysis

**Objective:** Learner will understand test items analysis in order to obtain useful information from them.

**Content:** Test analysis, diagnostic information on test, the use of distracters.

#### Overview

Task	Activities	Resources	Estimated ECTS Hours
<b>Task 1</b> Learner will know about test analysis	<b>Activity 1.</b> Read <i>minilecture</i> 9 and discuss. Suggest module leader.	www. Minilecture	(8)
	<b>Activity 2</b> Discuss item analysis and diagnostic details provided in analysing tests.	www	(6)
	<b>Activity 3</b> Form groups and discuss test analysis		(8)
<b>Task 2.</b> Compare different methods of online assessment.	<b>Activity 1</b> Discuss online evaluation methods as listed in module 3 and produce a hand-in on comparison of two of your choice.  <b>Activity 2</b> Group work: Search www for other techniques for online assessment and place document in group folder.	www	(8)  (10)
<b>Task 3</b> Learner will be able to analyse and discuss procedures for item analysis	<b>Activity 1.</b> Discuss item analysis procedures.		(8)
	<b>Activity 2.</b> Analyse and interpret learner responses to stimuli and the uses in test construction and analysis. Produce a hand-in.		(8)
	<b>Activity 3:</b> Group discussion		(7)

	on the procedure for test analysis. Summarise discussion and place in group folder. Reflection		(1)
			64

### Detailed description of tasks and activities

**Task 1** Learner will know about test analysis

**Activity 1.** Read *minilecture 9* and discuss. See minilecture 9 in module 9 documents' folder in the archive.

**Activity 2** Discuss item difficulty under the following subtopics: test discriminating power, effectiveness of distracters etc.

**Activity 3** Group work: Discussion on test analysis and place summary of discussion in group folder.

**Task 2.** Compare different methods of online assessment.

**Activity 1** Individual work: Read about online assessment methods. Discuss in dyads, which your tutor will arrange. Place hand-in in personal folders on the details of two of these methods.

**Activity 2** Group work: Form groups, group searches the web for other online techniques for learner assessment. Groups produce and place in folder other techniques other those listed in minilecture 3.

[http://712educators.about.com/od/testconstruction/Test\\_and\\_Assessment\\_Construction.htm](http://712educators.about.com/od/testconstruction/Test_and_Assessment_Construction.htm)

**Task 3** Learner will be able to analyse and discuss procedures for item analysis.

**Activity 1.** Discussion on the guidelines for item analysis and the purposes it will serve.

**Activity 2** Analyse and interpret learner responses to stimuli and the uses in test construction and analysis.

Produce a hand-in.

<http://www.delweg.com/dpwessav/tests.htm>

**Activity 3:** Form groups and discuss the procedures for item analysis. One group chooses objective items while the other essay item.

#### Reflection

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

Place your comments in the Reflection folder, Module 2 in the archive.

## Module 9

### Minilecture

#### Test Item Analysis

Item analysis demands a clear understanding on course planner about the information derivable from test when administered. Diagnostic information such as the difficulty of test to testee, the discriminating power or the effectiveness of distracters in case of objective tests are examples of such information. Group evaluation methods in virtual environment as listed in module 3 present also such opportunity but require carefully selected approaches which address each method as unique on its own.

Abodunrin (1999) defined test analysis as “...the process involved in examining or analysing testee’s responses to each item on a test with a basic intent of judging the quality of item specifically, the difficulty and discriminating ability of the item as well as effectiveness of each alternative.”

He suggested following as the information that test analysis could provide:

QUOTE:

- To provide some quantitative evidence to reveal and/ or support the difficulty and discrimination indices of test items.
- To judge the worth or quality of a test
- To reveal to the test construction how his/her tests behaves so as to build a test file which is constantly being improved upon
- To make known and to determine what to do as regards making subsequent revisions of tests.
- To provide interesting and useful information on the achievement of individual testee which can be used as valuable data for diagnosis individual difficulties and prescribing remedial measures or planning future learning activities.
- To impress on the teacher the need for improvement biased on the resulting data (improvement in teaching and teaching resources will often be made obvious by the analysis)
- To provide a basis for discussing test results.
- To provide a learning experiences for students, if students assist in or are told the results of item analysis.

Unquote:

For instance the use of blog as online diary or observation technique like fishbowl or snowbowl demand painstaking attention from tutor on the arrangement of groups and to follow online proceedings in order to derive the best analysis of group member roles and the outcome in the final analysis.

Item difficulty is determined by determining the percentage of those that got an answer correctly and those that got answer wrongly. If for instance most scores clustered at the top or at middle or at the bottom then it lacks discriminability.

The use of distracters in test item construction provides information on how respondents are discouraged from guessing answers to questions.

Item analysis is helpful to test planner to ascertain if a test possesses the qualities/characteristics it ought to demonstrate in order to serve as a good test item.

Analysis of scores of students can provide such useful information on the extent the objectives of the test were realized. A comparison of scores that suggest that all the learners performed woefully may suggest that there are some errors in the pedagogy used. Test analysis is a subjective exercise that counts a lot on variables like; the type of testee, learning style subject matter, environmental conditions available during examination which are not always within the firm control of the teacher (constructivist/ instructivist)

## Study guide

### Module 10

#### Development of Marking Scheme

**Objective:** Learner will understand the principles of marking scheme, know how to prepare one in chosen subject area. Know how to score test items.

**Content:** Marking scheme, guidelines on scoring test items. Objective and essay tests.

#### Overview

Task	Activities	Resources	Estimated 'ECTS Hours'
<b>Task 1</b> Learner should understand the principle of marking scheme	<b>Activity 1</b> Read <i>minilecture</i> 10 and discuss. Suggest module leader.	www. <i>Minilecture</i>	(8)
	<b>Activity 2</b> Define what marking scheme means and relate to test construction		(10)
	<b>Activity 3.</b> Discuss marking scheme and how to produce scheme for essay questions for a chosen topic. Individual produces a hand-in.		(7)
<b>Task 2.</b> Learn about guidelines for marking scheme in a chosen subject area.	<b>Activity 1</b> Discuss the importance of marking scheme and summarise discussion.	www	(8)
	<b>Activity 2</b> Group work: One group discusses the guidelines for essay and the other for objective tests.		(8)
	<b>Activity 3.</b> Each group produces a hand-in and place in group folder. Reflection		(3)
			(1)
			37

### **Detailed description of tasks and activities**

**Task 1** Learner should understand the principle of marking scheme.

**Activity 1:** Read minilecture 10. See in the archive minilecture 10 in the module 10 documents' folder.

**Activity 2** Discuss the guidelines for marking scheme, what it means and relate to test construction.

**Activity 3.** Individual work: Produce five items in your subject area and produce a marking scheme for essay and objective questions.

**Task 2.** Learn about guidelines for marking scheme in a chosen subject area.

**Activity 1** Discuss the importance of marking scheme and summarise discussion.

**Activity 2** Group work: One group discusses the guidelines for essay and the other for objective tests.

**Activity 3.** Each group produces a hand-in and place in group folder.

### **Reflection**

Have a look at the objective for this module. Did you learn what you were supposed to learn in this module?

Was it easier or more difficult than you thought?

What was easy, what was difficult?

Was the time estimate correct?

What did you find the most useful/enjoy the most, if any, in the module? Why?

What did you find the least useful/least enjoyable, if any, in the module? Why?

Do you have any proposals for improvements of the module?

Can you think of any way you can improve your own ways of learning?

Place your comments in the Reflection folder, Module 2 in the archive.

8. Can you think of any way you can improve your own ways of learning?

## Module 10

### Minilecture

#### Development of Marking Scheme

Marking scheme according to Okpala, Onocha, and Oyedeji (1999) ‘... is a sketchy compilation of all points/marks that are essential to earning the possible maximum score from a question paper’

A test planner produces marking scheme, which is an exhaustive possible answers to the questions/items provided and those answers that are not correct if given by the students and the marks or penalty for right and wrong answers respectively.

It has to be a pile of probable answers that the student can provide to a test items, which can earn full marks or lower marks as already determined.

A marking scheme for preparation of online learning groups is not popular because technology has attended to some needs e.g. the use of e-portfolio. It spreads responsibilities to many participants in the education enterprise in that the scheme could be used by ‘anyone’ in order to score students. The need for marking scheme is to reduce to acceptable level the subjectivity of scoring essay questions.

According to Okpala, Onocha and Oyedeji (1993), marking scheme document should also provide information in the following areas as additional information to teachers/scorer of test items.

- Information on marks obtainable per question should be clearly shown.
- Penalties for additional details in order to clearly answers a question such as diagrams, illustration, graphs etc

In scoring essay test the following criteria are important to teachers:

1. Teacher should ensure he is firm emotionally, mentally etc before scoring essay scripts.
2. The names of testee should not be allowed on the answer scripts to disallow bias
3. All instructions should be taken note of while scoring.

## Acknowledgement

All 'Reflection' items are drawn from: E-teaching 1 study guide by: Ask, B., Bjørke, S.A., Haugen, H.: Pedagogy for online learning 1 E-teaching 1; 2006. )

I hereby acknowledge the works of: (Ask, B., Bjørke, S.A., Haugen, H.: Pedagogy for online learning E-teaching 1; 2006. ) where I derived the guidelines to make this study guide.

The course description was also adopted from Global Virtual University course description template

## REFERENCES

- Okpala, P.N., Onocha, C.O., Oyedeji, O.A., (1993) Measurement and Evaluation in Education. Stirling-Horden Publishers (Nig) Ltd
- Abodunrin, I.O.(1999) Evaluating Teaching/Learning Effectiveness: A Basic course in Education Test, Measurement and Evaluation: Cardinal Information Technology Oro, Nigeria.
- Jacques, D., Salmon, G. (2007) Learning in Groups: A handbook for face-to-face and online learning. Routledge, NY.

## APPENDIX I

### RUBRIC

#### General Appraisal on Participation (Self assessment)

<b>Criteria</b>	<b>0</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Cooperation</b>	Did not pay attention to others did not value the opinion of others	Paid attention to, but did not value the opinion of others.	Actively paid attention to, but it was not evident that opinion of others was valued	Actively paid attention to and valued the opinions of others
<b>Contribution</b>	Did not contribute to the completion of the tasks	Contributed, but the work was inferior or inadequate	Contributed to the completion of the tasks with adequate work	Contributed to the completion of the tasks and submitted high-quality work
<b>Participation</b>	Did not participate in the group	Occasionally participated in the group	Often participated in the group	Consistently participated in the group

(Conrad&Donaldson,2004,p.30: Quoted by Ask, B., Bjørke, S.A., Haugen, H.: Pedagogy for online learning 1 E-teaching 1; 2006. )

## APPENDIX II

### **References Book ('URL' Links).**

[http://teaching.iub.edu/finder/wrapper.php?inc\\_id=s2\\_7\\_assess\\_03\\_tests.shtml](http://teaching.iub.edu/finder/wrapper.php?inc_id=s2_7_assess_03_tests.shtml)

[http://www.findje.com/25/Test\\_Preparation](http://www.findje.com/25/Test_Preparation)

<http://ericae.net/lib/test9.htm>

<http://cstl.syr.edu/cstl2/Home/Teaching%20Support/Evaluating%20&%20Grading%20Student%20Work/151000.htm>

<http://cstl.syr.edu/cstl2/Home/Teaching%20Support/Evaluating%20&%20Grading%20Student%20Work/153000.htm>

<http://cstl.syr.edu/cstl2/Home/Assessment%20of%20Student%20Learning/200000.htm>

[www.pedagogy.ir](http://www.pedagogy.ir)

[www.elearningpapers.eu](http://www.elearningpapers.eu)

[www.itrainonline.org](http://www.itrainonline.org)

[www.learningandteaching.info](http://www.learningandteaching.info)

[http://en.wikipedia.org/wiki/Constructivism\\_%28learning\\_theory%29#Constructivist\\_theory](http://en.wikipedia.org/wiki/Constructivism_%28learning_theory%29#Constructivist_theory)

[http://europa.eu.int/comm/education/programmes/socrates/ects\\_en.html#2](http://europa.eu.int/comm/education/programmes/socrates/ects_en.html#2)

[http://europa.eu.int/comm/education/programmes/socrates/ects\\_en.html](http://europa.eu.int/comm/education/programmes/socrates/ects_en.html)

<http://europa.eu.int/comm/education/policies/educ/bologna/bologna.pdf>

## APPENDIX III

### Test Construction Techniques and Principles Spring 2008

#### Study Calendar

<b>DATE</b>	<b>ACTIVITY</b>
January	<b>First Phase of course Starting</b>
07	<b>Start up module 1</b>
	Necessary documents posted on Website and sent by e-mail. Username, password, login guide and study guide
	Post Task 2 Activity 1
Jan	
21	<b><u>Start up Module 2</u></b>
24	Post Task 1 Activity 3
28	Post Task 1 Activity 4
31	Post Task 2 Activity 3
Feb. 4	Post Task 3 Activity 2
5	<b><u>Start up Module 3</u></b>
8	Post task 1 Activity 3
15	Post task 3 Activity 2
20	Post task 3 Activity 2
22	Post reflection
25	<b><u>Start Up Module 4</u></b>
29	Post Task 1 Activity 3
March	
3	Post Reflection Module 3
4	Post Task 1 Activity 4
7	Post Task 2 Activity 1
13	Post Task 3 Activity 2
18	Post Task 3 Activity 3
21	<b><u>Start up Module 5</u></b>
28	Post Task 1 Activity 3
April 7	Post Task 1 Activity 4
14	Task 2 Activity 3
23	Post Task 3 Activity 3
29	Post Task 4 Activity 2
May 2	Post Reflection
<b>Second Phase of course Starting</b>	
<b>August</b>	<b>Fall 2008</b> <b><u>Start up module 6</u></b>

4	Post Task 1 Activity 3
12	Post Task 2 Activity 3
22	Post Task 3 Activity 2
<b><u>Sept. 1</u></b>	Post reflection
4	<b><u>Start up module 7</u></b>
10	Post Task 1 Activity 2
19	Post Task 2 Activity 1
<b><u>October 6</u></b>	Post Task 3 Activity 3
17	Post Task 4 Activity 2
20	Post reflection
24	<b><u>Start up module 8</u></b>
<b><u>Nov 3</u></b>	Post Task 2 Activity 1
14	Post Task 2 Activity 2
19	Post Task 2 Activity 3
24	Post Task 3 Activity 1
26	Post reflection
28	<b><u>Start up module 9</u></b>
<b><u>Dec 8</u></b>	Post Task 1 Activity 3
12	Post Task 2 Activity 1
16	Post Task 2 Activity 2
19	Post Task 3 Activity 2
22	Post Reflection
<b><u>Jan 5</u></b>	<b><u>Start up module 10</u></b>
15	Post Task 1 Activity 3
21	Post Task 2 Activity 3
25	Post Reflection
31	Online Exam
<b><u>Feb 1</u></b>	Exam hand in
2	End of course

## APPENDIX IV

### Course Description

<p><b>1a Course name:</b> Test Construction Techniques and Principles</p> <p><b>1b Course code:</b> TCTP6001&amp;TCTP602</p> <p><b>1c Date Written:</b> 3<sup>rd</sup> Feb 2007.</p>
<p><b>2 Target group:</b> Masters degree student in education, can be offered separately to educators, consultants, and any other postgraduate students in any field interested in student evaluation. To be offered from any part of the world</p>
<p><b>3a ECTS credits:</b> 20</p> <p><b>3b Estimated student workload</b> 480-600 student workload hours</p> <p><b>3c Online (Internet) Time Estimate:</b> Daily log-in at least 1hour daily.</p>
<p><b>4 Prerequisites:</b> Participants should have basic knowledge in the use of English Language at academic level. Basic computer and ICT skills. Familiar with the use of internet environment.</p> <p><b>Formal criteria:</b> Bachelor degree level in education or any teaching qualification at that level.</p> <p><b>Practical conditions:</b> Have access to Internet and committed to frequent log in (preferably daily).</p>
<p><b>5a Duration:</b> 26-30 weeks</p> <p><b>5b Term:</b> Part-time</p>
<p><b>6 Type:</b> <i>(on-campus, online or blended; self-instructional or tutor-supported, collaborative; paced or at student's own speed etc)</i> Online, collaboration, tutor-supported, paced.</p>
<p><b>7 Language:</b> English</p>
<p><b>8 Developing institutions:</b> Nil</p>
<p><b>9 Offering institutions:</b> Nil</p>
<p><b>10 Course leader:</b> Olubodun O.J.</p>
<p><b>11 Authors/Teaching group:</b> Olubodun Olufemi J.</p>
<p><b>12 Academic responsibility:</b> Not decided</p>
<p><b>13 Copyright (Ownership):</b> Author</p>

**14 Aims** (*What shall the course achieve in general terms / what the university wants to achieve with the course*):

- The course shall help participants gain skills to construct test items for course work evaluation of student performance and activities in a course.
- Participants will learn how to word test items and make items that will reflect the domain of learning and course objectives.
- Understand basic terms on education evaluation and measurement and application in test construction.
- Learner will be able to differentiate types of test and their characteristics.
- Learner will gain knowledge on achievement test being text-based and suitable for online evaluation
- Learner will be able to assess online activities of students and gain knowledge in e-assessment and different tools in use e.g. Patchwork assessment etc.
- Learner will gain knowledge in framing test items in order to elicit the desired responses.
- Master's level diploma in education evaluation and measurement will be awarded to participants that successfully completed two parts of the course.

**15 Learning resources** (*Learning material, learning support*) LMS, articles, short minilectures, suggested books and www.

**16 Objectives and Learning outcomes of the course** (*Sets of competences, expressing what the student will know, understand or be able to do after completion of a process of learning, and products of this process.*)

**Students will gain knowledge on completion of the course to:**

- Understand the term on test and measurement and apply in student evaluation
- discuss and explain related terms in test construction and measurement
- compare terms and be able to distinguish between various types of test items in use.
- analyse methods of evaluation and assessment in e-learning
- understand and apply technique of test construction
- Classify test items and prepare marking scheme
- Understand characteristics of test and apply in test construction

**Students will gain skills in:**

- construction of test format
- administration of test items
- be able to write academic quality document on test construction
- collaborate with peers in online work, sharing ideas and jointly writing academic papers together
- summarise and present arguments
- reflect on personal works and skills.

**17 Content description** (*Content in each learning unit*)

**Module 1: Getting started in the virtual classroom (Classfronter)**

The learning management system (LMS) for this course is called 'Classfronter' and like most LMS it provides opportunities for learners to interact, engage in academic discourse, carryout rich discussion and collaborate to do specific tasks and activities as outlined in course study guide material. It comprises of simple features to be learnt that provide the learners opportunities to perform various activities e.g. upload files, delete,copy,create folders/rooms etc for tasks and activities, and to understand e-portfolio as part of student assessment among other features.

**Module 2: Basic terms on educational evaluation and measurement.**

Understand basic terms in test, measurement and evaluation. Acquire information on sample test items in student evaluation. Be able to define and consider the relevance of this understanding in planning and constructing test items. Learner will know the meanings and application of the following term: measurement, evaluation testee, tester, stimuli, data etc as they relate to evaluation.

**Module 3: Types of test and classification.**

Classification of test and the relevance in item construction. Types of test and the determinants in making choices of test suited for measuring learner activities. Test classification based on the situation test material is presented to the student e.g. verbal and non-verbal, item format, purpose of test, make of test e.g. standard or teacher made test etc. Other types of test include, performance, behavioural assessment, sociometric test etc.

Learner will gain knowledge on other evaluation technique in use in online learning e.g. Observation-fishbowl and snowball techniques etc.

**Module 4: Characteristics of test**

Characteristics of test, analysis of these characteristics and the importance in test construction. Student will gain knowledge and understanding of characteristics of test items and how it can be helpful in deciding if an item is suitable as an evaluation instrument or not.

**Module 5: Preparation of achievement test**

Preparation of achievement test format, characteristics, uses and definition of it. Why and when is it necessary?

**Module 6: Methodology of Test Construction**

Test planning stages, test item development types and analysis. Making marking scheme. These methods will be appraised as an introductory understanding will help in the crucial stage-by-stage of test construction.

**Module 7: Test Planning stages.**

This is an important aspect of test construction methodology and it entails specific details like; setting the objectives of test construction, content specification, designing test blue print etc. Learners will learn how to plan test construction following detailed steps some of which are mentioned above.

**Module 8: Test Item Development:**

The test planner is saddled with the responsibilities of producing test items that will possess all the characteristics of a good test item as considered in earlier module. The learner will learn uses of test blue print and how to prepare one and precautions to be observed like; preparation of test ahead of examination, review of items by colleagues, and experts among others.

<p>Module 9: Test Item Analysis: Student will learn how to assess the responses of testee as a way of determining the quality of test items. He will gain knowledge on such analysis on item difficulty, item discriminating power, effectiveness of distracters, diagnostic information etc.</p> <p><b>Module 10: Development of Marking Scheme</b> It is important for the teacher to construct test that will be reliable and have validity so that it will discriminate between a good and poor student. It is in the light of this that a marking scheme is prepared. The technique of this preparation will be learnt by the student so as to be able to prepare test that is useable and fair to learner assessment, mental ability etc.</p>
<p>18 Mode of delivery (<i>LMS, TV, WWW, radio, F2F lectures etc</i>) Course description, study guide, calendar and 'url' links and suggested books for reading. Classfrontier is the Learning Management System (LMS). Main communication tools: asynchronous threaded online discussion. Group and individual assignments and hand-ins and cut-off dates.</p>
<p><b>19. Infrastructure needed</b> Course participants will be allowed to access the LMS and within which a virtual office will be available to each participant. Work will take place in virtual classroom, group room. Internet connectivity is preferably broadband.</p>
<p><b>20. Teaching methods</b> (<i>Instructional, constructivist, socio-cultural, blended, etc</i>) Learner-centered with tutor support. 100% online activities, minilecture to set pace for discussion by the tutor, peer tutoring, group work and individual work. Constructivist pedagogical approach with many-to-many communication.</p>
<p>21. Assessment of participants (<i>Portfolio, home exam, participation, on-campus exam etc</i>) Portfolio, hand-ins, online examination arranged by home office, activities during discussion and materials submitted during course.</p>
<p><b>22. Bibliography:</b> Study guide and minilectures, Evaluating Teaching/Learning Effectiveness: A basic course in Educational, Test, Measurement and Evaluation: Abodunrin(1999); Cardinal Information Technology. Measurement and Evaluation in Education; P.N. Okpala, C.O. Onocha, O.A. Oyedeji WWW. Resources Learning in groups: A handbook for face-to-face and online environments; Davis,J and Gilly, S.</p>
<p><b>23. LMS administration</b> (<i>Responsible for the online Learning Management System</i>): Nil</p>
<p><b>24. Course evaluations</b> (<i>Student feedback evaluation form, tutors' evaluation</i>): There will be reflection on the course after each module as formative evaluation, and</p>

summative evaluation will be conducted on course completion.

**25. Other remarks** This course can be offered in two separate parts namely: Test Construction Techniques and Principles Part 1. (Module 1-5) while Part 2 will consist of Module 6-10. Therefore for fees each part will cost participants \$1000 USD.

**26. Fees:** \$2000 USD.

## ADDITIONAL INFORMATION

A course in test construction is most desirable for teachers of all grades either in schools or Universities. A teacher in traditional or online environment will equally find test item construction very important in course performance assessment and research work. It is imperative that this skill is well developed to address growing deficiencies of its inclusion in teacher education especially as it pertains to growing interest for e-learning. Prior to the advent of e-learning which is essentially about the use of ICT tools which include internet media in education the focus of training and skill acquisition has been heavy on the side of teacher 'filling' their 'students' with knowledge. However results from researches point at a paradigm shift in teaching and learning which favours collaborative activities among learners as more beneficial to learning than the conventional knowledge transfer from teacher to learner before it is believed that learners have learnt. This study guide intends for course participants (University lecturers, tutors, school teacher, researchers etc) to learn 'new' skills as well as build on prior knowledge on test uses and construction by performing course activities jointly in a virtual learning environment (VLE) not by the teacher instructing.

Collaboration among Universities where each University merges specialist areas to partner to improving knowledge and knowledge delivery is also promoted by the use of Internet media without difficulties about geographical locations of collaborating Universities and of learners that are situated around the globe

The focus of this study guide is for learners to acquire the skills of test uses and construction in a social learning environment which is known among educators as socio-constructivist pedagogy where the tutor do not need to impart knowledge but guide the course participants through the course activities. The guide is a clear example of how course could be designed based on the theory of learning called socio-constructivism.

### APPENDIX I: Rubric.

This is a self-assessment tool that enables learner to assess themselves on their participation and performance on the course. It is also an information gathering tool for summative evaluation, which gives the tutor the feedback on the behaviour of the learner on the course.

APPENDIX II: This is library of resources. In constructivist or socio-constructivist pedagogical approaches the emphasis is on learning rather than on teaching. Therefore this library or learning resources are created for learner to explore as aids to performing the course activities. The learning resources are not just 'url' links alone; they could include CD, books, articles, video, graphics, illustrations etc. The learner is expected to explore the World Wide Web (www) that is the Internet for more resources as the course progresses.

APPENDIX III: The study calendar shows the task and activities that learners need to perform and estimated study period that will be required to complete each task. The cut-off dates on the calendar enable the learner to arrange his participation within a time frame on European Credit Transfer System (ECTS) scale, which determines the number of credits that are possible.

APPENDIX IV: Course description. This is the first document the learner will have access to prior to enrollment on the course. It is to help prospective student decide if the course will meet his needs.

#### LEARNER ASSESSMENT AND EVALUATION

The learner assessment and evaluation is three folds: Peer, Tutor and LMS tools (e-portfolio). The rubric is one tool. Peer assessment activities embedded in course activities and e-portfolio as designed in the Learning Management System (LMS). In this case our choice is 'Classfrontier'. The e-portfolio keeps records of number of log in (attendance in virtual classroom) which gives fair idea of participation in course work, number of documents submitted etc.