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Developed, published, printed and distributed by:



Namibia Training Authority.  
Rand Street, Khomasdal  
Windhoek  
Namibia  
Tel. +264 61 279550  
Fax. + 264 61 279551  
E-mail: info@nta.com.na  
Website: www.nta.com.na

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## ICT Skills for Educators

# ASSESS AND EVALUATE LEARNING USING ICT APPLICATIONS

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# Prologue

Integrating information and communication technologies (ICTs) across the education sector is a complicated process. After learning many lessons from pilot ICTs in education projects and reviewing local and international experiences, the Namibian Ministry of Education (MOE) worked with partners across the education sector to develop the *ICT Policy for Education* in 2005 and the corresponding Implementation Plan in 2006.

These **ICT Integration for Educators** training manuals have been developed in response to the expectations in this Implementation Plan. It aims to address the changing roles that educators are experiencing to better meet the needs of the information society in which we live. In order to guide learners to translate information into knowledge, educators need to be equipped with many skills that surround the uses and applications of ICTs. To effectively use ICTs in education, educators need to consider all areas of their professional roles. ICT literacy skills are needed to operate a variety of applications and equipment. Also, educators need to be able to apply these skills in designing lessons, assessments and evaluations; engaging in continuous professional development; and using ICTs to support inclusion of all learners in teaching and learning. In all these areas, educators also need to meet the social, legal and ethical requirements of using ICTs in education.

ICTs can be used to enhance teaching and learning and will allow an educator to move from a more traditional educational setting to a role of facilitation and guidance. As educators acquire new skills, classroom practices will also experience change. These manuals will help educators prepare for the challenges ahead. Using ICTs to enhance teaching and learning fits well with Namibia's learner-centred philosophy and its basis in constructivism. With the learner participating in the learning process, ICTs can help learners take control of constructing their understanding, acquiring new skills and allow them to respond to their own learning styles. ICTs allow better communication, collaboration, information access and creative expression of ideas.

Integrating ICTs in teaching and learning allows the educator to shift the pedagogical approach towards a balance between teacher-led and learner-centred collaborative problem solving and critical thinking.

# Introduction

## **Welcome to the training manual *Assess and evaluate learning using ICT applications*.**

The purpose of this manual is to give you the knowledge and skills to assess and evaluate learning through the use of various ICT tools.

It also informs you about improved teaching and learning practices through the analysis of performance results.

This manual takes you through how ICT can assist you when assessing your learners' performance. You will learn how ICTs can be assessment tools and how they can be used for online and technology-based assessment. In addition, you will learn how ICT can also make your professional life easier through simplifying recording of results and increasing evaluation reliability and validity of those records. You will also come to understand how ICT can facilitate better communication between you and various stakeholders in the education sector.

Lastly, this manual will give you several tools to analyse your teaching and learning strategies, their relationship with assessment and how ICT can help you modify teaching strategies for better learner performance.

## **What is in this manual?**

This training manual is divided into 5 sections:

- Section 1     Assess and evaluate learner attainment of relevant curriculum outcomes
- Section 2     Record learners performance results
- Section 3     Analyse and interpret learners' recorded performance results
- Section 4     Communicate learners' performance results to stakeholders
- Section 5     Modify teaching strategies based on learners' performance.

Each section starts with an introduction and explains the skills you will learn. At the end of the section you will have an opportunity to check your progress by answering some questions.

## Skills you will learn:

After you have completed this manual, you will be able to:

- apply procedures to assess and evaluate learner' attainment of relevant curriculum outcomes
- demonstrate the recording of learners performance results
- outline procedures to analyse and interpret learners' recorded performance results
- outline communication procedures to communicate learners' performance results to stakeholders
- outline procedures to modify teaching strategies based on learners' performance.

## How to use this manual

Work through the manual from the beginning. You know that it is divided into sections. It is a good idea to complete a whole section in one go if you can. At the beginning of the section you will find a list of *skills you will learn*. Read these carefully and return to them when you have completed your work. It is important that you do not move on until you have learned all the required skills.

Read each section carefully. You may come across new words which you do not know. These should be explained in the *glossary* at the end of the manual. You will learn many new technical terms as you progress through this manual and it is important that you learn them all well.

At the end of each section, you will find an opportunity to '*Check your progress*'. These questions have been carefully designed to help you to see how well you have understood and learned the topic. The answers are given at the end of the manual. You can choose to look at the answers before trying to complete the question yourself, if you want to. But the only person you will be cheating is yourself. No-one will take in your manual and mark it for you. You yourself must judge how well you are doing.

You may also find some practical activities. You will need to collect the required equipment and carry out these activities. Your instructor or supervisor will assist you.

At the end of each section, you will find a *Summary*. Again, you should read it carefully to review what you have learned. It is a good idea to check the *Skills you will learn* from the start of the section again and make sure you have achieved them all. If not, you may need to revise the section again.

## What these symbols mean

Symbols are placed in the left hand margin to draw attention to the type of information at that point. The symbols used in this manual are:



Read



*Demonstrate/discuss* - sometimes your instructor will demonstrate / discuss the use of tools and equipment.



*Check your progress* - these are easy exercises to test your understanding of the theory you have learnt. Typical correct answers are provided at the back of the manual.



*Practical activity* - these activities help you to practise some of the theory you have learnt.



*Learning activity* - these activities help you to relate the knowledge and skills in the sections to your own work station.



*Remember/Take Note*



*Revise*



*Safety/Caution/Beware*

# SECTION

# 1

## **Assess and evaluate learner attainment of curriculum outcomes**

# Introduction

In this section of the training manual you will learn how to apply the procedures to assess and evaluate a learner's attainment of curriculum outcomes.

You will be prompted with questions that, as an educator, you need to ask yourself. You will need to reflect on a number of issues concerning when and how to use ICTs to assess and evaluate learner performance.

## Skills you will learn

By the end of this section, you will be able to:

- describe the reasons for using ICTs for assessing learner attainment of curriculum outcomes
- list different ICT tools available for assessing learner attainment of curriculum outcomes
- apply procedures to assess learner attainment of subject matter using selected ICT application
- describe and apply the procedure for evaluating ICT assessment activity.

# Reasons for using ICTs to assess learner attainment of curriculum outcomes

For educators, assessing and evaluating learner attainment is necessary to ensure learners are achieving the required basic competencies, and also to constantly improve your teaching strategies. ICTs can make this process much easier, more efficient and more accurate.



Recall from your teacher training the link between assessments, evaluation and modifying teaching strategies. How do you anticipate ICTs facilitating these processes?

- **ICTs & Assessment:** ICTs can streamline how you gather, record and track information about how learners are progressing towards the learning objectives. It can help you determine what they know and can demonstrate the results of their learning.
- **ICTs & Evaluation:** Using this information, ICTs can then assist you in the process of making a judgment about the quality of a learner's performance.
- **ICTs & Teaching Strategy:** ICTs can help direct your teaching strategies based on the results of your assessment of learners and the evaluation of their performance.

As you know, the nature of the learning task will determine which types of assessment are most suitable to use. More and more teachers are trying to diversify assessment tasks to broaden the range of skills assessed and provide learners with more timely and informative feedback on their progress. In addition, you will need to accommodate learner expectations by being flexible in how you deliver assessments. You will also need to become more efficient in order to ease your workload.



The move towards online and computer-based assessment is a natural outcome of the increasing use of ICTs to enhance learning. Here are some benefits of using ICTs for learner assessment:

### ***Using ICTs for assessment***

- ***Provides for increased standardisation:*** The nature of ICTs leaves little room for error in marking or in calculating recorded marks.

- *Relieves teacher workloads:* By letting the computer do the *assessing*, your time is available for other duties, such as preparation, marking, administration, etc. ICTs also makes administrative tasks efficient by making data recording and evaluation easier.
- *Offers timely, if not immediate, feedback:* The computer can automatically calculate scores when learners are finished. If you are doing the assessment from ICT-generated outcomes, it presents the information clearly and immediately for your evaluation.
- *Personalisation:* ICTs can adjust to the level of a learner as they respond to assessment tools (e.g. if an answer was right, a harder question is given). Teachers can view reports and target areas for improvement at personal levels.
- *Increases learner motivation:* Having results and feedback immediately after completion, can encourage and excite learners. In addition, any use of ICTs in the classroom will stimulate the learners and grab their attention.
- *Allows greater flexibility:* You can easily change the order of questions and add assessment tasks. Learners can take the assessment at any time and possibly from any place, if they have access to the Internet.
- *Addresses special needs:* ICTs can provide tools to allow learners with special needs the same opportunities as their classmates through flexibility (e.g. taking assessment after school), and addressing their needs (e.g. tape-recorded tests, using larger font sizes for the visually impaired etc).
- *Presents information in variety of ways:* ICTs can produce reports that are relevant to particular audiences, such as the learners, school principals, parents or regional officers.



These advantages are especially true for online assessments. However, there are just as many advantages for ICT-generated assessments in a class-room situation.



List all the advantages that you can think of for ICT-generated assessments

# Tools available for assessing learner attainment

Using ICTs tools for assessment includes a combination of hardware and software.

## Hardware

The hardware is the vehicle through which the assessment will be transmitted to the learner.

- *Computer work-stations:* A computer provides diverse possibilities for assessment. Either as individuals or in groups, learners can use the computer to complete and submit assessment tasks.
- *Overhead or data projector:* Both of these projection devices allow you to present an assessment task to an entire class at once via an overhead transparency or a slideshow presentation.
- *Audio/visual equipment:* This equipment, (e.g. tape players/recorders and TVs/VCRs/DVD players) are also ways to present assessments. For example:
  - you could make your own audio recording and ask questions to assess listening comprehension
  - you could also have learners make their own recordings to assess speaking and reading skills
  - you could have learners make their own presentation for video recording and have them peer-assess each others' presentation.



## Software

There is an immense amount of software available to assess learner attainment, especially for computers.

- *Online test banks:* Online tools may or may not require Internet connection, depending on how you set up the network. Online tools to assess learner progress toward objectives can be:
  - electronic submission of written assignments
  - parallel print and on-line assessment options, where learners are given the choice of whether and how they use on-line tools in assessment tasks

- publication of documents on the web
  - labelling of on-line diagrams
  - manipulation of on-line graphs
  - completion of on-line quizzes
  - completion of short-answer and multiple choice questions
  - on-line exams with monitored and controlled start and stop times
  - any formative or summative task carried out in a web-based environment.
- *Simulations:* Generate and present simulations to test concepts taught in class. It is not unusual for these to be real-life situations.
  - *Scenarios:* Present scenarios and track decision-making actions. As the learner makes decisions in an interactive environment, the software will be directed in a certain direction.



# Assessing learner attainment using ICTs



What are the first steps to selecting or designing assessments? Should you perform these steps even if you are using ICTs for assessing learner attainment?

Whether or not you are using ICTs to assess learner achievement, there are essential steps that you should perform in any case. You should already be familiar with these steps, but we will review here to put in the context of ICTs. There are four main stages to go through, namely:

## 1. Clearly state the purpose for the assessment, ie. extract the assessment criteria from the curriculum goals

*There are two basic purposes for assessment:*

- to determine whether and to what extent learners have acquired/learned specific knowledge or skills (basic competencies/content goals). The assessment should focus on a demonstration of outcomes or products of learning
  - to diagnose learner strengths and weaknesses and plan appropriate instruction (process goals). Because you are interested in understanding where the learner is going wrong, you need to assess the process, as well as the product.
- a) Make sure you clearly define what you want to assess (the achievement target).

*Answer the following questions to determine instructional and achievement outcomes.*

- What important cognitive perceptive skills do I want my learners to develop?
- What social and affective emotive skills do I want my learners to develop?
- What psychomotor or social skills do I want the learners to develop?
- What metacognitive skills do I want my learners to develop?
- What types of problems do I want my learners to be able to solve?
- What concepts and principles do I want my learners to be able to apply?



Now, prioritise these outcomes. Remember that valid assessments relate directly to the objectives and competencies specified in the syllabi.

- b) Match the assessment method to the achievement purpose and target defined in Step 2.

Certain methods of assessment lend themselves to gathering the data to properly address the purpose of the assessment and defined targets. Here are some examples:

- multiple choice and short answer: measure learner knowledge of specific knowledge and skills
- interviews, documented observations, behavioural checklists, and learner think-alouds: useful assessment strategies for assessing the process
- learner learning logs and/or self- evaluations: used to monitor learners and involve them in their own assessment.

You can also use tools like an assessment matrix spreadsheet or a table in a word processor to ensure you are balancing your assessment strategies.

An assessment matrix is used to plan and track the content associated with the benchmarks addressed in each unit and the assessments used. Not only does this help you visualise your plan, but creating the matrix electronically makes it easy to change and adapt to other instructional units. For a unit about weather patterns, for example, an assessment matrix might look like Table 1 on the next page.

Benchmark Topic	Precipitation	Ocean	Temperature	Reading Currents	Estimation	Classifying Tables	Expressing Ideas Clearly
Assessment							
Short constructed response items (homework)	X	X			X		
Forced-choice items (quiz)	X			X		X	X
Performance Task (1 <sup>st</sup> )	X						
Short constructed response (quiz)	X	X	X				
Essay (homework)	X	X	X				
Performance task (2 <sup>nd</sup> )	X		X		X	X	X
Unit test – forced choice, constructed response, essay, performance task	X	X					
Learner self-assessment	X	X		X			
Observation	X	X		X	X	X	X

Table 1: Assessment Matrix for Unit on Weather Patterns

**2. Decide whether all your learners have the necessary ICT skills and weigh up their needs in relation to the assessment**

**3. Design your assessment**

Specify illustrative tasks that require learners to demonstrate certain skills and accomplishments. Avoid tasks that may be merely interesting activities for learners, but may not give you evidence of a learner's mastery of the learning outcomes.

You will need to appraise the benefits of using ICT-based assessment strategies versus traditional methods. While there are time efficiency benefits from using ICT assessment strategies, there is also evidence that such methods can become far more complex and time-consuming than preparing conventional paper and pen activities. This is partly because ICTs offer the potential to present learners with more complex scenarios than print through the use of interactive multimedia. Often you must weigh the benefits that you are getting from using ICTs for assessment in other areas against the extra time it may take to design the task.



The table below is from NIED’s report on *Towards Improving Continuous Assessment In Schools: A Policy And Information Guide* (1999). Look at all these different assessment options and think of how ICT can be applied to each assessment task.

Selected Resource	Performance-Based Assessments			
<ul style="list-style-type: none"> <li>• Multiple-choice</li> <li>• True-false</li> <li>• Matching</li> </ul>	<b>Constructed Responses</b> <ul style="list-style-type: none"> <li>• Fill in the blank (words, phrases)</li> <li>• Short answer (sentences, paragraphs)</li> <li>• Label a diagram</li> <li>• “Show your work”</li> <li>• Visual representation (web, concept map, flow chart, graph/table matrix, illustration)</li> </ul>	<b>Products</b> <ul style="list-style-type: none"> <li>• Essay</li> <li>• Research paper</li> <li>• Log journal</li> <li>• Lab report</li> <li>• Story/play</li> <li>• Poem</li> <li>• Portfolio</li> <li>• Art exhibit</li> <li>• Science project</li> <li>• Model</li> <li>• Video/ audiotape</li> <li>• Spreadsheet</li> </ul>	<b>Performances</b> <ul style="list-style-type: none"> <li>• Oral presentation</li> <li>• Dance/ movement</li> <li>• Science lab demonstration</li> <li>• Athletic competition</li> <li>• Dramatic reading</li> <li>• Enactment</li> <li>• Debate</li> <li>• Musical reading</li> </ul>	<b>Process-Focused</b> <ul style="list-style-type: none"> <li>• Oral questioning</li> <li>• Observation</li> <li>• Interview</li> <li>• Conference</li> <li>• Process description</li> <li>• “think aloud”</li> <li>• Learning log</li> </ul>

Table 2: Example of Continuous Assessment Approaches

#### **4. Apply your assessment**

Once you have designed your assessment using ICTs, you need to make sure that you have covered all eventualities. Make sure you consider the following issues:

Whenever you are deciding to use ICTs in assessing learner attainment, there are important considerations that you must keep in mind:

#### **Learners' ICT Skills**

*Ask Yourself:*

- do all the learners have the necessary ICT skills to complete the assessment?
- have appropriate educational resources been made available to address the issue of ICT skills?

#### **Access to ICT facilities**

*Ask Yourself:*

- is learner access to assessment tasks and related material equitably assured?
- does the design of the task ensure learners without access to computers at home are not disadvantaged?
- has the potential issue of access to school computers been addressed? Will it be time consuming or expensive for learners to travel to and/or get access to ICTs?.
- has equity been ensured in relation to the cost of learners printing large amounts of material?

#### **Quality of teaching and learning**

*Ask Yourself:*

- does the on-line assessment assess anything that cannot be assessed as well (or more effectively) in a traditional format?
- have greater opportunities been provided for learners to practise their knowledge and skills than are available in traditional formats?
- has the highly valued and expected flexibility of time-of-day access, pace of work and time spent on task been incorporated?
- is learning related to subject content knowledge, understanding and skills being assessed rather than, or in addition to, ICT skills?
- if relevant, have opportunities for learners been incorporated to demonstrate creativity in their submissions?

- has the opportunity to plagiarise been eliminated or at least minimised?
- has the tendency, particularly where automated responses are incorporated, to focus on lower level cognitive skills been avoided or, at least, supplemented with assessment of higher order learning?
- are mechanisms included to enable rapid feedback both to and from the learners?
- are examples of model assignments/exam answers on the web for learner access, consideration and discussion?

### **Technical and administrative issues**

*Ask Yourself:*

- have you planned for scheduled maintenance periods and the interference this causes to your assessments?
- has the system been kept as local as possible so that reliance on large (less reliable) networks is minimal?
- will the difficulties that some learners have with passwords, access, usage and related issues be adequately managed by the system?
- where a range of computers and software packages are in use among learners and staff, has the potential issue of compatibility and readability of files containing assignments, that are submitted electronically, been planned for?
- have simple but time-consuming matters, such as learners forgetting to put their names on electronically submitted assignments, been planned for?

### **For online tests and examinations in particular**

*Ask Yourself:*

- have practice on-line exams in the same format as the real exam been provided earlier so learners can prepare adequately?
- can all answers be changed by the learner up until the point where the test is submitted?
- have question banks and random selection of items been used, where appropriate?
- have dynamic on-line test questions that are in themselves learning experiences, been provided, incorporating rich information and activities through the use of interactive images, sound and text?

- has adequate technical support during the development and use of on-line exams been ensured? Have emergency backup procedures been put in place?
- has the server containing the exam questions been isolated from the internet in order to maintain security?
- is the server reliable?

Table 3 summarises some examples of how subject objectives, methods or online assessment and learner characteristics intersect. You may need to consider learner access to and competence with technology for each objective stated in the table, as it is likely to be relevant to each objective. Where learners from educational backgrounds that may not have included learning experiences involving email, listservs and web forums are involved, it is necessary to equip these learners with the skills necessary to undertake assessment tasks that require the use of these formats.



If the goal or purpose is to:

develop/assess...  (objective)	one might use...  (method)	but in addition to learner access to and competence with technology, one may need to consider, for example...  (learner characteristics)
A body of knowledge	An on-line exam	<ul style="list-style-type: none"> <li>The likelihood of cheating, if not supervised.</li> </ul>
Learner autonomy	An on-line quiz	<ul style="list-style-type: none"> <li>Some learners' ICT- formative feedback related anxiety will dissuade them from using this mode</li> </ul>
Group work skills	On-line study groups	<ul style="list-style-type: none"> <li>Learner comprehension of how to contribute effectively</li> <li>Learner understanding of group product/process assessment · Varying learner commitment to collaborative learning</li> </ul>
Understanding of basic concepts	Web-based, self-paced, interactive modules with automated responses and no recorded marks or grades for learners	<ul style="list-style-type: none"> <li>Learner interest, motivation and engagement with modules/ material given absence of marks/grades</li> <li>Effects on learners of heavy traffic at peak times</li> </ul>
Learner problem-solving skills	On-line 'role-play' where learners adopt allocated roles and then solve a problem in role, with a minimum participation requirement only	<ul style="list-style-type: none"> <li>Learner comprehension of how to contribute effectively · Learner interest, motivation and engagement with role play/ material given absence of marks/grades</li> </ul>
Ability to think critically and articulate critical analyses	On-line scenarios and information with accompanying prompts and a discussion board, with a minimum participation requirement	<ul style="list-style-type: none"> <li>Learner comprehension of how to contribute effectively · Varying learner commitment to collaborative learning</li> <li>Possible variation in starting and completion times for distance and other learners</li> </ul>
Learner ability to reflect	Rhetorical, ethical or other questions and a web forum which learners must use to share their reflections, with a minimum participation	<ul style="list-style-type: none"> <li>Learner comprehension of how to contribute effectively ·</li> <li>Varying learner commitment to collaborative learning</li> <li>Possible variation in starting and requirement completion times for distance and other learners</li> </ul>

AusInfo. • © Copyright 2002, AUTC. Table adapted from Leask (1999) and the University of South Australia, 2001

*Table 3: Objectives, methods and learner characteristics of online learning*

### **Peer and self-assessment using ICT**

Learners can also use ICTs to conduct peer and self-assessment. Some groups of schools have developed evaluation partners who operate via email. Learners have email partners in other schools who work together to evaluate each other's work.

Self-assessment can also be supported through the use of ICTs. For instance, this is an example of a learner commenting on her learning depicted in a digital photograph.

# Evaluating learner ICT assessment activities

Evaluation is the process through which teachers judge the quality of work — their own or their learners'. After learners complete their ICT-based assessment activity, it needs to be evaluated to ensure validity and reliability.

- Did learners understand the instructions?
- Was the given time enough to complete the assessment?
- Is there an indication that any learner cheated?
- Did learners have the necessary ICT skills to complete the assessment to the best of their cognitive ability?
- Did the technology work properly?
- Did all learners have equal access to facilities for assessment?
- Were there any problems for learners to access the facilities?
- Were arrangements for learners with special needs adequate?
- Did groups work well together (if applicable)? Did everybody contribute?
- Did learners appear motivated, especially in the absence of marks/grades?



A **valid assessment** means that your assessment is testing the prescribed objectives and basic competencies that it is suppose to test. Marks from the assessment are valid if the content of the assessment matches what the learners actually learned.

A **reliable assessment** means that your assessment results must be consistent. The marks from an assessment are consistent for example, if:

- two teachers mark the same group of learner answer scripts and award the same marks,
- a learner gets, for the same work, the same marks today as five days from now
- the learner's response to another set of questions on the same topic are very similar.



# CHECK YOUR PROGRESS 1

## ASSESS AND EVALUATE LEARNER ATTAINMENT OF RELEVANT CURRICULUM OUTCOMES

1. The reasons for using ICTs to assess learner attainment of curriculum outcomes are:
  - a. Provides for increased \_\_\_\_\_.
  - b. \_\_\_\_\_ teacher workloads.
  - e. Offers timely, if not immediate, \_\_\_\_\_.
  - d. \_\_\_\_\_ learner motivation.
  - e. Allows \_\_\_\_\_ flexibility.
  - f. Addresses special \_\_\_\_\_.
  - g. Presents \_\_\_\_\_ in a variety of ways.
  - h. There is one reason missing. Can you think of what it is? (Hint: one word). \_\_\_\_\_

### 2. Word search puzzle

S	R	E	T	U	P	M	O	C	I	V	Y	P	C	H
J	I	M	O	Y	W	E	F	N	P	C	O	R	C	A
I	R	M	H	E	L	C	T	G	N	F	S	O	W	R
P	T	T	U	L	D	E	N	E	C	L	Q	J	H	D
S	U	H	L	L	R	I	R	Y	I	S	D	E	R	W
I	O	K	J	N	A	A	V	D	H	K	U	C	E	A
G	B	F	E	O	P	T	E	E	N	B	I	T	D	R
V	W	T	T	S	D	S	I	A	U	G	Z	O	R	E
J	R	R	N	W	H	A	B	O	R	U	I	R	O	J
W	J	A	Z	O	A	T	E	J	N	D	B	Y	C	S
Z	R	J	W	U	S	R	G	H	E	K	C	G	E	R
T	L	D	Q	E	J	N	E	B	R	U	J	E	R	D
S	L	U	T	E	N	I	L	N	O	E	J	E	U	V
S	C	E	N	A	R	I	O	I	G	T	V	O	H	B
W	O	R	K	S	T	A	T	I	O	N	M	O	Z	K



## CHECK YOUR PROGRESS 1

Computer, Hardware, Internet, Online, Projector , Scenario, Simulation, Slideshow, Software, Testbank, Transparency, Video, Workstation

3. Under each area, list things that you need to think about when using online assessment tasks.

- Learners' ICT skills

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- Access to ICT facilities

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- Quality of teaching and learning

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- For online examinations in particular

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- Technical and administrative issues

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## CHECK YOUR PROGRESS 1

- For online tests and exams in particular

---

---

---

4. What are the four stages that you need to go through when assessing learner attainment using ICTs? Tick the appropriate answers:

- Select the topic from the syllabus
- Extract the assessment criteria from curriculum goals
- Teach the learners the required ICT skills
- Decide whether the assessment uses ICT skills the learners have already gained
- Design teaching materials around assessment goals
- Design your assessment tool
- Apply appropriate teaching strategies
- Apply your assessment tool

5. Why do you need to evaluate your ICT assessment activity?

---

6. Give four questions that you should ask yourself when evaluating your ICT assessment activity

---

---

---

---



## PRACTICAL ACTIVITY 1

### **ASSESS AND EVALUATE LEARNER ATTAINMENT OF RELEVANT CURRICULUM OUTCOMES**

1. List 5 basic competencies related to your subject. Identify which ICT-based assessment tools could be used to assess these types of basic competencies.
2. Create an 'assessment matrix' for a unit that you teach. Include ICT-based assessments.

## Summary

Well done! You have completed Section 1 on *Assess and evaluate learner attainment of curriculum outcomes*.

You should now be confident that you can describe reasons for using ICTs to assess learner attainment of subject material and list the ICT tools for doing this. In addition, you should feel fairly comfortable implementing these tools and evaluating learner ICT assessment activities.

If you feel confident that you have achieved the above, you can move on to the next session where you will learn how to record the performance results of learners using ICTs.

If you are unsure of any part, go back and revise or ask your instructor or supervisor for assistance.



# Section

# 2

## Recording of learners performance results

# Introduction

In this section of the manual you will learn the reasons to record learner results and what tools can be the most helpful.

In addition, some suggestions will be given as to how you can most efficiently and thoughtfully record and store your learner performance results.

## Skills you will learn

By the end of this section, you will be able to:

- describe the reasons for recording learner results
- list different tools available to record learner results
- describe and apply procedures for recording learner performance results with selected ICT applications
- demonstrate storage of recorded results.

# Reasons for using ICTs to record learner results

Hopefully you already have a good idea why you might want to use ICT to record learner performance results, especially after reviewing Section 1. A key feature of ICT is the way that assessment evidence can be collected during the learning process, stored for analysis and how it can show progress over time. If you want to collect information to properly evaluate learner performance, ICTs can provide valid, reliable, analytical and creative ways to document achievement.



There are typically two reasons why you want to record learner results:

1. to monitor learner performance
2. to evaluate learner performance

For whatever reason you are recording learner results, ICTs can help you do it more efficiently. ICTs give you the:

- capacity to track many tests/assignments, over a period of time
- flexibility to sort data, such as by name, results, assignment
- ease of manipulating data
- ability to create visual representations of data
- capability to store information for later use
- capability to print and submit records for information to stakeholders.

Monitoring and evaluating is all about tracking results over a period of time (long or short) and then making a judgment about the quality of a learner's performance. As you know, ICTs allow for electronic storage of information, allowing you to keep exact records. In addition, when using ICTs you have the ability to copy and paste information, format and create graphical representations of the data. This makes analysis and interpretation of assessments so much easier. It also enables you to visualise your assessment data.

## Tools available for recording results

The tools available for recording learner performance results are similar to those for assessing learner attainment. This is because your learner results are the information used for assessment and evaluation.

### Hardware

- *Computer workstations:* A computer is the most frequently used equipment for recording learner performance results. As you know, it is the software that makes the computer useful; applications like a word processor and spreadsheet provide ways to record and retrieve information. In addition, as using computers becomes more and more common in education, and more wireless networks are set up, the increased access to this technology will give you even more flexibility.



- *PDA:* 'PDA' is an acronym for 'personal digital assistants' (see figure 1 for an example), these devices are handheld computers that perform similar functionalities as a computer. They can bring important benefits to schools, by assisting administration, supporting classroom management and enabling personal and group learning. More and more mobile phones also double as PDAs and hence, are becoming commonplace.



Figure 1: PDA – Personal Digital Assistant

- *Audio/Visual equipment:* audio-visual equipment (e.g. video/digital cameras, tape recorders, cell phones with voice recorder) is particularly useful for recording learner performance in Social Sciences and English, but it can also benefit all subject areas. You can record learners' speaking skills, photograph learners' activities or videotape learners' presentation. Overall, audio-visual tools create more authentic evaluations, which include images of items and processes from the class and individual learners.



Think ahead to the next unit you have planned to teach your class. How might you use audio or visual equipment to record learner performance in one of these lessons?

## Software

- *Word processor:* As you already know, a word processor can store any text. This could include observations that you take of learners, essays, written exams, learner logs, etc.
- *Spreadsheet:* A spreadsheet is a powerful tool for recording and interpreting numerical data. You may already know how to find averages and creates charts and graphs. With a little time invested, you can learn numerous analytical functions that spreadsheet applications can perform. They will make your evaluations more comprehensive and even statistically significant.
- *Analytical tools:* There are several software programs specifically designed to assist schools in assessing and evaluating learner performance results. If you want to do statistical analysis of test scores, e.g. finding mean, standard deviation, there are packages that can do this for you by just entering the data. Some will perform question analysis procedures to help analyse test questions you intend to use more than once. By changing and improving questions, you can make your tests more accurate and reliable. However, you must remember that the software merely handles the arithmetic – you will need knowledge of how to analyse and interpret the statistics presented.



# Recording learner performance results

When you are ready to record learner performance results, you will need to select the appropriate ICT tool and application according to your needs. The nature of your assessment design should indicate what is best.

## Quantitative Data

If your assessment results are quantitative such as it is essentially numerical, for example test scores, percentages etc., then a spreadsheet (or other available analytical tool) is probably the ideal place for recording. This will, of course, require you to enter data onto the computer. You will need to make sure that you format your worksheet in a logical and useful manner.

It is often best to enter surnames and first names into separate columns, as it is difficult to separate data in the same field (see figure 2 below for example column headings). It is much easier to sort and filter information when you have put each type of data into a separate column. Remember, you can always combine later if you want.

	A	B	C	D	E	F	G	H	I	J
1	Surname	First name	Gender	Test 1	Test 2	Test 3	Test 4	Test 5	Average	

Figure 2: Example column headings for spreadsheets

In addition, within each workbook make sure you assign one worksheet to each of your classes. For example, in Biology, you might teach the classes 11A and 11B, hence you will have a worksheet called “11A” and one called “11B” in your file called “Biology 2006” ( see figure 3 below for an example)

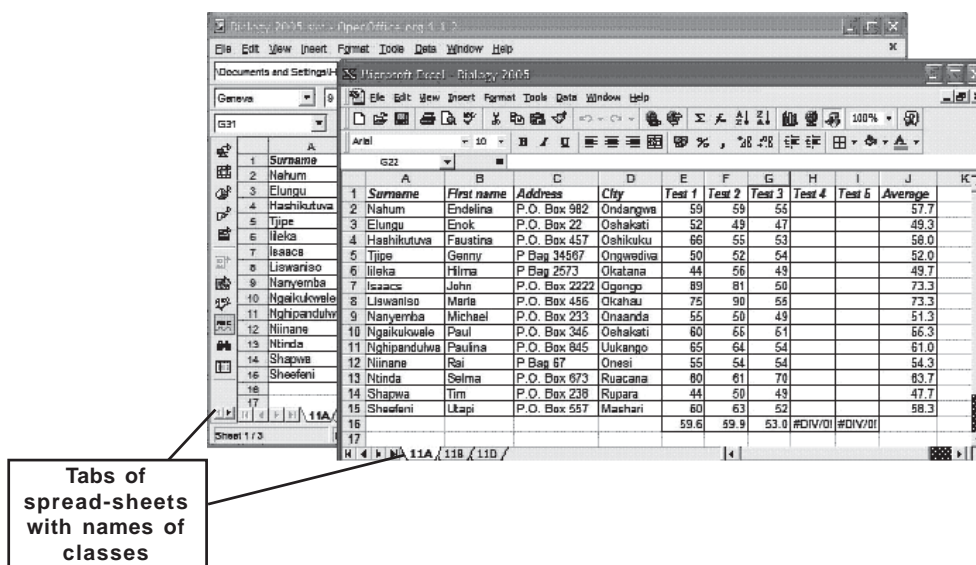


Figure 3: Have a worksheet for each class that you teach

Remember that you switch from one sheet to another by using the tabs at the bottom of the spreadsheet file. You can give the sheet a new name by using the Format menu or by right-clicking on the worksheet tab (see figure 4 below).

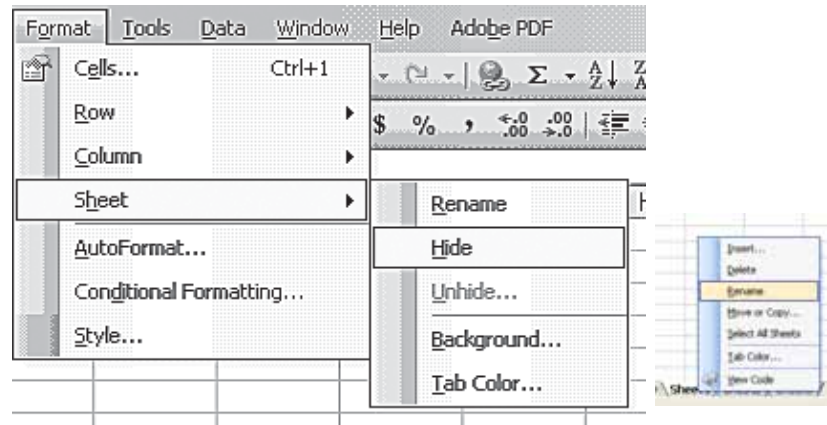


Figure 4: Name each sheet by using the format menus

## Qualitative Data

If your data is not numerical, then it is qualitative. This can include text, pictures, videos, sound recordings, etc. In this case, a spreadsheet may not be the best way to document results. For instance, if you get your learners to do group work, you may assess by observation (e.g. collaboration, leadership) and hence, record this in a word processing document. You may also choose to videotape or take pictures of learner presentations or work that is itself more visual in nature, such as a drama skit or a poster.



Go to this link and find out about digital portfolios for learners [http://www.essentialschools.org/cs/resources/view/ces\\_res/225](http://www.essentialschools.org/cs/resources/view/ces_res/225). Can you think of ways to apply this sort of assessment recording mechanism at your school?

# Storing recorded performance results

**Save, Save, Save!!!** All the work that you put into recording learner performance results will be worth nothing if you do not save and save continuously. At some point you will lose the hard work, unless you save and backup your data.

You are probably familiar with multiple storage devices by this point, but let's just review your options. These are options for electronic files.

- *Servers on a network:* If you are recording results at school, you will most likely save them on the hard drive of the school server. This is an internal hard drive. Saving on a server allows you access to those files from anywhere you can login to that server. This means you will have access from different computers on that network.
- *Hard drives:* Obviously if you are working on a computer workstation at home or in your office, it may or may not be networked. You can then store your results on the hard drive (usually internal, and called 'C' drive). It is also possible to get external hard drives. These are portable and often used for backing up systems, but you can store any data on them if you chose to.

## External storage devices

if you save on the server, you may want to also save on an external storage device if you want a portable version of your file.



Figure 5: Memory stick

- *Memory stick (also known as a USB stick or flash drive):* This is generally a reliable and portable external storage device which you can just 'plug-and-play'.




You can lose all the data from your USB stick if you do not insert and remove it correctly. Make sure you follow the manufacturers instructions.

- *CD-ROM:* There are two types of CD-ROMs you can use to save information:
  1. One type is writable CD, usually denoted by an 'R' on the packaging. Although you may save information to the disc, you will not be able to change the information once saved nor add any additional data – it only allows data recording *once*. Therefore it is best to use this to save at the end of the year for archiving your results.
  2. The other, known as a rewritable CD (CD-RW), allows you to erase, save and add data as you wish. It is better to use these to save your marks while still accumulating assessment marks. Be very careful when using a CD that you know the capabilities of a CD before using it.



Figure 6: CD Rom

- *Floppy Diskette:* The storage capacity of a floppy is very low (1.44MB standard), but is, very cheap. Floppy disks can also become corrupt and will then lose all the data stored on them. If using a floppy to store or transfer data, it is advisable to backup somewhere else.
- *Internet:* The Internet is another place where you could store learner performance results.



How could you use the Internet to store learner's work?

You could have your learners create web pages as part of a portfolio of work or cross curricular project. Making wiki entires or setting up Blogs are also possible, as they do not require any knowledge of html or web programming skills or languages.

As with everything you save, you should name it or label it properly and store in a safe place for future use.



Remember: Always back-up your files. There is nothing worse than losing all your hard work when a device gets corrupt or a server crashes.

You must also have a logical filing system for your electronic files, just like any other filing process. Here is a suggestion:

For each year and each subject that you teach, open a new workbook.

As a teacher of Biology and Mathematics, you might have files that are called “Biology 2005”, “Biology 2006”, “Maths 2005”, “Maths 2006”, etc.

Having a system so that files are easily retrievable is essential to making the most of the efficiencies that ICTs offer.

You therefore need to:

1. save
2. name your files
3. store your data





## CHECK YOUR PROGRESS 2

2. Give the two main reasons for using ICTs to record learner performance:
  - a) \_\_\_\_\_
  - b) \_\_\_\_\_
  
3.
  - a) When would you use a spreadsheet to record learner performance results?
  - b) When would you use a camera?
  - c) When would you use a word processor?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
4. Put a circle around all the tools that are available for recording learner performance results

Video recorder	CD player
DVD/CD recorder/writer	Radio
Computer workstation	Cell phone
Word-processing software	PDA's
Music down-loading software	Video games
Spreadsheet software	Audio tape recorder
  
5. Answer 'True' or 'False' for the following statements: Tick the correct answer.
  - a) You can use a CD-R to continually save information  
" True " False
  - b) A floppy diskette is the most reliable storage device available  
" True " False
  - c) A memory stick is an example of an external storage device  
" True " False
  - d) An electronic filing system must be established and must be logical  
" True " False



## CHECK YOUR PROGRESS 2

6. Find all the devices that you can use to store learner performance results in the word search below:

P	I	B	E	Q	T	B	U	I	G	M	B	H	H	S	E	D	Y	Y	Q
W	U	N	U	T	K	A	F	E	E	S	Y	Z	G	E	L	D	Q	D	M
X	U	M	T	K	T	S	B	M	Z	H	G	A	L	R	Y	F	M	B	G
B	A	S	V	E	Z	E	O	Q	U	W	K	A	B	V	I	M	M	W	K
X	T	T	X	A	R	R	K	P	Y	M	D	W	K	E	N	D	U	A	Q
G	M	C	G	E	Y	N	R	S	Z	O	J	S	D	R	R	S	X	D	Y
F	A	L	O	S	D	Y	A	S	I	R	J	X	B	O	F	A	M	F	N
C	H	U	T	Y	T	U	D	L	Q	D	O	C	J	N	T	A	L	J	X
M	P	I	J	R	F	R	P	P	H	Q	D	J	G	N	A	Z	B	T	F
L	C	R	G	W	N	R	V	O	E	A	S	W	N	E	P	X	B	K	O
K	M	L	K	I	C	A	O	P	F	Z	R	H	X	T	Y	C	I	Y	S
J	R	K	Z	Z	B	B	A	G	J	X	G	D	G	W	P	W	R	G	W
J	P	U	U	J	M	P	A	U	G	H	A	W	D	O	U	Q	J	Z	M
U	S	S	F	F	T	S	E	S	Q	W	I	U	J	R	L	P	A	K	C
M	I	C	M	D	A	F	V	I	A	U	O	C	E	K	I	E	F	B	U
T	E	N	R	E	T	N	I	F	T	R	M	V	Y	Y	G	V	V	C	I
X	U	Y	V	K	K	Y	L	Y	A	S	W	I	Q	R	C	M	E	X	A
R	F	T	M	M	N	V	K	M	J	Y	R	B	O	Y	Z	J	G	C	Z
L	I	B	A	E	C	G	E	R	F	K	N	N	D	K	J	S	L	Y	Q
E	X	T	E	R	N	A	L	H	A	R	D	D	R	I	V	E	K	K	M

Diskette, External hard drive, Internal hard drive, Internet, memory stick, server on network

7. What are the 3 steps you need to follow to store recorded learner performance results:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_



## PRACTICAL ACTIVITY 2

### RECORDING OF LEARNERS PERFORMANCE RESULTS

1. Take numerical learner performance results (assignment marks, test marks, etc) from one of your subject areas and record them into a spreadsheet. Create tabs for your different classes in the same subject. Make sure to name them appropriately and save them in a logical place.
2. If possible, use a digital camera or videotape recorder or cell phone with voice recorder capabilities to record learner performance. You should also record your observations about learner group work. Use your judgement of what this type of assessment is appropriate for. If you do not have access to this equipment, observe learners and type your records in a word processor.

## Summary

Well done! You have completed Section 2 on *Recording learners performance results*.

You should now be confident that you know the reasons for recording learner performance results and list the various tools available to do so. You should now also be able to apply the procedures to record the results with an ICT application and store them for future retrieval.

If you feel confident that you have achieved all the above, you can move on to the next session where you will learn how to analyse and interpret the recorded performance results of learners.

If you are unsure of any part, go back and revise or ask your instructor or supervisor for assistance.



# Section

# 3

## Analyse and interpret learners recorded performance results

# Introduction

In this section of the training manual you will learn how to analyse and interpret learners recorded performance results.

You will learn how ICT can help you analyse and evaluate performance results, and assist you in interpreting (assigning meaning to) them. You will be exposed to various useful tools, particularly in spreadsheet programs.

## Skills you will learn

By the end of this section, you will be able to:

- list the forms of learner performance results
- describe the uses of learner performance results
- describe and apply the procedures for analysing learner performance results
- describe and apply the procedures for interpreting learner performance results
- describe and apply the procedures for recording, storing and retrieving learner performance data and analysis.

# Forms of learner performance results

Let us quickly review the forms that learner assessment can take.



Look at the other assessments in the Broad Curriculum and note down a few key points about each. Discuss these with your colleagues to see if you have left any out.

## Formal versus Informal Assessment

Formal assessments are procedures for gathering information about the learners that are created directly to match the basic competencies in the curriculum and syllabus. Formal assessments are conducted in situations which have been set up solely for that purpose such as examinations. The procedures are administered in such a way that it is clear that the focus of the exercise is on assessing specific competencies of the learner in as valid a way as is possible. Formal assessment may include a variety of techniques, such as:



- short tests
- quizzes
- oral examinations
- performance assessment tasks
- written examinations
- projects
- portfolios

Informal assessments are procedures for gathering information about learning that you frequently use on the spur of the moment or casually during classroom activities. This may include a variety of methods, including:

- questioning a learner
- observing a learner or group of learners work
- reviewing a learner's homework
- talking to a learner
- listening to a learner during reflection
- peer and self-assessment

## **Continuous Assessment**

Continuous assessment refers to assessment results that are gathered over a period of time and at different stages of the learning cycle. They can be both formal and informal assessments and should be done on a regular basis.

Assessment can occur during instruction, following a lesson, a topic or a theme. Assessments should be integrated into all of these stages in the learning cycle because regular information about teaching, learning and achievement of learning objectives better informs you and the learners about the direction and shape of the teaching-learning process.

Many performance based activities can be covered by continuous assessment because they give very valuable information but are hard to assess in an examination situation.

For example, a portfolio of different pieces of work could be part of a continuous assessment, or observations over a period of time.

Of course, the assessment design (or form) can be an ICT-based assessment, as described in section 1, but not necessarily. Whatever shape your assessment takes, you will eventually analyse and interpret the results.

## Uses of learner performance results

Once learner performance results are recorded, they can be manipulated for analysis and interpretation to inform the modification of teaching strategies. This can help tell you what is really happening in your classroom. There are several ways that you can use the performance results to ascertain learner progress toward attaining the knowledge, skills, attitudes, or competencies to be learned or acquired.

- *Tracking learners' performance:* Tracking learner performance can be individualised to identify a specific learner's strengths and weaknesses. It can help inform the use of the cumulative record card system which is for keeping records on learners. These records get passed on to the institutions when a learner moves so that they can inform educators of the learners performance thus far. You could also track the performance of an entire class, comparing across classes and/or across years, to determine the level of groups of learners between classes and across years.

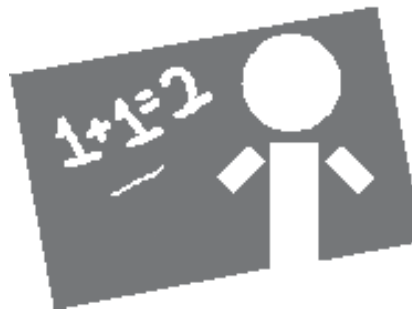


- *Problem-solving:* You can analyse learner performance results to help solve particular learning/teaching problems. It can help you identify certain problem areas within a subject. Problem-solving techniques help you recognise *why* a learner or class is having difficulties in a particular topic or subject, or generally. After identifying the reason(s) for the difficulties, you then brainstorm what strategies you can implement to address these problem areas.

- *Logical analysis:* This type of analysis can be used to look at learners overall results for promotion or compensatory teaching purposes. You can also look at results of a class group within a subject area and analyse them for many purposes. You can evaluate assessments by using criteria you have chosen and draw conclusions that help you determine the next steps in teaching and learning.

Logical analysis usually involves ordering performance results according to some criteria that you would find useful, so that you can interpret what it means. For example, if you have a learner who has difficulty concentrating on tasks, makes careless mistakes and gets easily bored, you could use a spreadsheet application to make a chart of the known strengths and see if there is a link between them.

If you brainstorm with colleagues about the learner's interests, it may help you determine a course of action to help solve the classroom/behaviour problem.



- *Statistical analysis:* Using statistical analysis involves applying mathematical techniques to describe and analyse numerical data. You are probably familiar with some statistical concepts already, for example averages (mean, median, mode), distribution and representative data. With ICTs, you can summarise sets of data and create visual summaries, for example graphs, tables and charts. You can use these techniques to help you look at trends (school, cluster, circuit, regional or national level, e.g grades 7, 10, 12 results).



- *Reflection on teaching and learning:* This is the whole point!! You will evaluate your assessment results to determine whether or not learners are achieving the goals and objectives of instruction. This conclusion will determine your follow-up and subsequent teaching methods.
- *Communication to stakeholders:* Information about learner performance should always be forwarded, in an informative manner, to those individuals that might require it. This could mean communicating with other educators, school management, parents, community, and circuit, region and national education offices. These reports should be clear, accurate and of practical value to each particular audience.



ICTs give you the efficiency to analyse performance data (in whatever form that you get it) to identify key points of successes or problems, to compare and to intervene. To fail to use technology for this purpose is to cheat yourself, your learners and all other stakeholders.

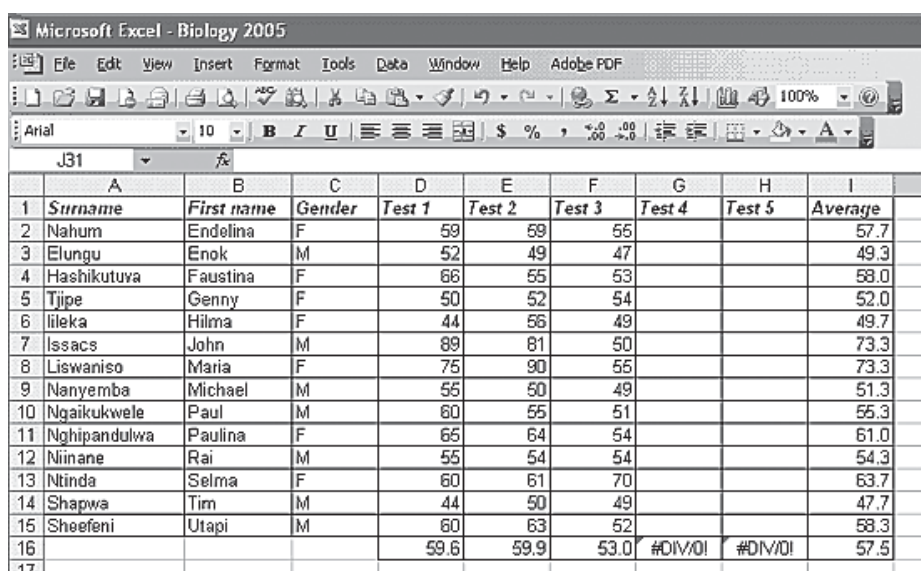
# Analysing learner performance results

There are many ways you can analyse your learner performance results, depending on the nature of your data (i.e. whether it is quantitative or qualitative data) and how you recorded it. There are two main uses of analysing performance results:

- to identify trends in the results or anomalies
- to compare (to compare either your learners performance results with each other, or to compare each learner's performance over a period of time).

## Trends and anomalies

Take this spreadsheet shown in figure 5 below, for example:



	A	B	C	D	E	F	G	H	I
1	<i>Surname</i>	<i>First name</i>	<i>Gender</i>	<i>Test 1</i>	<i>Test 2</i>	<i>Test 3</i>	<i>Test 4</i>	<i>Test 5</i>	<i>Average</i>
2	Nahum	Endelina	F	59	59	55			57.7
3	Elungu	Enok	M	52	49	47			49.3
4	Hashikutuya	Faustina	F	66	55	53			58.0
5	Tjipe	Genny	F	50	52	54			52.0
6	Iileka	Hilma	F	44	56	49			49.7
7	Issacs	John	M	89	81	50			73.3
8	Liswaniso	Maria	F	75	90	55			73.3
9	Nanyemba	Michael	M	55	50	49			51.3
10	Nqaikukwele	Paul	M	60	55	51			55.3
11	Nghipandulwa	Paulina	F	65	64	54			61.0
12	Ninane	Rai	M	55	54	54			54.3
13	Ntinda	Selma	F	60	61	70			63.7
14	Shapwa	Tim	M	44	50	49			47.7
15	Sheefeni	Utapi	M	60	63	52			58.3
16				59.6	59.9	53.0	#DIV/0!	#DIV/0!	57.5
17									

Figure 7: An example spreadsheet showing learner test scores



What do these learner performance results tell you about this class?  
What other ways are there to graphically represent this data?

You can easily see that the average mark across the three tests (assessments) is very similar (59.6%, 59.9% and 53.0%). Since test 3 is a bit lower than the first two, test 4 and 5 will show you if this is an anomaly or if the test marks are getting worse. By looking at individual learner averages, you should quickly notice that there are two learners that are doing exceptionally well, while the rest are neither very high nor very low, remaining very close to the class average.

## Comparison

Graphical representation is usually a good way to summarise data for analysis. Here are some graphs you might create to help you analyse the example test scores in Figure 5 above.

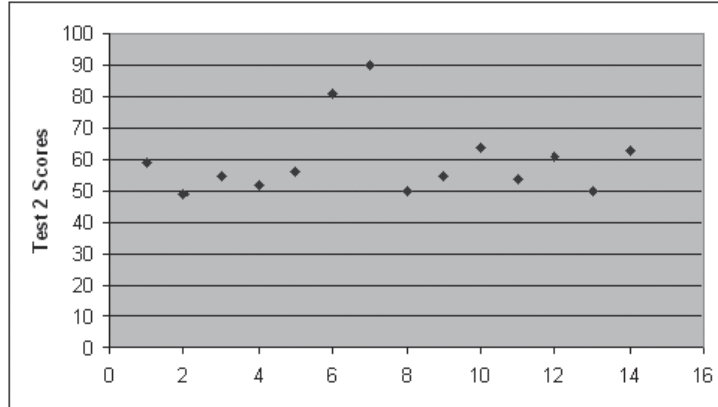


Figure 8: Scatter graph of Test 2 results

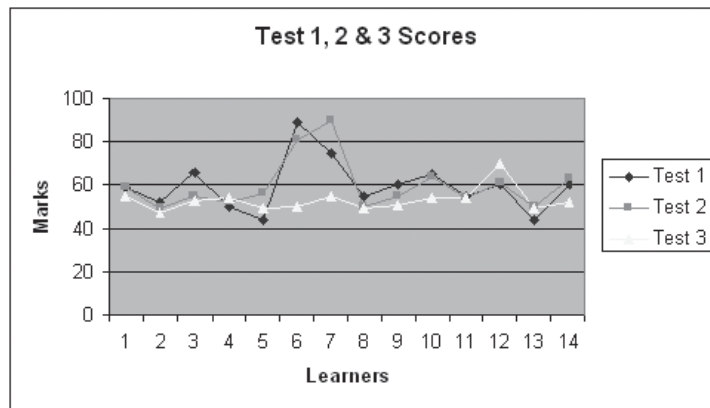


Figure 9: Line graph comparing Test 1, 2, and 3 results

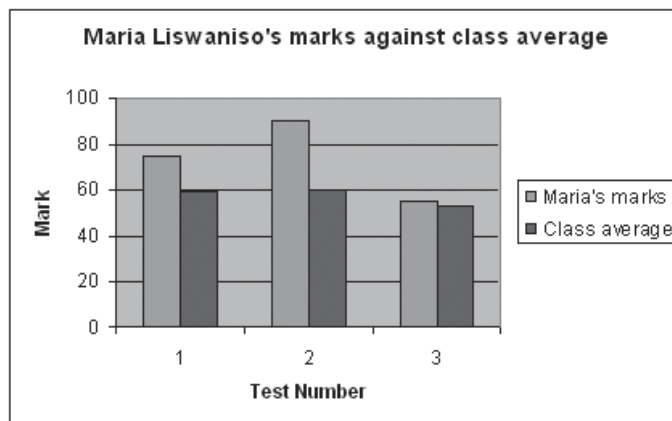


Figure 10: Bar graph comparing Maria Liswaniso's marks against the class average



What do these graphs tell you about the Biology class and its learners. Do you know how to create these graphs? If you do not, you could:

- revise the first manual *Operate ICT Applications in an Education context*
- ask a colleague
- use the Help menu to guide you.

In Figure 7 while Test 1 and Test 2 follow similar patterns, Test 3 does not. The line does not ‘spike’ for learners 6 and 7 like the first two tests.

## Logic functions

You can choose options on spreadsheets that will perform logical analysis on your results. For instance, you can ask the computer to show which learners achieved the class average mark or which learners achieved more than the pass mark.

Let’s take our learner marks from before. Say you want to know which learners’ average (of all three tests) is greater than the class average. This might tell you which learners are struggling – those with an average less than the class average (57.5).

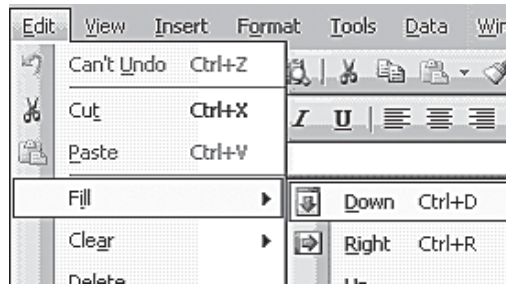
As you might have guessed, a logical function in spreadsheet usually entails an ‘if-then statement’. Your answers for this will be in a new column, in this case, column J. For your first learner (Endelina Nahum), your function will look like this:

```
=IF(I2>$I$16,TRUE)
```

Logical statement	Meaning
If the value in I2	Endelina’s overall average, which is shown in column I2
is greater than the value	the class average, which is in in \$I\$16 column I16
Then the answer is TRUE	Endelina’s overall average is greater than the class average

If the spreadsheet performs the function and says *False*, than that learners’ overall average is not greater than the class average.

Use the Fill tool to find the answer for all learners. Select your column (in this case ‘J’ and then follow the path shown.



I	J
<b>Average</b>	<b>Learner Avg. vs Class Avg.</b>
57.7	TRUE
49.3	FALSE
58.0	TRUE
52.0	FALSE
49.7	FALSE
73.3	TRUE
73.3	TRUE
51.3	FALSE
55.3	FALSE
61.0	TRUE
54.3	FALSE
63.7	TRUE
47.7	FALSE
58.3	TRUE
57.5	

Figure 11: Use the 'Fill' function to show the result of a function for the whole class



Try the logic function (and complete for the whole class) now for one of your class mark worksheets that you have already entered on the computer. Use the Help function if you get stuck.

Audio/visual equipment can also assist with evaluation of learner activities. Using a digital camera, for example, children in a sports lesson can take pictures of each other performing a task (for example, a balancing routine in gymnastics). When you have the attention of the whole class, you could ask the children to show their pictures to the class and evaluate their performance during the lesson. Using the pictures, they can compare the quality of their balancing positions at different points in time. This enables you to draw out the features of good balancing positions and allows the children to see themselves in comparison to others in the class. This will enable the children to improve their own performance in later lessons.



Audio/visual performance results can also indicate changes over time. By comparing, for example, photographs of one learner work (e.g. project or portfolio), you can easily see improvement, stagnation or decline of knowledge, skills, competencies and/or attitude. If you have written records (e.g. of presentations) it may be simple to review your remarks and identify a trend.



Can you find an area in your own teaching for which you could use a digital camera for recording learner performance?

# Interpreting learner performance results

Your analysis of learner performance results is directly related to the interpretation of that data. Interpretation is about attaching meaning to trends, patterns and anomalies that you identify in your analysis.

## Assign meaning to trends and anomalies

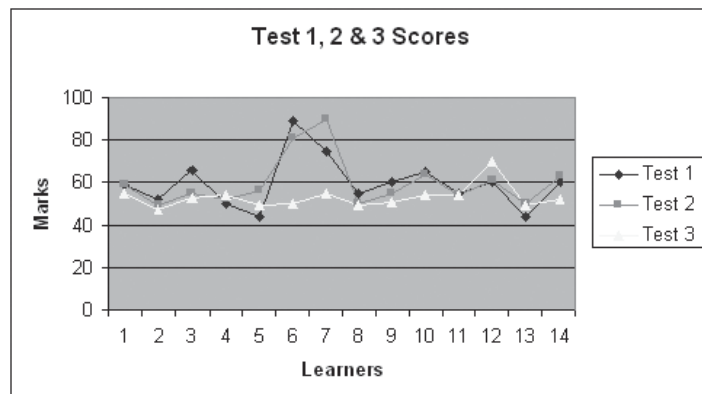
When you look at anomalies you will need to think around the issue to try and determine what the numbers are telling you. For example, if you take the two learners who achieved the highest scores in test 1 and 2, but did not score highly in test 3.



List the possible reasons for the two learners not doing so well in Test 3

Test 3 scores might indicate that there was something different in the assessment, or something happened during the assessment which prevented your learners from completing. It might mean that the assessment design was too difficult as your two best learners did not continue in their achievement or you did not explain the material appropriately. On the other hand, maybe these two learners study together and did not study the correct material, or perhaps they both just had a bad assessment. Watching their results on the next assessments (both formal and informal) will help you determine the problem.

Referring to the example in the last segment, think of why Maria did not do as well, in comparison to the class average, on test 3. Why could it be that your two best learners (Maria and John) did not perform as well as on test 3 as they previously did?



## Relate to learning outcomes

Your interpretation should also relate the analysis to the desired learning outcomes specified in your lesson plan. By analysing what kinds of performance that your learners are succeeding or failing at, you may be able to isolate whether it is the assessment form/design that is the problem or the way that you taught that topic. For example, if you take all the assessment data for assessments that required learners to communicate orally, and compare it to assessments that required only written answers, it may tell you something important about those assessment types and how your learners performed. You might want to try testing the same knowledge and/or skills in a different way to see whether they have achieved the learning outcome, but were unable to show you in the form of assessment that you chose originally.

Remember: A mark of zero does not mean the learner does not know anything; it just means that he or she cannot give a correct answer for that particular assessment.



What can you interpret from table 10 below? What types of assessment does the class perform best at? When do they perform the worst? What concept do they seem to understand the most?

Assessment Form	Common	Decimal Fractions	Ratios Fractions	Percentages	Geometry
Listening Quizzes	3/10	3/10	5/10	10/10	4/10
Oral exams	9/20	7/20	9/20	N/A	N/A
Projects	N/A	N/A	N/A	25/50	39/40
Tests	19/40	26/40	33/40	25/40	32/40
Short written quizzes	4/10	7/10	7/10	8/10	8/10

Table 1: Grade 7 Mathematics Marks according to Assessment type (class average)

## Reflect on teaching and learning

If you determine that learners failed to achieve the desired learning outcomes, you will need to think about what went wrong. This interpretation will guide your reflection on teaching and learning strategies to better achieve those learning outcomes in the future. You will need to consider whether you should use a different instructional strategy, re-teach specific content, teach new concepts, and so on.

Analysing and interpreting performance results will also allow you to understand how a specific learner learns best. At the same time, you may see that the strategy used for a particular objective or for a particular learner worked extremely well and so should continue using it, or that it did not work well at all and therefore should not be attempted again in the same format.



You should not make a decision about an individual learner by using one assessment mark by itself. It is acceptable to use assessment marks, for instance, to make decisions in a sequence of assessments, but it is unacceptable to use assessment marks by themselves in a sequence of one assessment.

## Improving

The point of analysing and interpreting learner performance results is to bring about improvements in the teaching and learning process. If your analysis indicates that something needs to change, then this might mean that you need to consider your:

- assessment design
- teaching strategies
- teaching materials

# Recording, storing, and retrieving learner performance results

This should be second nature to you now as a seasoned computer user. As with everything you do electronically, save your analysis and interpretation of learner performance results in a retrievable location.



As mentioned previously, you will need to create a logical filing naming and storing system for yourself. You may want to save files by year, by term, by subject, etc.

This is one example of a filing system for your marks:

Figure 10 below shows a folder has been created specifically for 'Marks'.

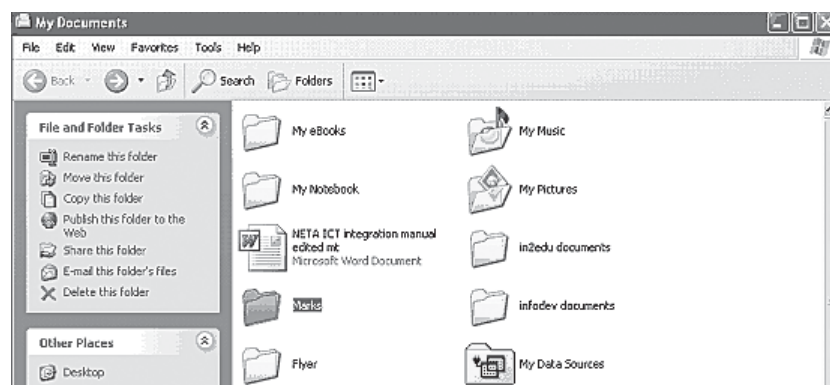


Figure 12: Example storing system for marks

Within that folder, the teacher has created folders by year so that all 2005 marks and all 2006 marks will be in their corresponding folders.

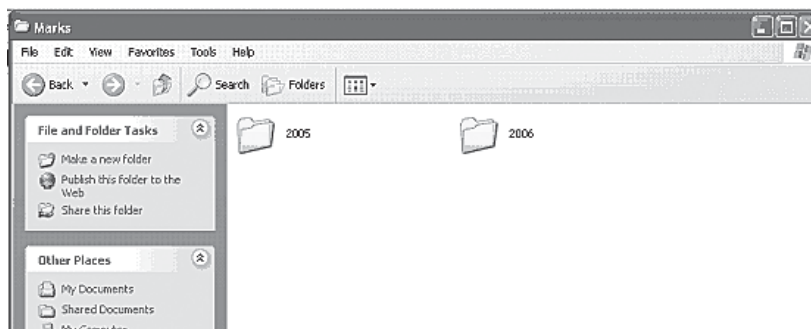


Figure 13: Separate your results and save by year

Then, within each of these folders are files. For example, the Biology 2005 folder will have all the recording, analysis and interpretation that you need.

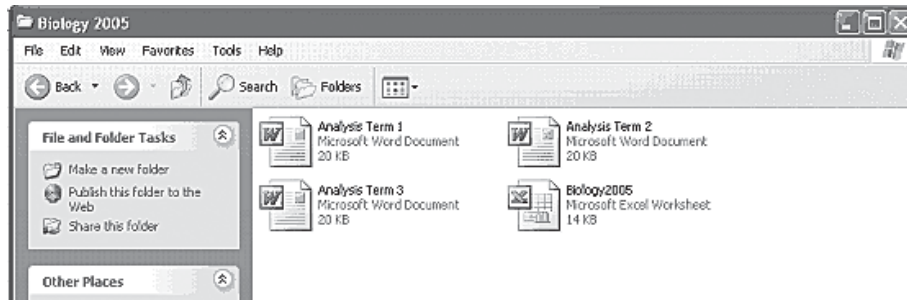


Figure 14: record all the analysis and interpretations as well the data

If you open the Biology 2005 spreadsheet file, you will see that it is also organized in such a way for easy retrieval of information.

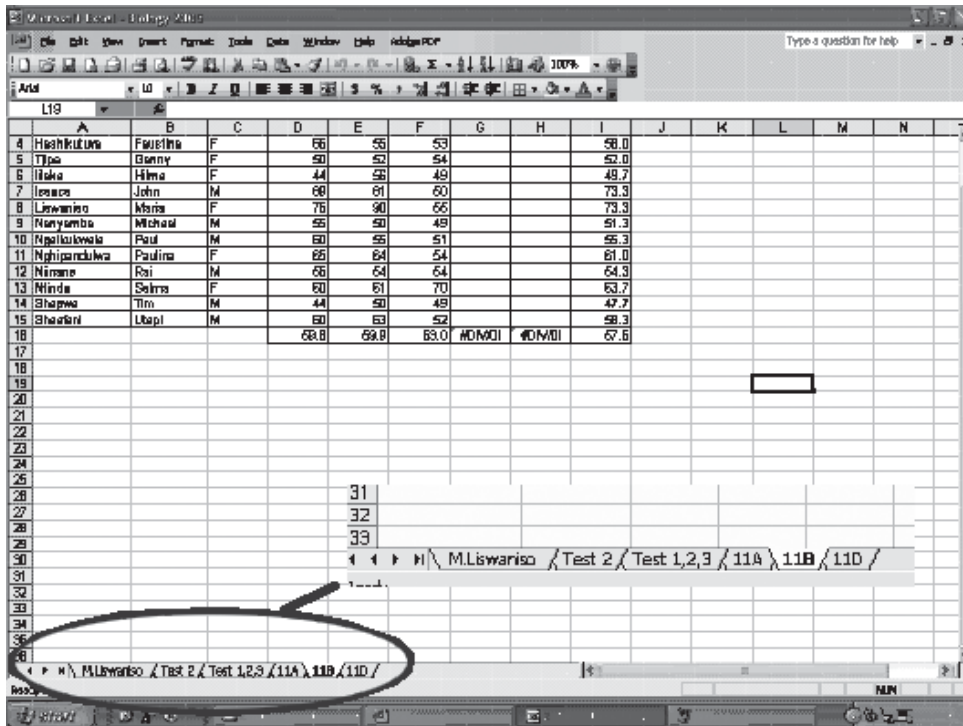


Figure 15: System of saving for easy retrieval of data

In figure 13 there is a separate workbook (shown by tabs 11A, 11B and 11D) for each class. Also, the graphs are each saved in their own sheet as well (M. Liswaniso, Test 2, Test 1,2,3). You can create a separate tab for each learner, like M. Liswaniso, to have analysis to show to each learner’s parents.



## CHECK YOUR PROGRESS 3

### ANALYSE AND INTERPRET LEARNERS RECORDED PERFORMANCE RESULTS

1. Put the forms of assessment into the correct boxes.

**Formal Assessment**

**Informal Assessment**

2. Describe the uses of learner performance results.

---

---

---

---

3. Given this spreadsheet of learner performance results, what would you do to analyse and interpret the results?

---

---

---

---



## CHECK YOUR PROGRESS 3

	A	B	C	D	E	F	G
1	<i>Surname</i>	<i>First name</i>	<i>Gender</i>	<i>Test 1</i>	<i>Test 2</i>	<i>Test 3</i>	
2	Hambyuka	Amalia	F	85	76	92	
3	Hausiku	Julia	F	90	88	79	
4	Kandjeke	Helena	F	47	55	50	
5	Kangumbe	Frans	M	68	88	74	
6	Mawano	Liina	F	82	74	80	
7	Munenge	Miriam	F	56	62	70	
8	Murangi	Josua	M	74	79	85	
9	Napandi	Anna	F	80	64	85	
10	Shangara	Rehabeam	M	50	55	66	
11	Siwato	Johnny	M	66	78	78	
12	Ipinge	Andreas	M	32	28	41	
13							

---



---

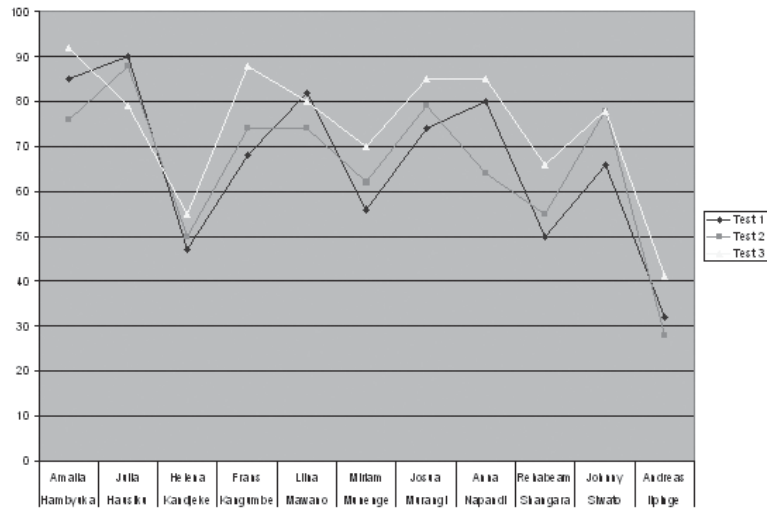


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---

#### 4. Interpret this graph




---



---



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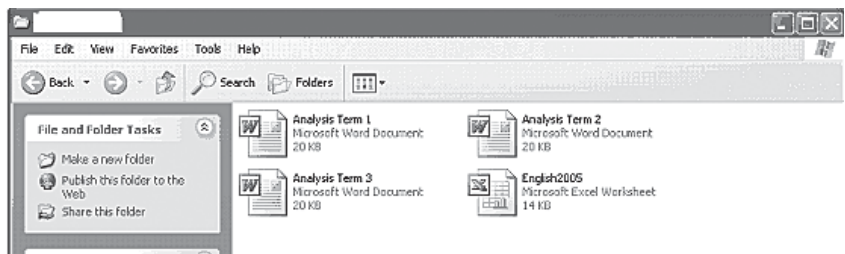
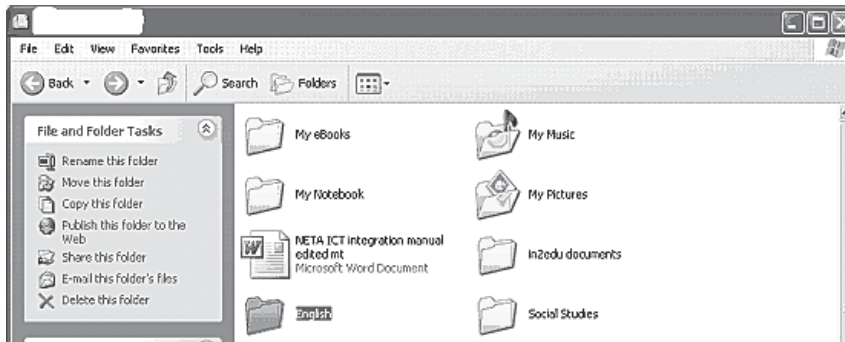
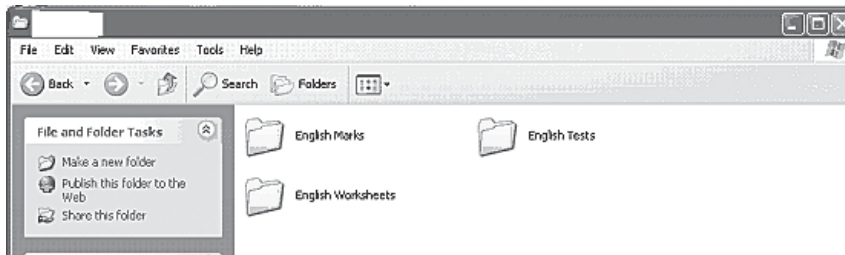
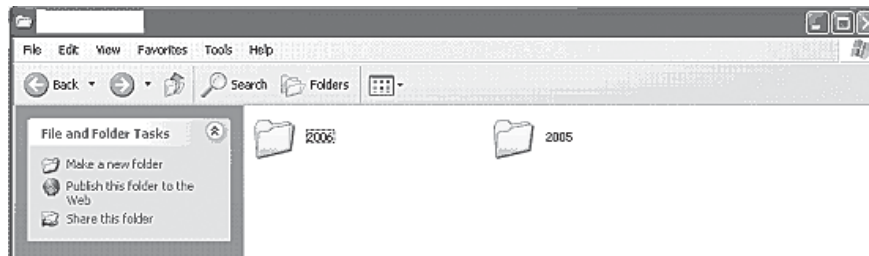


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## CHECK YOUR PROGRESS 3

5. Label each of the pop-up windows appropriately. The screen shots may not be in order so look at the contents of the folders carefully.





## PRACTICAL ACTIVITY 3

### **ANALYSE AND INTERPRET LEARNERS RECORDED PERFORMANCE RESULTS**

1. Retrieve recorded learner performance results, either the ones you entered for the last section's Practical Activity or any other results in a spreadsheet. Filter the information and calculate the average for male learners and for female learners. If you do not know how to filter, use the help menu or your instructor to guide you.

Find some data recorded in a spreadsheet for one of your classes. What is your initial analysis of that data? How might ICT tools help improve your analysis?

## Summary

Well done! You have completed Section 3 on *Analyse and interpret learners' recorded performance results*.

You should now be confident that you know and understand the different uses analyses that you can perform with recorded learner performance results, and perform them.

If you feel confident that you have achieved the above, you can move on to the next section where you will learn how to communicate the performance results of learners to the relevant stakeholders.

If you are unsure about anything, go back and revise or ask your instructor or supervisor for assistance.

# Section

# 4

## **Communicate learners performance results to stakeholders**

# Introduction

In this section of the training manual you will learn who the stakeholders are to whom you need to communicate learners performance results.

You will also learn the communication process that need to be followed, as well as the different ICT tools available to perform this function.

By the end of this section, you will be aware of the benefits ICTs provide in the communication process and the procedure for sharing learner performance results.

## Skills you will learn

By the end of this section, you will be able to:

- identify the stakeholders to whom learner results should be communicated
- explain the communication process
- list the different ICT tools available to communicate learner results to stakeholders
- list the reasons for communicating learner results to stakeholders
- outline the procedure for communicating learner results to stakeholders using ICT applications.

# Stakeholders

A very important reason for assessing and evaluating learners' performance is to communicate with various stakeholders. The term (stakeholder) means a group of individuals who are interested in working towards similar goals and objectives when resolving a particular issue. Communicating to stakeholders is essential to ensure their involvement in teaching and learning and therefore enhance education.

It takes a village to raise a child.

*African Proverb*

In Namibia, you will need to communicate with several individuals, organisations and institutions about your analysis and interpretation of learner performance results:

- **Learner:** As you know, it is very important that learners have individual feedback on their performance, their strengths and areas for improvement. Every term, learners should get a report on the progress they have made. A learner can then decide by him or herself how to make progress.
- **Parents:** Many studies have shown that when parents and families are involved in their children's education and schools, their children do better. Reports are sent to parents so they can see the progress their child is making. It is very important for parents to be able to react to both achievements and challenges in an effective manner, which they can only do if they see progress reports.



- **Institutional colleagues and management:** Sharing information about your learner results with your colleagues and principal can lead to collective courses of action that can solve problems and meet the goals of the institution. You can also report on learner progress with colleagues and management.

- ***Institution board members:*** Your school/institution board will definitely want to know how learners are performing. Your evaluation of learners' performance will be vital as it indicates the quality of education that their children are receiving.
- ***Community members:*** Community members are also interested in the learning occurring at schools in their area. Some may be parents of other children who are thinking about sending their children to your school or may just be interested in the level of achievement of those coming out of their community. Once the confidentiality requirements of the schools have been met, reports on learner progress can be shared.
- ***Local education officers:*** Advisory teachers and inspectors that are more closely involved with your school will want to know the progress of learning, and to report it to their superiors. Also end of year class schedules need to be communicated to regional offices. These may only be established once performance results have been evaluated.
- ***National Institute for Educational Development (NIED):*** As NIED is in charge of curriculum and professional development, it is essential that they are provided with informative analysis to constantly improve syllabi and teacher training.
- ***Directorate of National Examinations and Assessment (DNEA):*** – The DNEA is a critical component in the structure of the Namibian assessment system. It is responsible for conducting all external examinations, formulating assessment schemes and examination syllabi, and capturing, processing and archiving examination data, among many other tasks.
- ***Teacher Associations*** – NANTU, TUN and TAU are also very interested in how Namibian learners are performing and what steps you are taking to improve their education.

## Communication process

Once you have completed the analysis and interpretation of your learner performance results, you will need to share this information with others through a communication process. This means that it is an ongoing event and will not just end with one report. You should be constantly communicating with your learners, their parents and other interested parties, as new results are available and analysed. The process for communication will look similar to the one outlined below and pictured in figure 16 below:

1. **Identifying stakeholders:** Who do you need to report to?
2. **Creating communication:** In what form will you transmit the learner performance results?
3. **Identifying channels:** What communication networks will you use?
4. **Identifying barriers:** What will inhibit communication, particularly using the chosen channel(s)? Do you still agree this is the correct channel given the barriers?
5. **Informing stakeholders:** When will you inform the stakeholders? How long do you anticipate the process to take?
6. **Receiving feedback:** What feedback are you asking for from the stakeholders and what form will it take? How long do you anticipate it to take to receive the feedback?

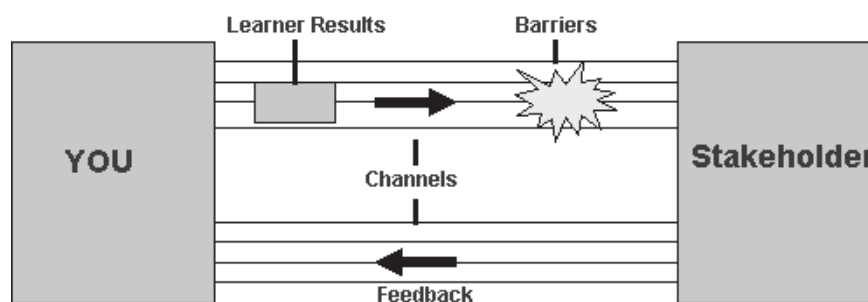


Figure 16: The communication process for learner performance results

The goal of communication is that the stakeholder you are communicating with understands the point of your message. If the stakeholder understands the meaning of the learner performance results through your analysis and evaluation, then you have achieved your goal. Your message may also ask the stakeholder to take action and if they fail to do so, the goal of your communication has not been fulfilled. This could be a lack of initiative on their part or barriers to communication.

Assessment results and analysis reports are critical documents. They are the only source of information that some stakeholders receive about actual learner performance. Therefore, you must thoughtfully design and prepare communication messages. You do not want your message to mislead audience members and cause them to misinterpret and/or misuse the results.

## Identifying stakeholders

Think about your audience. Many assessments are explicitly intended to transfer information about the achievement of individual learners. Others, however, are for collecting evidence about the effectiveness of your teaching or the school – often for accountability purposes. Think about who you are preparing your message for and what information they want and need to know.

### Ask yourself:

- What audiences will each report address?
- What do stakeholders want to know, and what else do we want them to learn?
- In what form should the results be reported?



Use your ICT resources to help you identify channels and barriers. A simple Internet search will give you thousands of ideas and possibilities.

## List ICT tools available

The whole point of this section is not to tell you about the communication process, but to get you to use ICTs to communicate learner performance results to various interested parties. You should already be communicating with various stakeholders. ICT tools allow you to more efficiently and creatively produce and convey messages, including learner results.

### Creating Communication

There are several applications that you can use to create different ways to communicate learner performance results (and your analysis and interpretation of them), such as:

- Word processor
- Spreadsheet
- Presentation
- Desktop Publisher
- Database
- Photographs
- Videos

### Identifying Channels

After you decide how to create your message, you need to decide which channel(s) you want to use to transmit the results.

- Email
- Website
- Telephone
- Fax
- Laptop and data projector



You may also need to use the conventional postal system, if appropriate in your area.

You may find that a combination of these is most effective. For instance, if you create a slideshow presentation for learners parents, you may also want to print copies of the presentation and/or email it to them as well.



Go to this website [http://www.techlearning.com/db\\_area/archives/WCE/archives/kasse.htm](http://www.techlearning.com/db_area/archives/WCE/archives/kasse.htm). See if you can use this to spark your own ideas about communicating with parents using technology.

## Identifying barriers

There are many different types of communication barriers. Some barriers occur with the way that the message is created (by the information being unclear, or presented in a confusing manner, for example).

Sometimes the channel chosen for communicating created barriers (e.g. technological breakdowns and malfunctions) and sometimes barriers happen at the receiver's end (in your case, with the stakeholder).

By thinking about possible barriers you might be able to prevent a problem occurring before it happens. Here are some important considerations relating to communication barriers and how to best get your message across:

- is the information valuable?
- do you see the learner performance results correctly or understand them well enough to describe it to others?
- is the information organized in a clear and comprehensible manner for your intended audience?
- are you comfortable with what you are saying or writing?
- do all stakeholders have access to the channels that you are using? Can you accommodate those that do not have access?
- can you sense whether or not the receiver can understand what you are saying and meaning to communicate?

## Reasons for communicating learner performance results

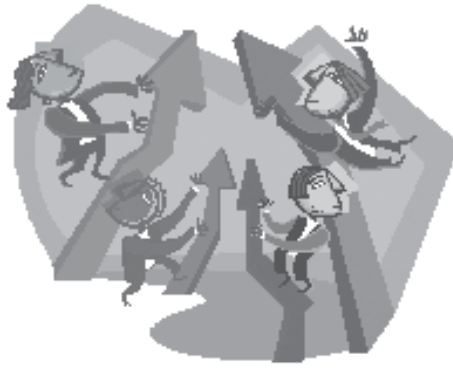
Besides the fact that you have to report learner performance results to your principal and regional education offices, as a dedicated educator, you will want to do this for a variety of other reasons as well.



Think of the last time you communicated individual learner performance results to parents. How did they react? How might ICT allow you to better communicate the results with them for understanding and involvement in their child's education?

Here are four rationales for communicating learner performance results:

- **Transparency and accountability:** Your school administration as well as the Ministry of Education needs to know how learners are performing and ensure that learning is occurring.
- **Involvement of stakeholders in learner performance:** As mentioned, it is generally accepted that when schools work together with families to support learning, children tend to succeed not just in school, but throughout life. In fact, the most accurate predictor of a learner's achievement in school is not income or social status, but the extent to which that learner's family is involved. All stakeholders have interest in seeing learners succeed and they should all be made aware of the progression taking place.
- **Problem-solving assistance:** Informing various people of learner performance results can bring collaborative thinking on how to improve performance. You might ask for help or brainstorm as a group how to solve a particular problem with your learners.
- **Improvement of performance:** These reports can inform future decisions that will be made regarding education, by the school and by Ministry of Education officials. For instance, if learners are doing poorly at decimal fractions, perhaps this will drive education officers to purchase teaching aids and materials for this area of learning. In addition, learners will benefit enormously from your feedback and will be able to develop their strengths and improve their weaknesses. Parental involvement in these matters will also improve learners' performance.

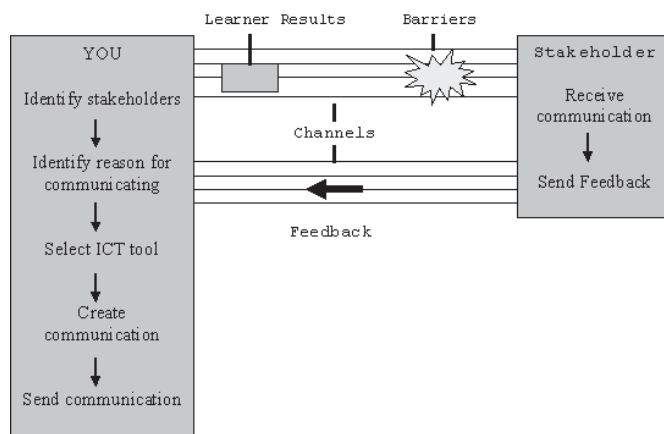


Using ICT tools for communicating makes the process easier, faster, more reliable and more professional. For instance, email is instantaneous and the receiver can easily reply to you. Slideshow applications and desktop publishing make any presentation of information more interesting and professional.

# Communicating learners performance results

## Informing stakeholders

Now that you know the communication process, and now that you know what ICT tools you can use to create and send the communication and why you would do so, you are ready to actually do it.



**You will need to complete these five steps:**

1. Identify the stakeholder you want to communicate the learner performance results to
2. Identify the reason for communicating the results
3. Select an ICT tool(s) for communicating
4. Create the communication message
5. Send the communication message to the identified stakeholder, accounting for barriers

## Receiving feedback

Good communication typically solicits feedback from the receiver of the message, so if you have done it right, you should have one more step to complete.

6. Receive feedback from the identified stakeholder

If you are asking for feedback, make sure the stakeholder knows how to respond (e.g. provide email address) and knows exactly what kind of information you want from him or her. For example, if you have asked a parent for a choice of actions (for example, learners may choose an option for extra-curricular activities based on the assessment results), make sure you are very clear how the parent is to communicate that information to you (ie do you need a written note or a phone call?).



## CHECK YOUR PROGRESS 4

### COMMUNICATE LEARNERS PERFORMANCE RESULTS TO STAKEHOLDERS

1. Stakeholders and ICT tools to communicate

P	R	E	S	E	N	T	A	T	I	O	N	R	I	E
D	T	C	D	T	R	O	T	C	E	J	O	R	P	S
T	R	E	O	A	N	S	K	D	E	S	L	L	E	A
S	I	A	A	L	O	E	V	N	S	I	E	A	M	B
N	L	L	O	T	L	A	R	E	G	E	A	P	A	A
E	T	O	O	B	R	E	C	A	A	T	R	T	I	T
I	F	H	S	E	L	O	A	A	P	I	N	O	L	A
C	P	A	H	I	R	O	L	G	D	S	E	P	O	D
A	S	F	X	P	N	L	O	I	U	B	R	S	A	F
L	M	N	D	S	E	N	O	H	P	E	L	E	T	I
Y	X	R	O	E	D	I	V	L	C	W	S	M	L	O
L	O	M	B	S	P	R	E	A	D	S	H	E	E	T
W	C	O	M	M	U	N	I	T	Y	G	O	Y	R	S
R	E	H	S	I	L	B	U	P	S	X	Y	I	O	P
B	H	T	Y	T	N	E	M	E	G	A	N	A	M	W

Colleagues, Community Database, DNEA, Email, Fax, Laptop, Learner management, NIED, Parents, Photos Presentation, Projector, Publisher, Schoolboard, Spreadsheet, Telephone, Video, Website, Word processor

2. Put the steps to the communication process in order. Briefly describe what each step entails.

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_



## CHECK YOUR PROGRESS 4

3. Describe the four reasons listed in this manual for communicating with stakeholders.

1. Transparency and accountability: \_\_\_\_\_  
\_\_\_\_\_

2. Involvement of stakeholders in learner performance: \_\_\_\_\_  
\_\_\_\_\_

3. Problem-solving assistance: \_\_\_\_\_  
\_\_\_\_\_

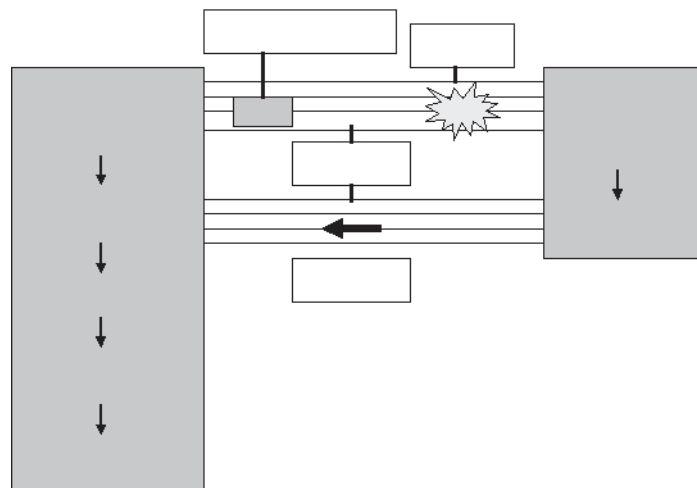
4. Improvement of performance: \_\_\_\_\_  
\_\_\_\_\_

4. Circle the ICT tools that you can use to communicate learner performance results

Television	video	fax	post	e-mail
presentation applications	spreadsheet	applications		
blog	web search	browser	CDRom	

5. Label the diagram to show the communication process .

\_\_\_\_\_  
\_\_\_\_\_





## PRACTICAL ACTIVITY 4

### **COMMUNICATE LEARNERS PERFORMANCE RESULTS TO STAKEHOLDERS**

1. You have recorded, analysed and interpreted learners performance results. Now you need to communicate those results to each learner's parents at the end of the term. Use the communication process and deliver the results in a manner of your choice.
2. Create a flyer to post in your class showing the class' performance results. (Why might you want to do this?) Think about how to best present the information to communicate what you message.

## Summary

Well done! You have completed Section 4 on *Outline communication procedures to communicate learners performance results to stakeholders*.

You should now be confident that you have the knowledge and skills to identify the various stakeholders that are interested in learner performance results and your evaluation of them. In addition, you should know how to apply the communication process to transmitting results as well as the reasons for doing so. Lastly, you should understand the various ways you can use ICT to facilitate this entire process, from identification of stakeholder, to the creation of a message, to receiving feedback.

If you feel confident that you have achieved the above, you can move on to the next section where you will learn how to modify teaching strategies based on learners performance.

If you are unsure about anything, go back and revise or ask your instructor or supervisor for assistance.



# Section

# 5

## **Modify teaching strategies and resources based on learners performance**

# Introduction

In this section of the training manual you will learn how to modify teaching strategies and resources based on learners performance.

You will also learn about how integrating ICT into your teaching strategies can help address all learning styles and multiple intelligences.

## Skills you will learn

By the end of this section, you will be able to:

- list different teaching strategies and resources
- explain the reasons for using different teaching strategies and resources based on learner performance
- explain the reasons for using learner performance data in modifying teaching strategies and resources
- describe and apply the procedures for using learners performance results in modifying teaching strategies and resources.

# Teaching strategies and resources



Educating is often a question of pulling together lots of different resources and drawing on different skills to produce a coherent and meaningful learning experience for all learners (who also have different needs and ways of learning). Some people therefore compare educators to conductors of an orchestra: the teacher, (like the conductor), draws upon a range of skills and orchestrates a highly complex process. As a teacher, you are capable of implementing a range of teaching methods, and using a variety of resources. The selection and combination depends on the educational situation.

## Teaching strategies

Let's review some teaching strategies that you use:

- *Lecture*: Allows you to directly address what learners need to know and what they are going to learn. Most effective when used with active learning strategies.
- *Discussions*: Free, interactive dialogue between teachers and learners or in small groups of learners. You must give control to your learners, letting them guide the discussion, while ensuring that all perspectives are respected.

- *Collaborative learning*: A philosophy that suggests a way of dealing with people which respects and highlights individual group members' abilities and contributions. The underlying premise of collaborative learning is based upon consensus building through cooperation by group members, in contrast to competition in which individuals best other group members.
- *Cooperative learning*: Intricately related to collaborative learning, this technique is defined by a set of processes which help learners interact together in order to accomplish a specific goal or develop an end product which is usually content specific. It is more directive than collaborative learning and closely controlled by the teacher.
- *Situated learning*: This is education that takes place in a setting functionally identical to that where the learning will be applied. This includes field trips, workshops, kitchens, greenhouses and gardens used as classrooms
- *Self-directed instruction*: This teaches the learner to take learning into their own hands, apply their knowledge to the real-world problems, monitor their own achievement, and go beyond the material that is presented to them.

Here are some instructional designs that can be used in conjunction with most educational techniques, as described above:

- *Inquiry-based learning*: More than just asking questions, this is a complex process where learners attempt to convert information and data into useful knowledge. Useful application of inquiry learning involves several factors: a context for questions, a framework for questions, a focus for questions, and different levels of questions.
- *Problem-based learning*: Based on active, interactive and collaborative learning, problem-based learning serves to teach content by presenting learners with a real-world challenge or scenario. There is no right or wrong answer necessarily; rather, there are reasonable solutions based on the application of knowledge and skills and learners' ability to think critically.
- *Project-based learning*: An individual or group activity that goes on over a period of time, resulting in a product, presentation or performance. Learners have a great deal of control of what they will work on and what they will do, and typically has a time line and milestones for formative assessment.



- *Activity-based learning:* This is an interactive process of teaching and learning, which enables learners to acquire knowledge and to develop attitudes and skills.



Do you have a dominant teaching strategy and/or instructional design? Do you think these methods address all the various learning styles in your classes?

## Resources

Each school will, of course, have its own unique collection of resources for you to use, but here are some common options:

- *Realia:* These are three-dimensional objects from real life, whether man-made (artifacts, tools, coins, etc.) or naturally occurring (specimens, samples, etc.) used for classroom instruction. Realia can help learners better understand real life situations.



- *Print*: These resources are probably the most prolific at your school, and probably the most mundane. However, if you are creative, they can stimulate interactive, interesting lessons.
- *Audio/visual*: This includes TVs, VCRs and DVDs, cameras (35mm, digital and video), tape players and recorders, CD players, and data and overhead projectors. In addition, these resources include all the tapes, CDs, DVDs, videos and presentations that can be used with the hardware.
- *Multimedia*: All in one. The combination of different media, including text, graphics, audio, video and animation, in one program or technology.
- *Computers*: Some computers come with various software from which to use and pull from to create learning experiences. Once connected, the Internet is arguably the most powerful resource you can have access to.

## Reasons for using teaching strategies and resources

As you will know, there are a number of different factors that affect learning and teaching, your choice of materials, strategies and resources (including ICT resources).

- *Different learning styles:* because individuals learn in different ways we must vary our teaching strategies to reach ALL our learners over a period of time
- *Different needs of the learners:* learners needs change and vary over time, so the materials and resources they respond to will also need to be varied
- *Resource availability:* you will choose your resources according to what you have available, or what is possible to use. This will not remain static in an institution, so you will need to be aware of what is available to you at the time you would like to use it.
- *Number of learners:* the number of learners you have in your class may determine what strategy or resources you are able to use with them
- *Perceptions of learning:* you will also need to be aware of learners and parents perceptions of how learning occurs. This might affect the way you teach or choose resources from time to time.

### Responding to different learning styles

Learners preferentially take in and process information in different ways: by seeing and hearing, reflecting and acting, reasoning logically and intuitively, analysing and visualising, steadily and in fits and starts.

Each one of your learners will have a unique learning style that best helps them acquire knowledge, skills and attitudes. There are three types of learning styles, that you probably already know: visual, auditory and tactile/kinesthetic.

- **Visual learners**

... learn through seeing...

These learners need to see your body language and facial expression to fully understand the content of a lesson. They tend to think in pictures and learn best from visual displays including diagrams, illustrated textbooks, overhead transparencies, videos, flipcharts and handouts.

- **Auditory learners**

... learn through listening...

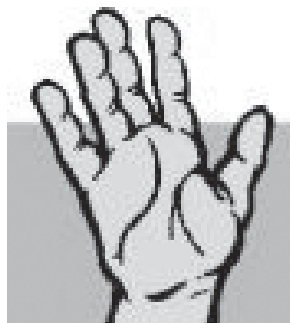


They learn best through verbal lectures, discussions, talking things through and listening to what others have to say. Written information may have little meaning until it is heard.

- **Tactile/Kinesthetic learners**

...learn through moving, doing and touching...

Tactile/kinesthetic learners learn best through hands-on approach, actively exploring the physical world around them. They may find it hard to sit still for long periods of time and may become distracted by their need for activity and exploration.



The theory of multiple intelligences, developed by Howard Gardner, is one you might be familiar with and helps explain different learning styles. Gardner claims that all human beings have nine intelligences, which can be nurtured and strengthened, or ignored and weakened.

“An intelligence is the ability to solve problems, or to create products, that are valued within one or more cultural settings.”  
- Howard Gardner

**Verbal:** *Linguistic Intelligence:* well-developed verbal skills and sensitivity to the sounds, meaning and rhythms of words.

**Mathematical:** *Logical Intelligence:* ability to think conceptually and abstractly, and capability to discern logical or numerical patterns

**Musical Intelligence:** ability to produce and appreciate rhythm, pitch and timber

**Visual:** *Spatial Intelligence:* capacity to think in images and pictures, to visualise accurately and abstractly

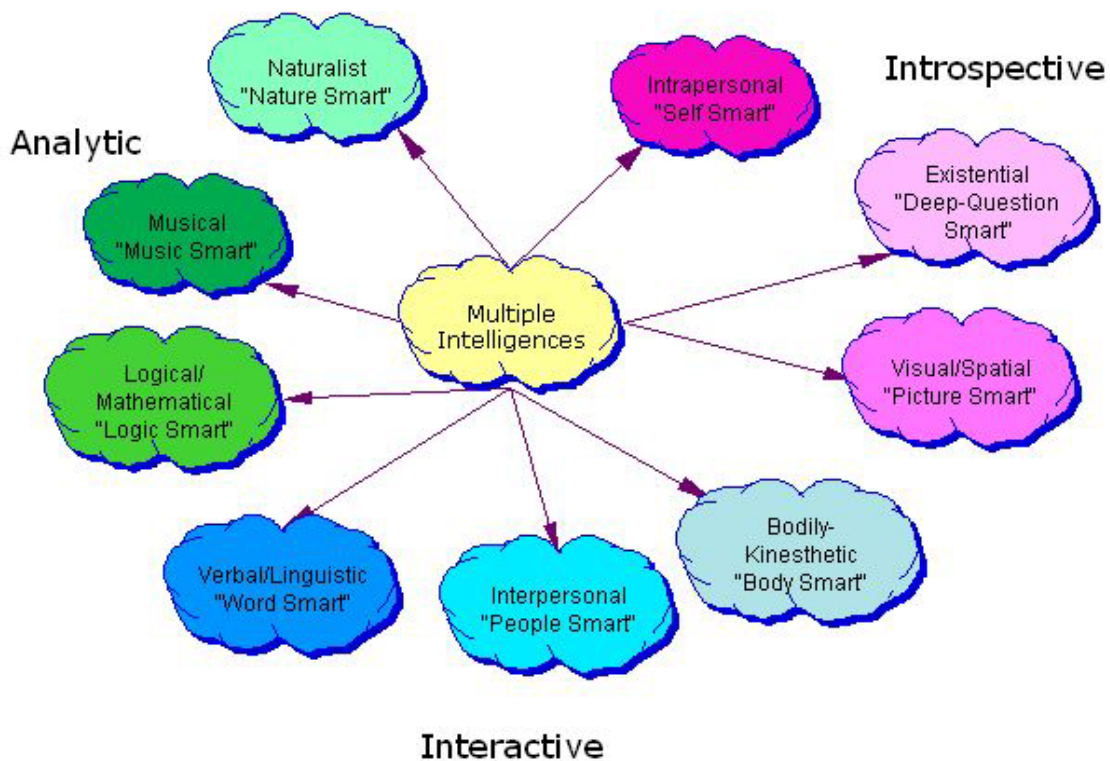
**Bodily:** *Kinesthetic Intelligence:* ability to control one's body movements and to hand objects skillfully

**Interpersonal Intelligence:** capacity to detect and respond appropriately to the moods, motivations and desires of others

**Intrapersonal Intelligence:** capacity to be self-aware and in tune with inner feelings, values, beliefs and thinking processes

**Naturalist Intelligence:** ability to recognise and categorise plants, animals and other objects of nature

**Existential Intelligence:** sensitivity and capacity to tackle deep questions about human existence, such as the meaning of life, why do we die, and how did we get here.



According to theory, everyone possesses all nine intelligences in varying amounts. This means every one of your learners has a different intellectual composition. Hence, your instructional methods must appeal to all the intelligences, including role playing, musical performance, cooperative learning, reflection, visualization, story telling, and so on.

Some types of cooperative learning, like project-based learning, have been developed, in concert with the theory of multiple intelligences so they work very readily with this strategy. In small groups, students can share their strengths and weaknesses and use the group activities, like completing a project, to develop a variety of their intelligences.



Have learners go to this website and analyse their preferred learning style <http://www.engr.ncsu.edu/learningstyles/ilsweb.html>. Go to this website to find out your multiple intelligences <http://www.berghuis.co.nz/abiator/lsi/lsiframe.html>. Have the learners go there and test themselves.

## Addressing different learning needs

Your ability to address all your learners' different learning needs can be a complicated task. This task gets harder as the number of learners in each class increases. The more learners you have, the more learning style combinations you have to address. However, by making use of all the ICT resources that are available to you, you can more easily vary your instructional techniques.

Because your learners will have different learning styles and intelligence combinations, your assessment methods should take into account the diversity of intelligences, as well as self-assessment tools that help learners understand their own intelligences.

## Handling resource availability

In many schools ICT resources are scarce and need to be shared amongst all educators and learners equitably. This may mean that you will have to be flexible about when you use them with your learners. ICT might affect what you choose to do with your learners on a particular day. Also, resources of all types get lost, broken or go missing, so you will need to remain aware of what is around to use for your classes. Take time to evaluate all the resources available to you at your institution.

## **Handling large numbers of learners**

As you know, the number of learners in your class will determine the types of activities and assessments that you can do with them. Obviously with a small number of computer workstations, and a very large class, your options are limited. However look for creative ways of splitting the class and having different activities happening at the same time.

## **Dealing with different perceptions of learning**

Individuals often have different perceptions about how learning takes place. You may find these perceptions conflict with your own ideas and you may need to modify your strategies or choose your resources to accommodate the differences. This does not mean you should deviate from the curriculum or topics and themes, but it might mean choosing different resources or way of doing things from time to time. (For instance, if learners feel they are not learning, it will be an attitude that you will have to overcome in class, and a small change in the way that you do things may avoid a potential problem).

# Reasons for using learner performance results in modifying teaching strategies and resources

Arguably, the whole point of assessment is to indicate where learners are more or less successful, and to modify teaching and learning strategies to improve learner performance.

When mismatches exist between the learning styles of your learners and your teaching style (i.e. when a teacher acknowledges only certain intelligences), the learners may become bored and inattentive in class, do poorly on examinations, and get discouraged about the subject, the curriculum and themselves. In the most severe cases, learners may drop out of school. On the other hand, you may become overly critical of your learners (making things even worse) or begin to wonder if you are in the right profession. To overcome these problems, educators should aim for a balance of instructional methods, and not strive to teach each learner exclusively according to his or her preferences. If a balance is achieved, all learners will be taught partly in a manner they prefer, which will lead to an increased comfort level and willingness to learn.

By analysing learner performance results, you may be able to tell in which areas your learners are struggling and which areas they are excelling. You can also look at individual learner performance to get insight into how learner's learning style and dominant intelligences. After you evaluate the results, this can direct you to modify your teaching strategies and what resources you are using to increase learner performance.



A checklist of teaching and learning strategies and an evaluation of the assessment type you used is shown in table 2 on the next page. This table (which you can make and adapt in any word processor) can be used to evaluate your teaching methods and see if they align with your method of assessment. The first and second columns offer a checklist of teaching styles. Check those that apply to you. The third column describes the desired reactions from the learners for each approach. You should then use the last column to write a description of the performance assessments you currently use. After you have filled in the table, ask yourself: Are these performance assessments appropriate for the teaching strategy you used? Are the assessments varied to address all intelligences?

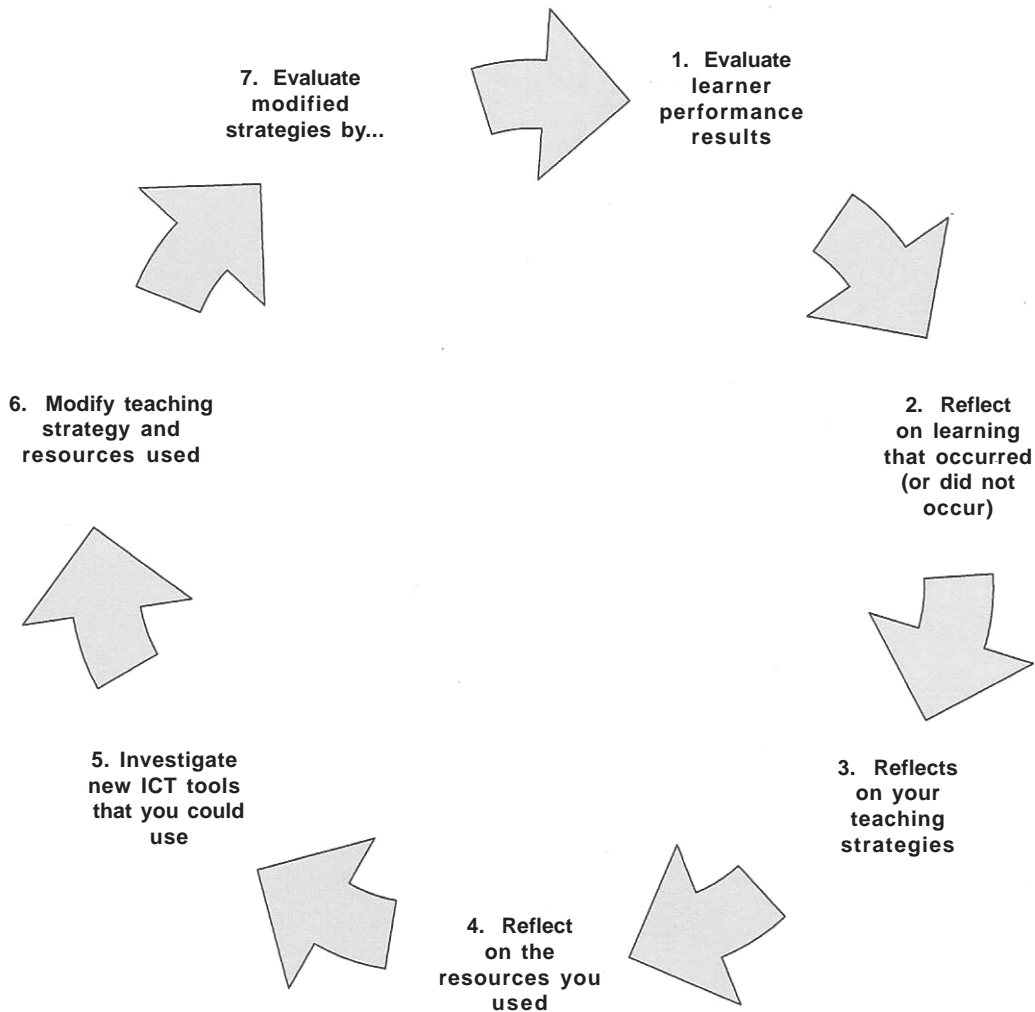


Teaching Strategy	Check	What learners can do	Performance assessments	Intelligence(s) addressed in assessment
<b>1. Didactic/Direct Instruction</b>		Receive, take in, respond		
Demonstration/modeling		Observe, attempt, practice, refine		
Lecture		Listen, watch, take notes, question		
Questions/convergent		Answer, give response		
<b>2. Coaching</b>		Refine skills, deepen understanding		
Feedback/conferencing		Listen, consider, practice, retry, refine		
Guided practice		Revise, reflect, refine, recycle through		
<b>3. Facilitative/Reflective</b>		Construct, examine, extend meaning		
Concept attainment		Compare, induce, define, generalise		
Cooperative learning		Collaborate, support others, teach		
Discussion		Listen, question, consider, explain		
Experimental inquiry		Hypothesise, gather data, analyse		
Graphic representation		Visualise, connect, map relationships		
Guided inquiry		Question, research, conclude, support		
Problem-based learning		Pose/define problems, solve, evaluate		
Questions (open-ended)		Answer and explain, reflect, rethink		
Reciprocal teaching		Clarify, question, predict, teach		
Simulation (e.g., mock trial)		Examine, consider, challenge, debate		
Socratic seminar		Consider, explain, challenge, justify		
Writing process		Brainstorm, organise, draft, revise		

Table adapted from Educational Broadcasting Corporation, 2004. [www.thirteen.org](http://www.thirteen.org).

# Using learner performance results in modifying teaching and learning strategies

There are several steps that you need to reflect on and complete to interpret as much information from recorded learner performance results to modify your teaching and learning strategies.



## Evaluate learner performance results

Let's look at an example. Let's look back at the table in Section 3, *Grade 7 Mathematics marks according to Assessment type*.

Assessment Form	Common Fractions	Decimal Fractions	Ratios	Percentages	Geometry
Listening Quizzes	3/10	3/10	5/10	10/10	4/10
Oral exams	9/20	7/20	9/20	N/A	N/A
Projects	N/A	N/A	N/A	25/50	39/40
Tests	19/40	26/40	33/40	25/40	32/40
Short written quizzes	4/10	7/10	7/10	8/10	8/10

A quick glance at this table indicates that the learners did very well on their projects and oral examinations. However, listening may be a problem area and perhaps writing. Before you can make any conclusions, you also must consider the assessment type.

## Reflection on learning that occurred (or did not occur)

Let's look at the result for short written examination on common fractions. Either the assessment type (e.g. short written exam) is not a strong indicator of what learners know about common fractions; perhaps an oral examination on this same information would have provided better results. You will need to look at different ways of trying to assess the same subject matter before you can determine if learning took place.

## Reflection on teaching strategies

Another possibility is that the information assessed on the short written quiz was not presented well in class. That is, if lecture was the dominant teaching method used to convey information about common fractions, maybe another strategy (e.g. cooperative learning) would help the learners understand better.

If you look at the breakdown of learners' marks for this assessment, in conjunction with how learners did overall on common fractions, it may guide you to a better teaching strategy.

	A	B	C	D
1	Surname	First name	Short Written Quiz/Common	
2	Hashikutuva	Faustina	5	
3	Tijpe	Genny	4	
4	Ileka	Hilma	2	
5	Issacs	John	0	
6	Liswaniso	Maria	7	
7	Nanyemba	Michael	8	
8	Ngaikukwele	Paul	3	
9	Nghipandulwa	Paulina	4	
10	Niinane	Rai	4	
11	Ntinda	Selma	4	
12	Shapwa	Tim	5	
13	Sheefeni	Utapi	6	
14			4.333333333	
15				

Overall, relative to the other topic areas, learners did not do as well on common fractions. This could indicate they did not understand the material very well. Looking at the above marks, it looks like maybe Maria and Michael (and maybe Utapi) understand the concepts and maybe they can help other learners in a cooperative learning activity. You would want to look at Maria, Michel and Utapi's other marks for common fractions assessment to ensure that they understand the material well enough to help others.

## Reflection on resources

In addition, you should reflect on what resource(s) you used for teaching common fractions. If you are teaching straight from a text book, maybe you could consider using drill-and-practice programs that are on the school computers at the school. Or maybe you can have the learners watch a video on fractions to present the topic in a new way.

## Investigation of new ICT tools

ICTs can help you address learning challenges by presenting information in new and exciting ways. Module 2 in this series (*ICT Integration*) covers this issue in detail. ICTs present lessons using various multimedia resources, like video, computers, music and photographs that can stimulate learning, better convey concepts that may be difficult to teach in traditional ways, and develop learners' critical thinking skills. Technology can play a significant role in addressing all learning styles and developing a range of intelligences.

Learning style	ICT ideas to address this Learning Style
Visual learning	Show videos from e-encyclopaedias or on cassettes/DVDs to illustrate a topic. Ask learners to present a topic such as the water cycle, using pictures and diagrams in slideshow presentation. Have learners produce their own short videos or do photo scavenger hunt.
Auditory learning	Play music, videos/DVDs. Have learners use some of the sound clips in software such as e-encyclopaedias, to explain concepts. Have learners embed sound in slideshow presentation, or make their own recording or music.
Tactile/Kinesthetic learning	Any hands-on use of the learner with technology aids addresses this learning style. Ask learners to explain a concept that involves movement using the animation tools in slideshow presentation. Have learners do photo scavenger hunt. Use simulation software.

Multiple Intelligence type	ICT ideas to address this Intelligence
Verbal-Linguistic Intelligence	Allow time with word processor, encyclopedia and dictionary tools. Seek ways to incorporate these into the curriculum. Consider having learner discuss illustrations and drill with new words.
Logical-Mathematic Intelligence	Allow time with spreadsheets and database manager. Request charts and graphs. Set up a Crime Scene Investigation and have the learners use data-logging and spreadsheet to conduct a forensic analysis.
Musical Intelligence	Play music for your learners, for example, gentle music while doing maths. Ask them to interpret. Arrange opportunities to use Media/Real Players/JukeBox etc. to arrange artistic groups of music. Have learners write songs.
Visual-Spatial Intelligence	Expose to drawing features in word processors and spreadsheets. Use technology to create or to have learners create timelines, mind mapping, diagrams, photos, video and graphs. Introduce Digital Imagery software and Visio if possible.
Bodily-Kinesthetic Intelligence	Use video or digital photos in PowerPoint to demonstrate how to carry out a task or movement. Encourage the use of spreadsheet to track favourite teams, sports and personal performance. Encourage the use of Braille keyboard by visually impaired.
Interpersonal Intelligence	Use email and the web to help children work together. Desktop video conferencing through Instant Messenger can be used to bring in experts from outside the classroom and help children work collaboratively
Intrapersonal Intelligence	Have learners maintain logs, dairies, journals, etc. about his/her won feelings and experiences in word processor. Have them find ways to express themselves using ICT tool they enjoy and use. In addition, E-encyclopedias provide a wealth of information and multimedia resources and enables children to learn independently.
Naturalist Intelligence	Have learners take pictures on field trips. Use spreadsheet or database to categorise plants/animals and find connections in nature.
Existential Intelligence	Expose learners to existential questions through various multimedia such as picture of outer space. Have learners use word processor to write essays about their views.

Whatever ICT tool you identify as being able to help you improve learner performance, thoroughly evaluate and prepare for its use in the classroom.

## **Modify teaching strategy and resources**

Once you have evaluated some new ICT tools and resources, you should design a revised lesson plan integrating a new tool and/or resource to address the learning challenges that you identified in your evaluation of performance.

## **Evaluate modified teaching strategies**

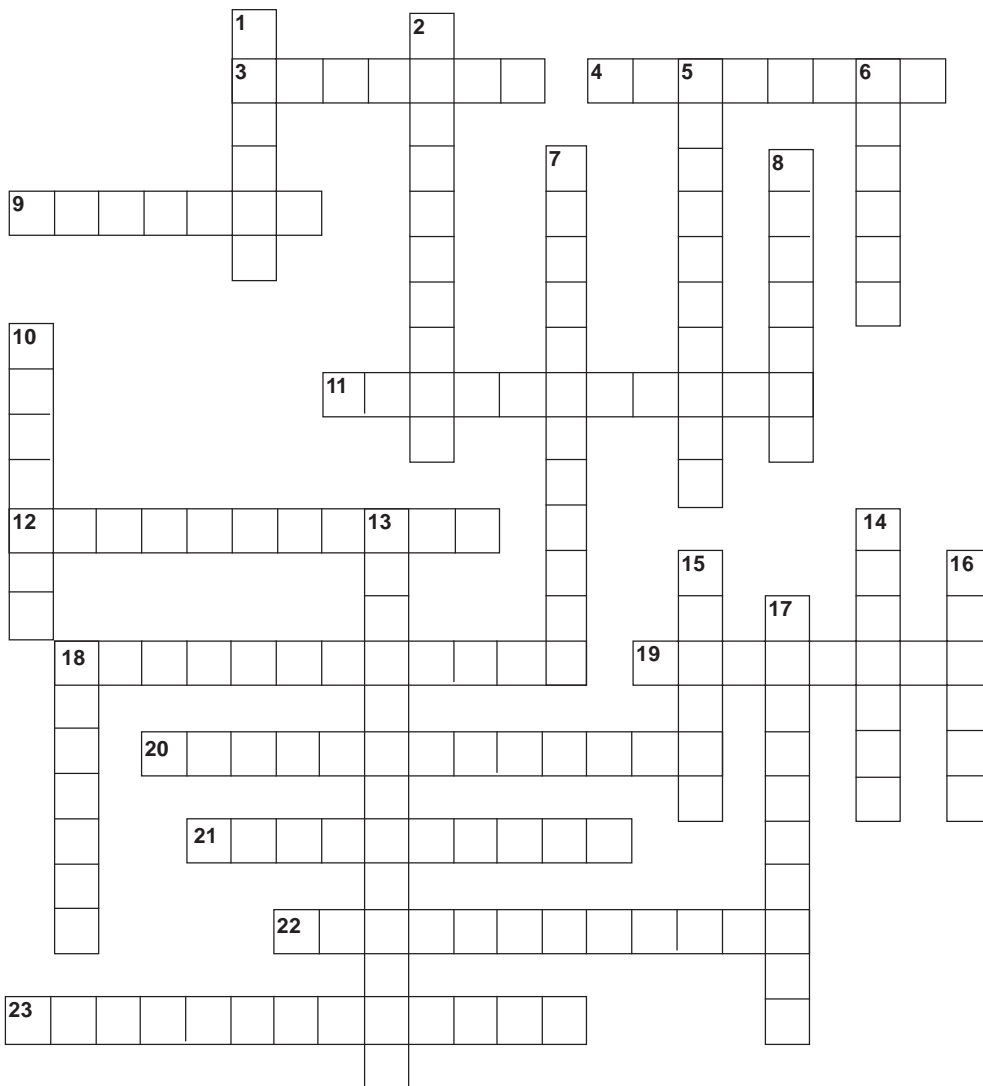
After you have presented this new lesson, you will naturally want to evaluate this new strategy and how the learners responded. Eventually, you will get new learner performance results to record, evaluate and determine if your new strategy was effective, and how you might improve even more.



## CHECK YOUR PROGRESS 5

### MODIFY TEACHING STRATEGIES AND RESOURCES BASED ON LEARNERS PERFORMANCE

1. Crossword Puzzle - clues on the next page





## CHECK YOUR PROGRESS 5

### ACROSS

- 3 Instructional design based on this is a complex process where learners attempt to convert information and data into useful knowledge
- 4 Learners with this dominant learning style learn best through listening
- 9 The ability to produce and appreciate rhythm defines this intelligence
- 11 This intelligence is defined by sensitivity and capacity to tackle deep questions about human existence
- 12 Learning technique defined by a set of processes which help learners interact together in order to accomplish a specific goal or develop an end product
- 18 Learner takes learning into their own hands in this learning method
- 19 Learning method that takes place in a setting functionally identical to that where the learning will be applied
- 20 The capacity to be self-aware and in tune with inner feelings defines this intelligence
- 21 This intelligence is defined by the ability to recognise and categorise plants, animals and other objects of nature
- 22 Learning in which an individual or group activity that goes on over a period of time, resulting in a product, presentation or performance
- 23 Learning method highlighting individual group members' abilities and contributions

### DOWN

- 1 Learners with this dominant learning style tend to think in pictures
- 2 This intelligence relates to one's verbal skills
- 5 Free, interactive dialogue between teacher and learners
- 6 3-D objects used for classroom instruction
- 7 Learning that serves to teach content by presenting learners with a real-world challenge or scenario
- 8 Learners with this dominant learning style get bored sitting and listening to teachers for extended periods of time



## CHECK YOUR PROGRESS 5

- 10 The ability to think conceptually and abstractly defines this intelligence
- 13 Someone with the capacity to detect and respond appropriately to the moods, motivations and desires of others is strong in this intelligence
- 14 Didactic form of teaching
- 15 Instructional design based on process of teaching and learning enabling learners to acquire knowledge and develop attitudes and skills
- 16 This intelligence is defined by the ability to control one's body movements and to hand objects skilfully
- 17 Combination of different media, including text, graphics, audio, video and animation, in one program or technology
- 18 The capacity to visualise accurately and abstractly defines this intelligence

2. The reasons we use different teaching strategies and resources are. Tick the appropriate answers:

- .. Educators need to be interested
- .. Learners have different learning styles
- .. Learners have different needs
- .. Educators have different teaching styles
- .. Availability of resources
- .. Availability of internet connection
- .. Numbers of learners in a class
- .. Different perceptions of learning
- .. Different perceptions of teaching

3. Explain the reasons for using learner performance results in modifying teaching strategies and resources.

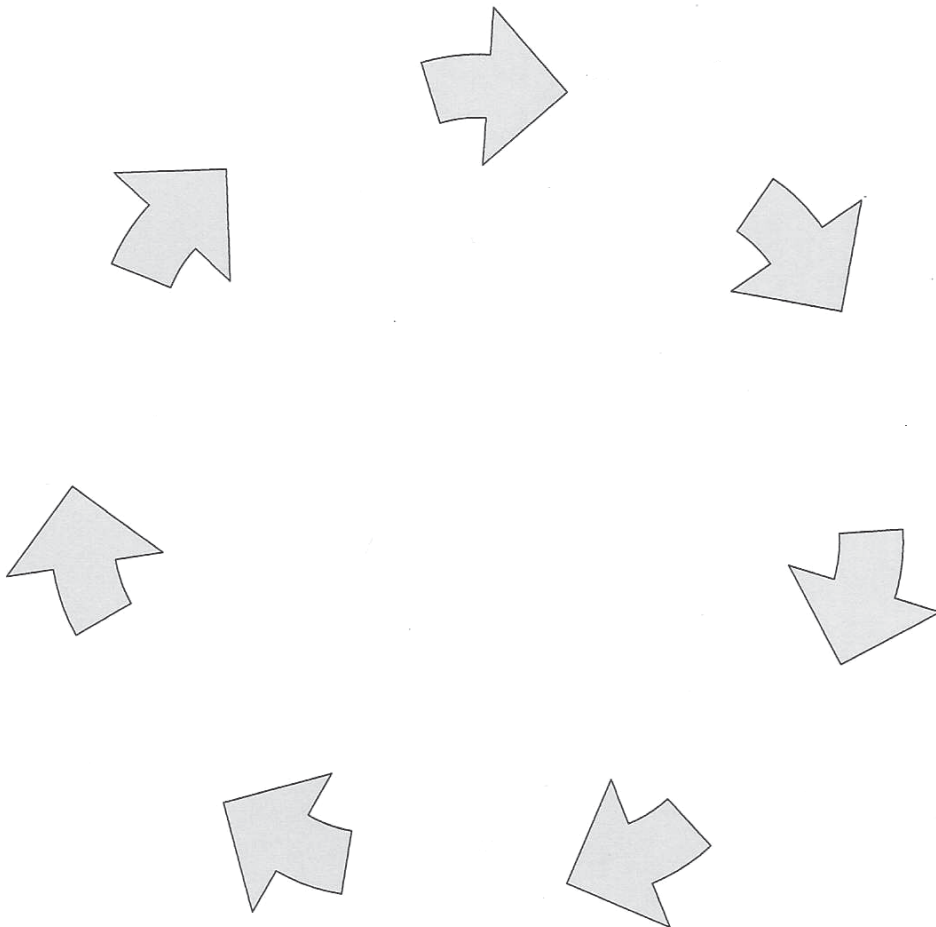
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## CHECK YOUR PROGRESS 5

4. Label the different steps to modifying teaching and learning strategies as described in this manual.





## PRACTICAL ACTIVITY 5

### **MODIFY TEACHING STRATEGIES AND RESOURCES BASED ON LEARNERS PERFORMANCE**

1. Use the *Checklist for Evaluating Teaching Strategies* or create your own modified version to evaluate the assessment you did for a topic. Determine if your assessment form was appropriate.
2. Take performance results you have evaluated. Use an ICT tool to modify your teaching strategy in a problem area highlighted in your evaluation. Prepare an evaluation strategy to determine if that new strategy worked better.

## Summary

Well done! You have completed Section 5 on *Modify teaching strategies and resources based on learners performance*.

You should now be confident that you relate ICT tools and resources to targeting all three learning styles and all nine multiple intelligences. You should be able to identify which teaching and learning strategies need to be modified after evaluating learner performance results, and use ICT to improve learner understanding and achievement.

If you feel confident that you have achieved the above, - congratulations! You have successfully completed the manual *Assess and evaluate learning using ICT applications*.

If you are unsure about anything, go back and revise or ask your instructor or supervisor for assistance.

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# Glossary

- Active learning : Learning environments that allow learners to talk and listen, read, write, and reflect as they approach course content through problem-solving exercises, informal small groups, simulations, case studies, role playing, and other activities – all of which require learners to apply what they are learning.
- Affective : influenced or resulting from one's emotions
- Anomaly (anomalies) : an irregularity or something that deviates or is different from what you expect. For example, a learner who regularly achieves higher than 70% in tests and exams, produces just one result of under 40%. The 40% mark could be classed as an anomaly.
- Cognitive : relating to, or involving conscious intellectual activity (as thinking, reasoning, or remembering)
- Collaborate : work together
- Formative assessment : any assessment made during the school year that is meant to improve learning and to help shape and direct the teaching-learning process. In this sense all continuous assessments are formative.
- Hypothesize : assume or make a theory about
- Inhibit : slow down or hinder
- Metacognitive : thinking about one's conscious intellectual activity, the monitoring of one's thinking for the critical thinking criteria as one is acquiring and assessing new information.
- Performance assessment 1 : a performance-based assessment approach that require learners to perform. Examples of performance assessment methods are: oral presentation, science lab demonstration, debate or musical recital.
- Qualitative data : data that is a numerical form, for example test scores, percentages etc

- Quantative data : data that may be in the form of text, images, sound or video recordings. Any data that is not numerical.
- Reliable assessment : Reliability means that your assessment results must be consistent. The marks from an assessment are consistent if: for example, two teaches mark the same group of learners' answer scripts and award the same marks, a leaner gets, for the same work, the same marks today as five days from now and the learner's response to another set of questions on the same topic are very similar.
- Stakeholder : A group of individuals who are interested in working towards similar goals and objectives when resolving a particular issue.
- Statistical analysis: Statistical analysis refers to a collection of methods used to process large amounts of data and report overall trends. Statistical analysis is particularly useful when dealing with noisy data. Statistical analysis provides ways to objectively report on how unusual an event is based on historical data.
- Valid assessment: Validity means that your assessment is testing the prescribed objectives that it is supposed to test. Marks from the assessment are valid if the content of the assessment matches what the learners actually studied.
- Visualize : see a picture or image in your mind's eye



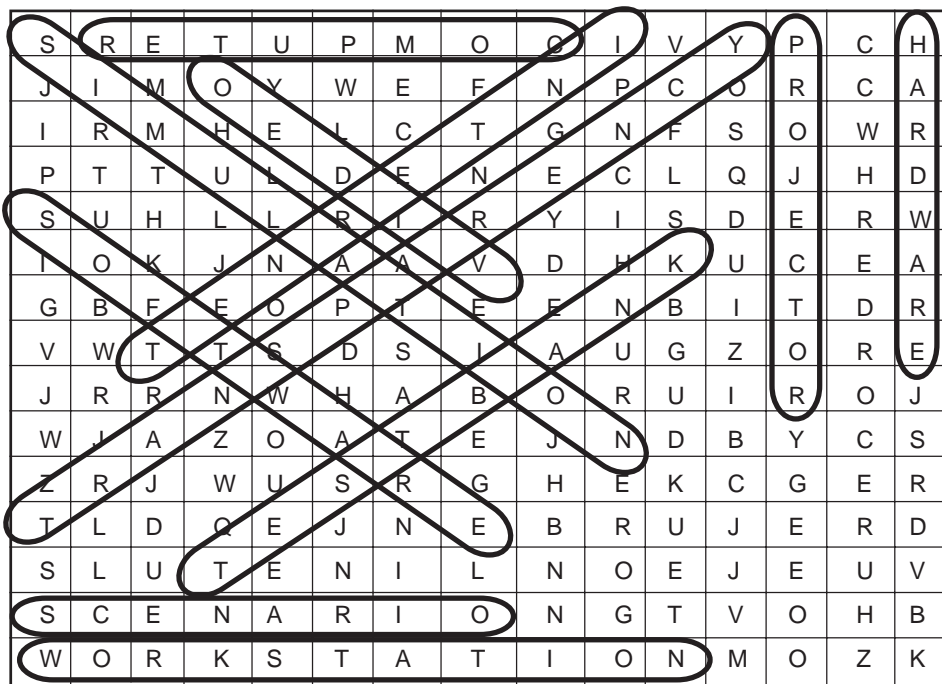
Write down additional words that you do not understand.  
Ask your instructor to explain the meaning of those words.

# Answers to check your progress

## Check your progress 1

1. The reasons for using ICTs to assess learner attainment of curriculum outcomes are:
  - a) Provides for increased **standardisation**.
  - b) **Relieves** teacher workloads.
  - c) Offers timely, if not immediate, **feedback**.
  - d) **Increases** learner motivation.
  - e) Allows **greater** flexibility.
  - f) Addresses special **needs**.
  - g) Presents **information** in a variety of ways.
  - h) **Personalisation**.

### 2. Word Search answers



### 3. Learners' ICT Skills

- Do all the learners have the necessary ICT skills to complete the assessment?
- Have appropriate educative resources been made available to address the issue of ICT skills?

#### **Access to ICT facilities**

- Is learner access to assessment tasks and related material assured?
- Does the design of the task ensure learners without access to computers at home are not disadvantaged?
- Has the potential issue of access to school computers been addressed? Will it be time consuming, expensive for learners to travel to and/or get access to ICTs.
- Has equity been ensured in relation to the cost of students printing large amounts of material?

#### **Quality of teaching and learning**

- Does the on-line assessment assess anything that can't be assessed as well (or more effectively) in a traditional format?
- Have greater opportunities been provided for students to practise their knowledge and skills than are available in traditional formats?
- Has the highly valued and expected flexibility of time-of-day access, pace of work and time spent on task been incorporated?
- Is learning related to subject content knowledge, understanding and skills being assessed rather than, or in addition to, ICT skills?
- If relevant, have opportunities for learners to demonstrate creativity in their submissions, which is possible with other forms of assessment, been incorporated?
- Has the opportunity to plagiarise been eliminated or at least minimised?
- Has the tendency, particularly where automated responses are incorporated, to focus on lower level cognitive skills been avoided or at least, supplemented with assessment of higher order learning?
- Are mechanisms to enable rapid feedback both to and from the students included?
- Are examples of model assignments/exam answers on the web for student access, consideration and discussion?

#### **For online examinations in particular**

- Have practice on-line exams in the same format as the real exam been provided so students can prepare adequately?
- Are all answers able to be changed by the student up until the point where the test is submitted?
- Have question banks and random selection of items been used, where appropriate?
- Have dynamic on-line test questions that are in themselves learning experiences been provided, incorporating rich information and activities through the use of interactive images, sound and text?

### **Technical and administrative issues**

- Has interference to the on-line assessment from scheduled maintenance periods been planned for?
- Has the system been kept as local as possible so that reliance on large (less reliable) networks is minimal?
- Will the difficulties that some learners have with passwords, access, usage and related issues be adequately managed by the system?
- Where a range of computers and software packages are in use among learners and staff, has the potential issue of compatibility and readability of files containing assignments that are submitted electronically been planned for?
- Have simple but time consuming matters, such as students forgetting to put their names on electronically submitted assignments, been planned for?

### **For online tests and exams in particular**

- Has adequate technical support during the development and use of on-line exams been ensured? Have emergency backup procedures been put in place?
  - Has the server containing the exam questions been isolated from the internet in order to maintain security?
  - Is the server reliable?
4. Four stages to go through when assessing learner attainment are:
    - a) Extract the assessment criteria from curriculum goals
    - b) Decide whether the assessment uses ICT skills the learners have already gained
    - c) Design your assessment tool
    - d) Apply your assessment tool
  5. After learners complete their ICT-based assessment activity, it needs to be evaluated to ensure validity and reliability.

6. Questions to ask yourself when evaluating an ICT assessment activity (any four):
- Did learners understand the instructions?
  - Was the given time enough to complete the assessment?
  - Is there an indication that any learners cheated?
  - Did learners have the necessary ICT skills to complete the assessment to the best of their cognitive ability?
  - Did the technology work properly?
  - Did all learners have equal access to facilities for assessment?
  - Were there any problems for learners to access the facilities?
  - Were arrangements for learners with special needs adequate?
  - Did groups work well together (if applicable)?
  - Did learners appear motivated, especially in the absence of marks/grades?

## Check your progress 2

### 1. Crossword

	<sup>1</sup> E		<sup>2</sup> P		<sup>3</sup> S	T	A	T	I	S	T	I	C	S			<sup>4</sup> A	
	V		D														N	
<sup>5</sup> D	A	T	A										W				A	
	L												O				L	
<sup>7</sup> A	U	D	I	O									R				Y	
	A							<sup>8</sup> S	P	R	E	A	D	S	H	E	E	T
<sup>9</sup> S	T	I	C	K									P				I	
	I					<sup>10</sup> T				<sup>11</sup> V		R					C	
<sup>12</sup> M	O	N	I	T	O	R				I		O					A	
	N					A				S		C					L	
						<sup>13</sup> C	O	M	P	U	T	E	R					
	<sup>14</sup> S					K				A		S						
	O									L		S						
<sup>15</sup> G	R	A	P	H	I	C	A	L				O						
	T											R						

2. Two main reasons for using ICTs to record learner performance are:
- a) to monitor learner performance

b) to evaluate learner's performance

3:

- a) Use spreadsheet when your data is mostly numerical in nature. This way you can use formulas to analyse and create graphs/charts of the information very easily.
- b) Use a camera when you are documenting learner demonstrating observable skills and knowledge (e.g. take a picture of a project that was made).
- c) Use a word processor when you want to record your observations in a journal format or create a table for a rubric.

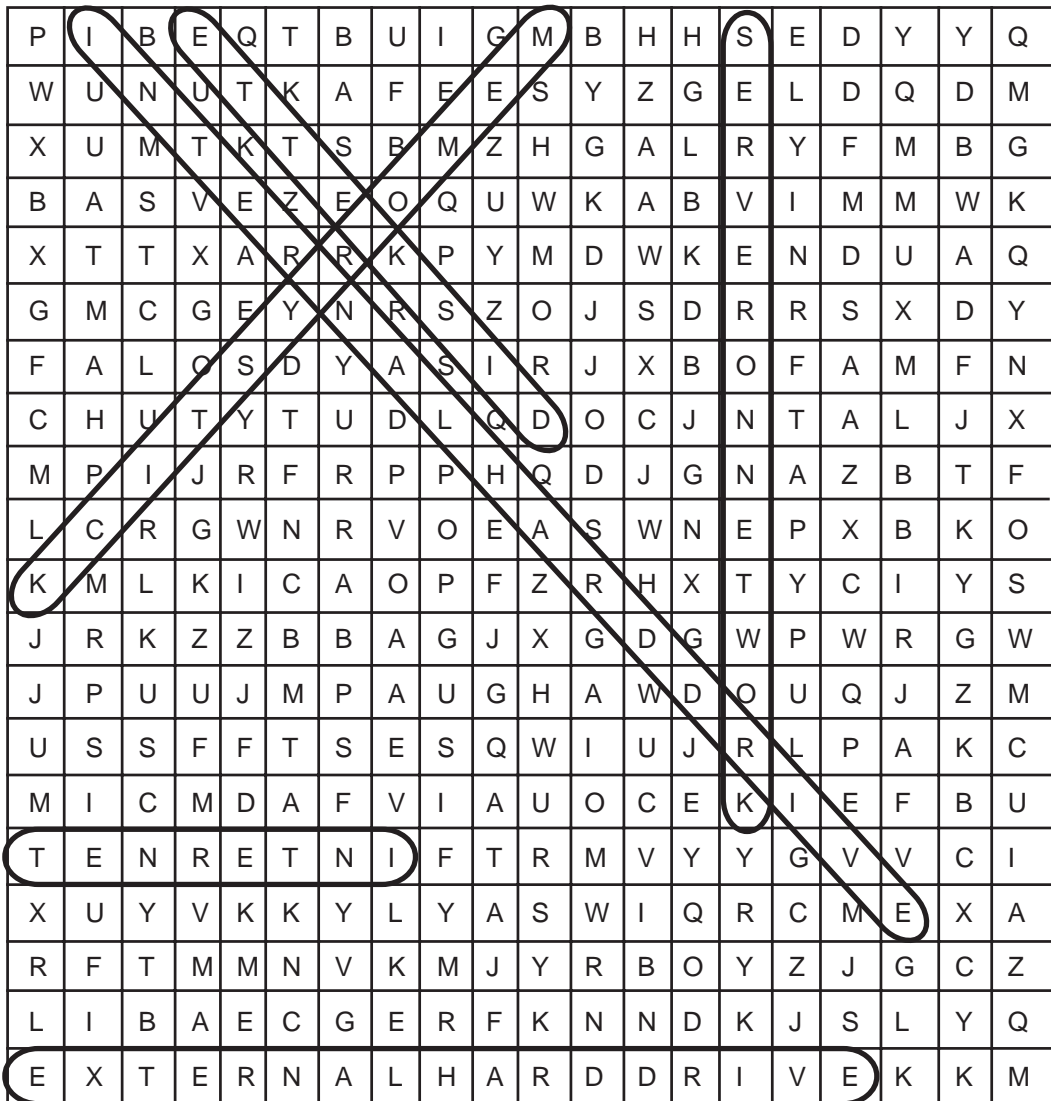
4. Tools available for recording learner performance results are:

Video recorder	DVD/CD recorder/writer
Computer workstation	PDA's
Word-processing software	Audio tape recorder
Spreadsheet software	

5.

- a) False, you can only save ONCE to a CD-R. Use a CD-RW if you want to continually save on a CD format.
- b) False, a floppy diskette is notorious for becoming corrupt and erasing all information saved onto it.
- c) True.
- d) True.

6. Word search



7. Three steps to follow to store learner performance results, are:

1. Save
2. Name
3. Store

### Check Your Progress 3

1. Categorise

**Formal Assessment**

short tests

quizzes

oral examinations

performance assessment tasks

examinations

projects

portfolios

### **Informal Assessment**

questioning a learner

observing a learner work

reviewing a learner's homework

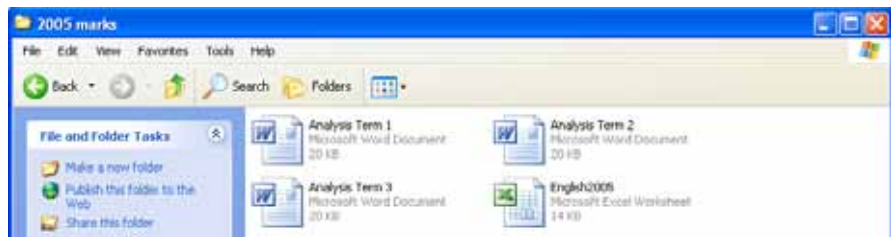
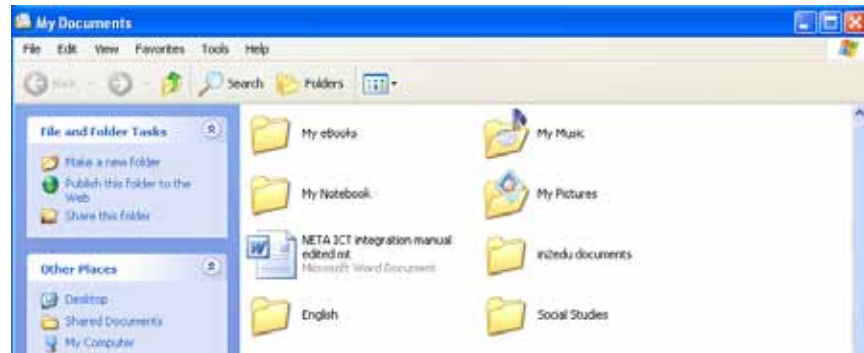
talking to a learner

listening to a learner during reflection

peer and self-assessment

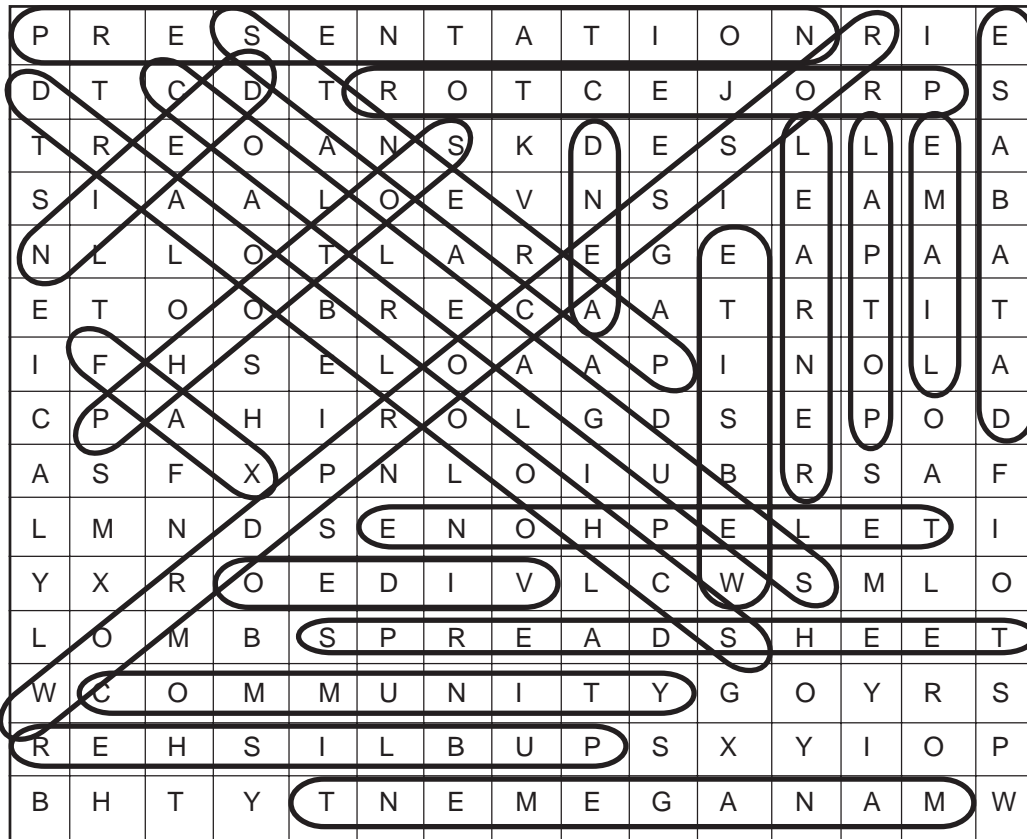
2. There are several uses of learner performance results. They include tracking learner performance over a period of time, using the results for problem-solving, logical analysis, statistical analysis, reflection on teaching and learning strategies used for specific lessons, and to communicate the results in a meaningful manner to various stakeholders.
3. First find the class average for each test and each learner's average mark. Create various graphs to better visual the performance and interpret what learners did well in and where there appear to be some learning difficulties. Compare each learner to the average for each test and identify a trend if there exists one. This could also allow you to compare the results of individual learners for your subject to results in other classes to identify trends, strengths and weaknesses as well.
4. Overall, it appears that learner performance is strengthening. There are only a couple learners who did not improve their scores on test 3. You may want to talk to these learners individually and see what might be the problem, and use this information for improving teaching strategies. Perhaps you can use the learners that seem to understand the material well help those that are struggling.

5. Label and order



## Check Your Progress 4

### 1. Word Search

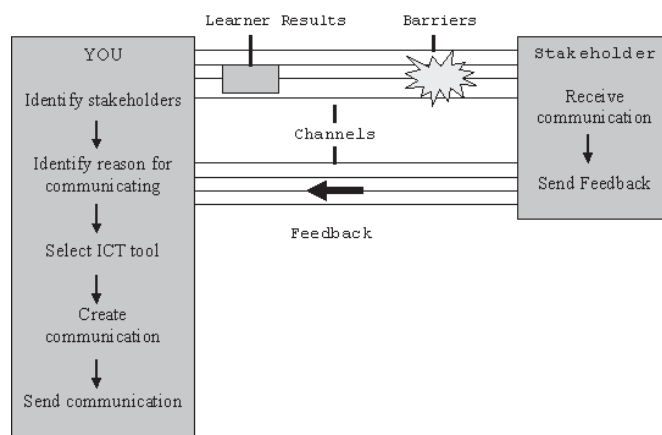


### 2. Steps to the communication process:

1. **Identifying stakeholders** – Who are you going to tell?
2. **Creating communication** – In what form will you transmit the learner performance results?
3. **Identifying channels** – What communication networks will you use?
4. **Identifying barriers** – What will inhibit communication, particularly using the chosen channel(s)? Do you still agree this is the correct channel given the barriers?
5. **Informing stakeholders** – When will you inform the stakeholders? How long do you anticipate the process to take?
6. **Receiving feedback** – What feedback are you asking for from the stakeholders and what form will it take? How long do you anticipate it to take to receive the feedback?

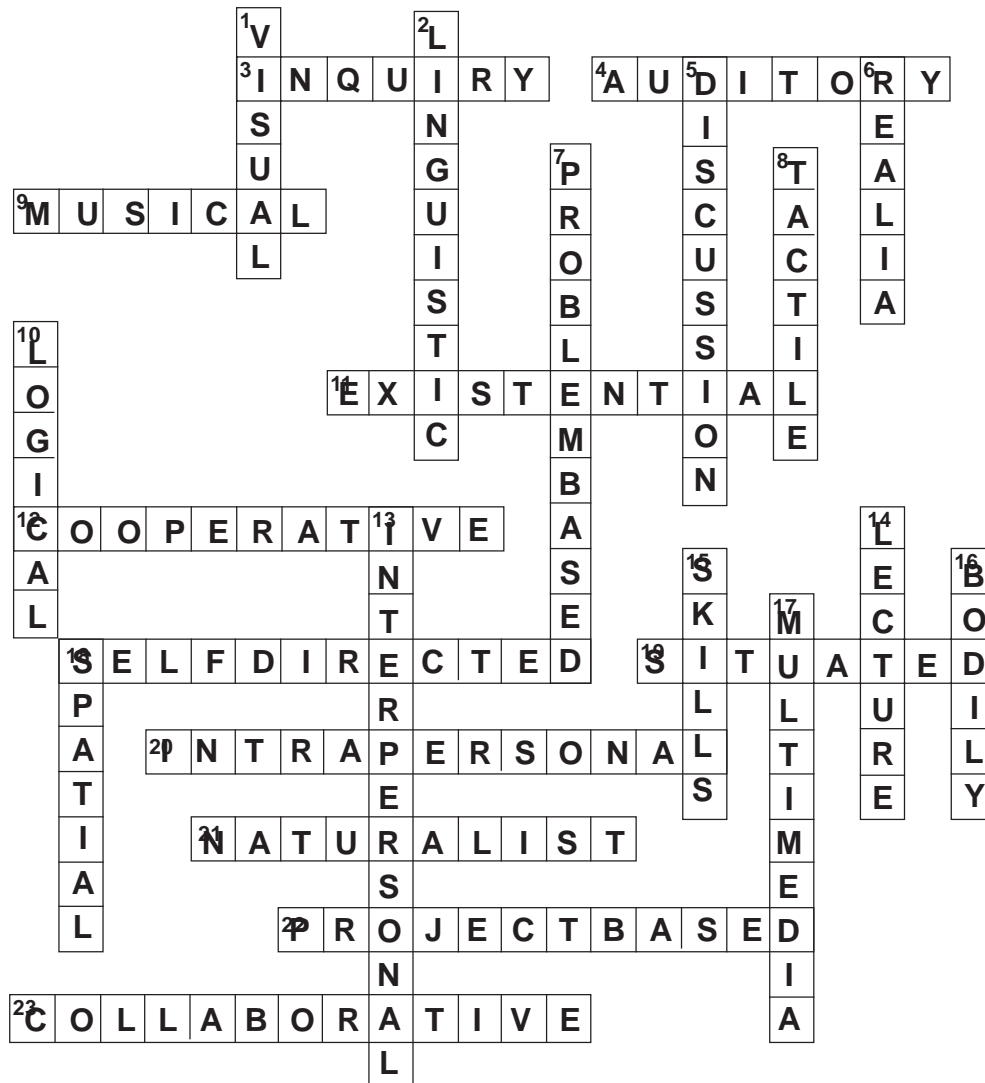
### 3. Reasons for communicating with stakeholders, are:

3. **1. Transparency and accountability** – Your school administration as well as the Ministry of Education needs to know how learners are performing and ensure that learning is occurring.
  - 2. Involvement of stakeholders in learner performance** – As mentioned, it is generally accepted that when schools work together with families to support learning, children tend to succeed not just in school, but throughout life. In fact, the most accurate predictor of a learner’s achievement in school is not income or social status, but the extent to which that learner’s family is involved. All stakeholders have interest in seeing learners succeed and they should all be made aware of the progression taking place.
  - 3. Problem-solving assistance** – Informing various people of learner performance results can bring collaborative thinking on how to improve performance
  - 4. Improvement of performance** – These reports can inform future decisions that will be made regarding education, by the school and by Ministry of Education officials. For instance, if learners are doing poorly at decimal fractions, perhaps this will drive education officers to purchase teaching aids and materials for this area. In addition, learners will benefit enormously from your feedback and will be able develop their strengths and improve their weaknesses. Parental involvement in these matters will also improve children’s performance.
4. ICT tools to communicate learner performance result: e-mail, telephone, fax, presentation applications
  5. Label the Diagram



## Check Your Progress 5

### 1. Crossword solution



2. The reasons we use different teaching strategies and resources are:

Tick the appropriate answers:

Learners have different learning styles

Learners have different needs

Availability of resources

Numbers of learners in a class

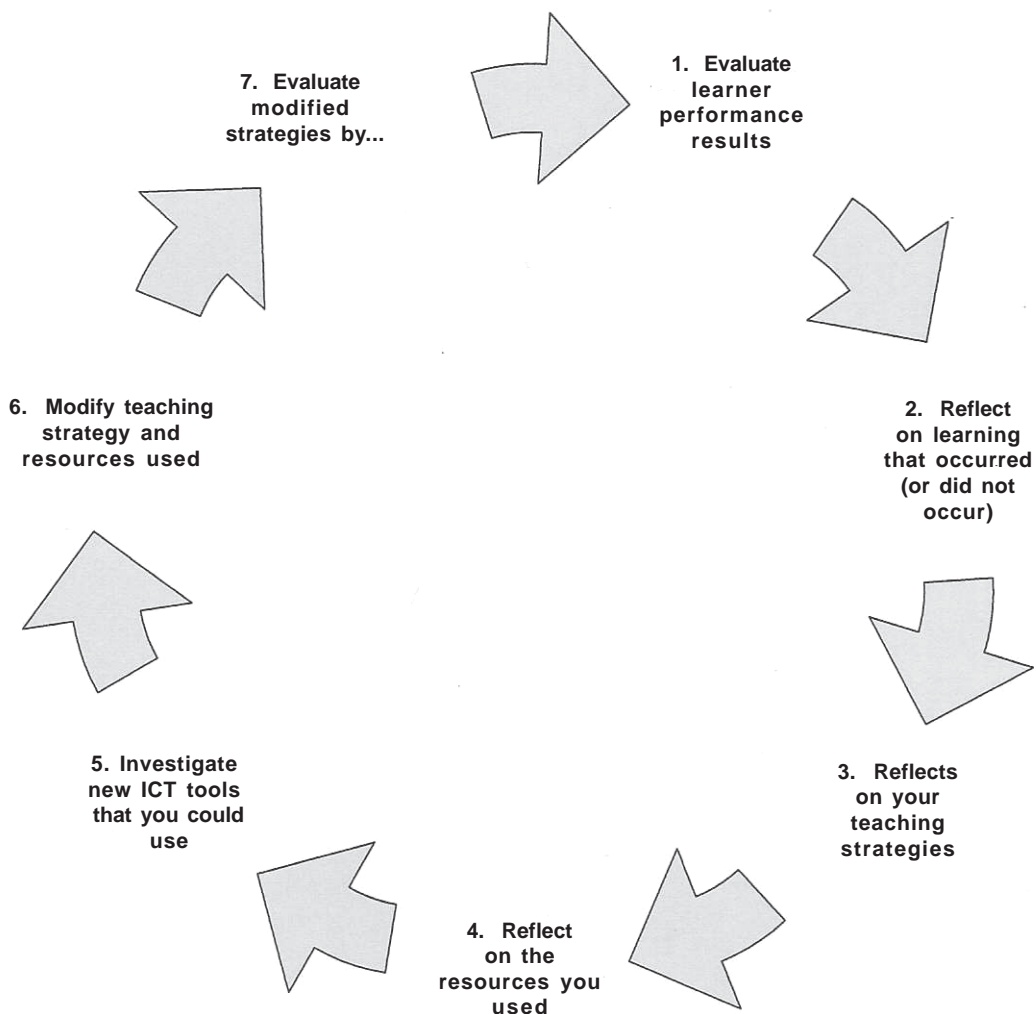
Different perceptions of learning

3. When mismatches exist between learning styles of learners in a class and your teaching style, learners may become bored and inattentive in class, do poorly on exams, and get discouraged about the subject, the curriculum and themselves. In the most severe cases, learners may drop out of school. On the other

hand, you may become overly critical of your learners (making things even worse) or begin to wonder if you are in the right profession. To overcome these problems, professors should strive for a balance of instructional methods, and not strive to teach each learner exclusively according to his or her preferences. If a balance is achieved, all learners will be taught partly in a manner they prefer, which leads to an increased comfort level and willingness to learn.

You also want to make sure you are using the best assessment method for the teaching strategy that you used for a particular topic or lesson.

4. Label the Diagram



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